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WaveStar® OLS 1.6T (400G/800G)

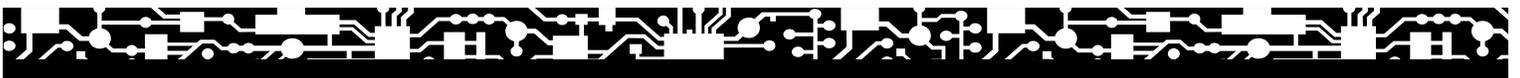## Operations Systems Engineering Guide (OSEG)

Release 6.2

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WaveStar® OLS 1.6T (400G/800G)
Operations Systems Engineering Guide (OSEG)
Release 6.2
365-575-716R6.2   Issue 1   July 2002

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Organization	☐	☐	☐	☐	☐	☐
Completeness	☐	☐	☐	☐	☐	☐
Technical accuracy	☐	☐	☐	☐	☐	☐
Quality of translation	☐	☐	☐	☐	☐	☐
Appearance	☐	☐	☐	☐	☐	☐

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Contents

About this information product

Purpose   This document provides information about the *WaveStar® (OLS) 1.6T (400G/800G)* TL1 operations system (OS) interface. The OLS Transaction Language 1 (TL1) interface communicates alarm, status, and control information to/from the alarm surveillance OS. The interface is based on Bellcore TR-TSY-000833, Issue 3, Revision 1, and TR-NWT-000833, Issue 1, Supplement 1. The OLS TL1 interface also supports performance-monitoring (PM) threshold-crossing alerts (TCAs) and retrievals of current and historical PM data.

Safety labels   Refer to the *WaveStar® OLS 1.6T (400G/800G) User/Service Manual* (U/SM) for information on safety labels for the WaveStar® OLS 1.6T.

Intended audience   This document is written primarily for network operations planners, facility maintenance center personnel, transmission engineers, and technical support staff. It may be used by anyone desiring specific information about the OS interfaces of the OLS 1.6T.

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v i i

How to use this information product

The "About This Document" section provides a brief description about the purpose and document contents. The section "OLS TL1 Message Details" provides detailed information on these TL1 Messages. Appendix A provides detailed information about ASAP profiles and allowable values for specified parameters. The Glossary provides specialized terms with brief description.

Conventions used

All alphabetic characters in the TL1 command responses and autonomous messages are output in uppercase except access identifier (***aid***), condition description (***conddescr***), alarm message description (***almmsg***), and error text. The aid is displayed in lowercase in the user interface, and the same is done for the TL1 interface. The c*ondescr*, ***almmsg***, and error test are output in mixed case for readability.

Related documentation

The *WaveStar® OLS 1.6T OSEG*is part of a set of documents that support the WaveStar® OLS 1.6T system. The following documents are included in the set

Select Code	Document Title
365-575-713R6.2	*WaveStar® OLS 1.6T (400G/800G) Applications Planning Guide (APG)*
365-575-715R6.2	*WaveStar® OLS 1.6T (400G/800G) User/Service Guide (U/SM)*
365-575-714R6.2	*WaveStar® OLS 1.6T (400G/800G) Applications Ordering Guide (AOG)*
365-575-717R6.2	*WaveStar® OLS 1.6T (400G/800G) Installation Manual (IM)*
365-575-718R6.2	*WaveStar® OLS 1.6T (400G/800G) System Turn-up Services (STS)*
365-575-719R6.2	*WaveStar® OLS 1.6T (400G/800G) Installation Manual and System Turn-up Services*
365-575-793	*WaveStar® OLS 1.6T (400G/800G) Long Single Span Application and Raman Shelf Offering*
Comcode 109249029	*WaveStar® OLS 1.6T (400G/800G) Software Release Description (SRD)*

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What's new   The following 18 commands have been modified or created for Release 6.2:

· ED-ASAP-PROF	· PROV-SYS
· ENT-OLPP	· RTRV-ASAP-PROF
· ENT-OSI	· RTRV-LOG
· ENT-OTPS	· RTRV-OLPP
· ENT-RMA	· RTRV-OTPS
· ENT-SYS	· RTRV-PM-OTPS
· ENT-TSB	· RTRV-SLOT-STATUS
· INIT-SWD	· RTRV-TH-OTPS
· INIT-SYS	· SET-TH-OTPS

The remaining pages, dated December 2001, are unchanged from Release 6.1.

1 TL1 Message Details

Overview

Purpose This section provides detailed information about the input and output parameters for the *WaveStar® OLS 1.6T* -supported TL1 commands. Both autonomous messages (generated by the network element independent of any request) and command/response messages (generated in response to a request from the OS or OS user) are supported.

All alphabetic characters in the TL1 command responses and autonomous messages are output in uppercase except access identifier (*aid*), condition description (*conddescr*), alarm message description (*almmsg*), and error text. The aid is displayed in lowercase in the user interface, and the same is done for the TL1 interface. The *condescr*, *almmsg*, and error test are output in mixed case for readability.

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Chapter 1

Overview

This section provides detailed information about the input and output parameters for the WaveStar OLS 1.6T supported TL1 commands. Both autonomous messages (generated by the network element independent of any request) and command/response messages (generated in response to a request from the OS or OS user) are supported.

All alphabetic characters in the TL1 command responses and autonomous messages are output in uppercase except access identifier (*aid*), condition description (*conddescr*), alarm message description (*almmsg*), and error text. The aid is displayed in lowercase in the user interface, and the same is done for the TL1 interface. The *conddescr*, *almmsg*, and error text are output in mixed case for readability.

ABORT-DB-BACKUP

ABORT-DB-BACKUP: Abort Database Backup

This command is available starting in WaveStar OLS 1.6T release 3.

The User Privilege Code (UPC) for this command is Security Level 5 (S5).

INPUT FORMAT

ABORT-DB-BACKUP:*tid*::*ctag;*

DESCRIPTION

The ABORT-DB-BACKUP command can be initiated by users to abort an in-progress backup of the database from the backup partition of the Flash Memory Module (FMM) to a remote system. (Note that only one active backup to a remote system is allowed at any given time.)

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the ABORT-DB-BACKUP request, the following normal completion response is returned:

```
    IP ctag

    <


        tid date time

    M  ctag COMPLD

    ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of a ABORT-DB-BACKUP command for a WaveStar OLS 1.6T system to abort an in-progress database backup from the backup partition of the Flash Memory Module (FMM) to a remote system.

```
    ABORT-DB-BACKUP:OLS-400G::123456;



    IP 123456

    <


        OLS-400G 99-02-25 09:39:47

    M  123456 COMPLD

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the local NE has no database backup in progress, the following error response will be returned:

```
   tid date time
M  ctag DENY
   SROF
   /* Status, Requested Operation Failed, no database backup to a
remote system is in progress on the local Network Element */
;
```

RELATED TL1 COMMANDS/MESSAGES

BACKUP-DB

ACT-USER

ACT-USER: Activate User

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ACT-USER:_tid_**:**_uid_**:**_ctag_**::**_pid_**:[**_year_digits_**]:[**_msg_format_**];**

DESCRIPTION

The **ACT-USER** command can be initiated to set up a session to the network element.

An active TL1 access login session is required at each NE TL1 interface in order to interact with that NE.

A maximum of one active login session is allowed per network element, per access channel. Any subsequent login attempt while a session is still active is denied.

This command is available only to Super users when the NE is in the locked state (that is, all non-Super user logins are inhibited).

Until a successful login attempt is completed for a given network element, there is no communication outbound from the network element, except to DENY unsuccessful login attempts.

If a user's password has expired upon execution of the **ACT-USER** command, the **ACT-USER** will be accepted but that user will not be able to perform any function, or receive any autonomous message output until the associated password has successfully been modified.

A special banner message will be displayed as part of the command completion response, informing the user that the password has expired and must be updated (see the **OUTPUT FORMAT** section). The only action then allowed for the user is to change the password identifier via the **ED-PID** command.

The user is only given one chance to execute a valid ED-PID command.

When the network element receives an **ACT-USER** command, the given user ID will initiate a login session on the network element provided that:
- A provisioned user ID and correct password are entered, and
- Network element login security is enabled (for non-Super users only).
- The user ID lockout period is over when login attempts exceed the user ID lockout threshold.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

User identifier. This is the unique user login identifier for which the `ACT-USER` login command is intended.

Valid *uid* values for the `ACT-USER` command are case-sensitive alphanumeric strings of 1 to 10 characters which have been previously provisioned as valid login IDs in the network element.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pid

Private identifier. This required parameter is the confidential password authenticator for the given *uid*.

Valid *pid* values consist of case-sensitive strings of six to ten alphanumeric and symbolic characters, where at least one is alphabetic, one is numeric, and one is symbolic. Password must not contain the user's own uid and the uid is case-insensitive.

Password strings are transmitted in unencrypted form from the CIT or OS to the network element. They are encrypted when stored in the network element. They are never transmitted from the network element.

year_digits

Year digits. This optional parameter is used to cause the year in the header of reports and messages from the NE to be shown as four digits.

The only valid value for this parameter is **4**. If the *year_digits* parameter with a value of 4 is included in an ACT-USER command then for the remainder of that session for that user ID the year will be represented as four digits (for example, as 2000). If the *year_digits* parameter is not included in an ACT-USER command then for the remainder of that session for that user ID the year will be represented as two digits (for example, as 00).

msg_format

Message format. This optional parameter is used to send a fixed string or a NULL for the user-provisioned parameters found within the <conddescr> (condition description) and the <aid> (Access Identifier) in all autonomous messages for the remainder of that session.

The only valid value for this parameter is **fixed**. If the *msg_format* parameter with a value of **fixed** is included in an ACT-USER command then for the remainder of that session for that user ID all autonomous messages will not contain any user-provisioned parameters for the remainder of that session. If the *msg_format* parameter is not included in an ACT-USER command then the user-provisioned parameters will be passed by the autonomous messages for the remainder of that session.

The following requirements determine the behavior of the output of autonomous messages when the *msg_format* paramter is set to a value of **fixed**:
1. The <conddescr> (condition description) string for the condition "provisionedcontrolpt" shall be displayed as "control <n>" (n is 1..36) and the <almmsg> (alarm message) string for the condition "provisionedenvironment" shall be displayed as "environment <n>" (n is 1..144).
2. The <conddescr> (condition description) string shall not contain any *aid*'s (Access Identifier) within the string.
Note: If the condition description string contains the *cmptcode* at the end of the string, either "COMPLD" or "DENY" shall be displayed with no embedded *aid* (Access Identifier).
3. The <conddescr> (condition description) string shall not contain any *tid*'s (Target Identifier) within the string.
4. The <conddescr> (condition description) string shall not contain any *user-id*'s within the string.
5. The <conddescr> (condition description) string shall not contain any *correlator*'s within the string.
6. For the <aid> (Access Identifier) parameter, any *user-id* shall be replaced with the string "CMD-RESP".

Symbolic characters:
! ' ( ) * + - . / < > [ ] ^ ' { | } ~

Numeric characters:
0 1 2 3 4 5 6 7 8 9

Alphabetic characters:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

OUTPUT FORMAT

If the login request completes successfully, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

    "uid:lastdate,lasttime,attempts,systype,release_number,uap"

    /*  Lucent Technologies <system>

    <release>

    User Access Privilege: <privilege>

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    */

;
```

If the network element receives a valid **ACT-USER** command and the addressed *uid* is already currently logged in on the same access channel, the network element provides a normal completion response.

The string `WaveStar OLS 1.6T` is used for the `<system>` value.

The `<release>` string is of the form:

`1.6T_RELEASE_x.y.z-1600`

where `x.y.z` reflects the actual software release number.

uap

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
>   **S[0-5]**
>> For **S**ecurity Administration Authorization Level 0 through 5.
>   **P[0-5]**
>> For **P**rovisioning Authorization Level 0 through 5.
>   **PM[0-5]**
>> For **P**erformance **M**onitoring Authorization Level 0 through 5.
>   **M[0-5]**
>> For **M**aintenance Authorization Level 0 through 5.
>   **T[0-5]**
>> For **T**est Access Authorization Level 0 through 5.

M[0-5]
>   For **M**aintenance Authorization Level 0 through 5.

T[0-5]
>   For **T**est Access Authorization Level 0 through 5.

If the login request would otherwise complete successfully, but the user's password has expired, the following completion response is returned:

```
    sid date time

M  ctag PRTL

    "uid:lastdate,lasttime,attempts,systype,release,upc"

    /* Your password has expired.  Until you change your

    password (ED-PID) you will not be allowed further

    access to this Network Element */

;
```

Note that if the password must be changed to login successfully, only one attempt at the **ED-PID** is allowed. If that attempt is denied, the network element returns to a mode in which it is expecting an **ACT-USER** command on that access channel.

OUTPUT PARAMETERS

The output parameters *sid*, *date*, *time*, and *ctag* included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. The remainder of the output parameter variables are described below.

uid

User Identifier. This is included in the output to confirm that the given user identifier is successfully logged in.

lastlog

(not used)

attempts

This is the number of unsuccessful session attempts since the last successful login session on this network element.

Users are given a provisioned number of login attempts (the user ID lockout threshold). The original value is five. If they are unsuccessful after the provisioned number of login attempts, the login shall be denied until the lockout period expires. After the lockout period expires, the user ID lockout

threshold shall be reset to the provisioned value.

The ouput parameter variables described below are unique to OLS 1.6T.

lastdate

> The date of the last session established by this *uid*. This has the format YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment. If no information is available regarding the last login session for this *uid* (for example, this is the first login session), this output field is null.

lasttime

> The time of the last session established by this *uid*. It is output in the format "HH-MM-SS". If no information is available regarding the last login session for this *uid* (for example, this is the first login session), this output field is null.

systype

> The string "WaveStar_OLS_1.6T" is used for the systype value.

release_number

This is of the form `x.y.z` where `x.y.z` reflects the actual software release number.

uap

> This is the same as the `<privilege>` value described in the OUTPUT FORMAT section above.

EXAMPLE INPUT/OUTPUT

No response message is transmitted except to convey that the login is granted (or denied). The following example shows a successful login session initiation attempt.

```
ACT-USER:LT-400G:PeterPan:123456::N*v*rL*d3;

IP 123456

<

   LT-400G 99-07-03 16:42:11

M  123456 COMPLD

   "PeterPan:99-07-03,16-39-27,1,WaveStar_OLS_1.6T,

   2.0.0,S1&P2&PM3&M2&T4"

   /*  Lucent Technologies WaveStar OLS 1.6T

   1.6T_RELEASE_2.0.0-1600

   User Privilege Level: S1&P2&PM3&M2&T4

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    */

 ;
```

The following example shows a successful login session initiation using the optional *year_digits* parameter and the optional *msg_format* parameter.

```
ACT-USER:LT-400G:PeterPan:123456::N*v*rL*d3:4:fixed;

IP 123456

<

    LT-400G 2000-07-03 16:42:11

M  123456 COMPLD

    "PeterPan:00-07-03,16-39-27,1,WaveStar_OLS_1.6T,

    2.0.0,S1&P2&PM3&M2&T4"

    /*  Lucent Technologies WaveStar OLS 1.6T

    1.6T_RELEASE_2.0.0-1600

    User Privilege Level: S1&P2&PM3&M2&T4

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    LUCENT TECHNOLOGIES AND CUSTOMER.

    UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.

    */

  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ACT-USER** command.

If the network element receives an **ACT-USER** command with an invalid *uid*, invalid *pid* or both, or if a different login session is already active on the access channel or logins are disabled, the following error response is returned:

```
    sid date time

M  ctag DENY

    DENY

    /* Login Failed */

  ;
```

 If the network element receives an ACT-USER command via the OS-OSI interface while the NE reset is in progress, the following error response is returned:

```
    sid date time
M  ctag DENY
    DENY
    /* Login Failed - NE reset in progress */
  ;
```

If the network element receives an **ACT-USER** command with an invalid value for *year_digits*, the following error response is returned:

```
    sid date time

M   ctag DENY

    DENY

    /* Login Failed */

;
```

If the network element receives an **ACT-USER** command with an invalid value for *msg_format*, the following error response is returned:

```
    sid date time

M   ctag DENY

    DENY

    /* Login Failed */

;
```

RELATED TL1 COMMANDS/MESSAGES

CANC-USER
ED-PID
DLT-USER-SECU
ENT-USER-SECU
RTRV-USER-SECU

ED-USER-SECU

ALW-FMM-RMVL

ALW-FMM-RMVL: Allow Flash Memory Module Removal

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

INPUT FORMAT

ALW-FMM-RMVL:*tid*::*ctag***;**

DESCRIPTION

When a Network Element (NE) receives an **ALW-FMM-RMVL** command from a user, the NE enables removal of the Flash Memory Module (FMM) located in the BOS1 Circuit Pack (CP) serving as the System Controller. The NE will commence flashing the FAULT LED of this BOS1 CP and activate the FMM eject button on this CP as well. The user can press the eject button to actually remove the FMM. Pressing the eject button at times when this command has not been issued has no effect.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **ALW-FMM-RMVL** request, the following completion response is returned.

```
    IP ctag

    <



        tid date time

    M   ctag COMPLD

    ;
```

If the network element receives an **ALW-FMM-RMVL** command from a user when FMM removal had already been enabled, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
    alw-fmm-rmvl:OLS-400G::123;



    IP 123

    <



        OLS-400G 99-02-25 11:29:53

    M   123 COMPLD

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ALW-FMM-RMVL** command.

RELATED TL1 COMMANDS/MESSAGES

`INH-FMM-RMVL`

ALW-MSG-EQPT

ALW-MSG-EQPT: Allow Message Equipment

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ALW-MSG-EQPT:*tid:aid:ctag[::,,];*

DESCRIPTION

When a network element receives an **ALW-MSG-EQPT** command from a user, the network element resumes reporting of office alarms or autonomous messages if alarm reporting had been inhibited.

This command affects autonomous messages only on a per login session basis. When a network element receives an **ALW-MSG-EQPT** command from a user, the network element shall resume the reporting of autonomous messages to the active login session over which the command was received.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* value must have one of the following values:
"OFFICE_ALMS"
"AUTO_MSG"

The default value is "OFFICE_ALMS".

This specifies that reporting of office alarms or autonomous messages is to resume on the network element.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **ALW-MSG-EQPT** request, the following completion response is returned.

```
    sid date time

M   ctag COMPLD

;
```

If the network element receives an **ALW-MSG-EQPT** command from a user when reporting of office alarms or autonomous messages had already been enabled, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
alw-msg-eqpt:OLS-400G:office_alms:123xyz;
```

```
IP 123xyz

<
```

```
    OLS-400G 98-06-06,09:30:49

M   123xyz COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ALW-MSG-EQPT** command.

If an **ALW-MSG-EQPT** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

INH-MSG-EQPT

BACKUP-DB

BACKUP-DB: Backup Database

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

INPUT FORMAT

BACKUP-DB:*tid*::*ctag*:::*spec_block;*

DESCRIPTION

The BACKUP-DB command can be initiated by users to copy the current working database both to the backup partition of the Flash Memory Module (FMM) and to a remote system. The remote system copy will be made using the OSI standard FTAM protocol. The remote system must be reachable in the local NE's OSI IS-IS routing domain or via a RFC 1006 Transport Service Bridge (TSB) in the local NE's OSI IS-IS routing domain.

Database Backup occurs in the background. Once the background backup is initiated, the TL1 command ABORT-DB-BACKUP can be used as a mechanism to cancel the operation.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

PSEL

Remote System Presentation Selector. This is the OSI Presentation Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *psel* is a variable length string of minimum 1 and maximum 4 octets. The *psel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *psel* starts with two digits (ranging from 01 to 04) specifying the length of the *psel* followed by the string representing the address. For example, the string entered as 0104 signifies a 1 octet *psel* with first octet of 0x04.

SSEL

Remote System Session Selector. This is the OSI Session Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *ssel* is a variable length string of minimum 1 and maximum 4 octets. The *ssel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *ssel* starts with two digits (ranging from 01 to 04) specifying the length of the *ssel* followed by the string representing the address. For example, the string entered as 025353 signifies a 2 octet *ssel* with first octet of 0x53 and second octet of 0x53.

TSEL

Remote System Transport Selector. This is the OSI Transport Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *tsel* is a variable length string of minimum 1 and maximum 4 octets. The *tsel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *tsel* starts with two digits (ranging from 01 to 04) specifying the length of the *tsel* followed by the string representing the address. For example, the string entered as 025454 signifies a 2 octet *tsel* with first octet of 0x54 and second octet of 0x54.

NSAP

Network Service Access Point. This is used to identify the OSI network address of the remote system or RFC 1006 TSB for establishing the FTAM association for database backup. This parameter is not optional.

The *nsap* is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the *nsap* entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

If the OSI stack is used end-to-end, then the *nsap* is the address of the remote system itself. If instead a RFC 1006 TSB is used, the *nsap* is the address of the TSB. The TSB will provide for address translation between the OSI and TCP/IP domains.

PATHNAME

is located. This is the full path of the directory where the database file(s) to be restored are located. It is a printable string of up to 128 characters, surrounded by quotation marks ("). Quotation marks are not allowed inside of the printable string. If MS-DOS pathnames are used with backslashes ("\"), each backslash must be escaped with a second backslash.This parameter is not optional.

IP_ADDRESS

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the remote system. The ip_address is the address of the remote system on the other side of the TSB.

OUTPUT FORMAT

If the network element fully complies with the BACKUP_DB request, the following normal completion response is returned:

```
IP ctag

<



    tid date time

M  ctag COMPLD

;
```

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the backup operation occurs in the background and takes several minutes or more, the user will be allowed to log-off during this time if the user decides to do so.

The user will be able to retrieve the active standing condition of database backup in progress via the **RTRV-COND-ALL** command. The outcome of the backup can be retrieved with the RTRV-LOGcommand once the database backup in progress condition clears.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of a BACKUP-DB command for a WaveStar OLS 1.6T system to copy software from a remote system using an OSI stack end-to-end:

```
BACKUP_DB:OLS-1.6T::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=1339084080000000000000000000013a7ba060181,

PATHNAME="/dwdm/lucent/db/HLMDNJ01XXA2101.3/fri";

IP 123456

<


    OLS-1.6T 99-02-25 09:39:47

M  123456 COMPLD

;
```

The following example shows an input and output of a BACKUP-DB command for a WaveStar OLS 1.6T system to copy software from a remote system using a RFC1006 TSB:

```
BACKUP_DB:OLS-1.6T::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=1339084080000000000000000000008006a060181,

PATHNAME="/home/net/dwdm/lucent/RDBKNJ02DWZ3206.1/backup/25FEB99",

IP_ADDRESS=207.34.52.6;

IP 123456

<


    OLS-1.6T 99-02-25 09:45:22

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a network element receives this command with a missing or invalid *psel* value, the following error response is returned:

───

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing PSEL */

    ;
```

───

If a network element receives this command with a missing or invalid *ssel* value, the following error response is returned:

───

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing SSEL */

    ;
```

───

If a network element receives this command with a missing or invalid *tsel* value, the following error response is returned:

───

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing TSEL */

    ;
```

───

If a network element receives this command with a missing or invalid *nsap* value, the following error response is returned:

───

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing NSAP */

;
```

If a network element receives this command with a missing or invalid *pathname*value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing PATHNAME */

;
```

If a network element receives this command with an invalid *ip_address* value, that is, a non-null value that is not four decimal numbers from 0 to 255 seprated by periods ("."), the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid IP_ADDRESS */

;
```

If the local NE is already has a database backup or database restore in progress, the following error response will be returned:

```
      tid date time

M  ctag DENY

   SROF

   /* Status, Requested Operation Failed, a BACKUP_DB or RESTORE_DB command

      is already in progress on the local Network Element */

;
```

RELATED TL1 COMMANDS/MESSAGES

RESTORE-DB
ABORT-DB-BACKUP

CANC-USER

`CANC-USER`: Cancel User

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

`CANC-USER`:*tid*:*uid*:*ctag*;

DESCRIPTION

The `CANC-USER` command can be initiated to terminate a login session with the network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

User identifier. This is the unique case sensitive user login identifier for which the `CANC-USER` logout command is intended.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the logout request completes successfully, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful login session termination.

```
CANC-USER:LT-1.6T:PeterPan:123456;

IP 123456

<


    LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **CANC-USER** command.

If the network element receives this command with a *uid* which does not match that of the current login, that is, the active login associated with the port on which the **CANC-USER** was received, the following error response is returned:

```
    sid date time

M  ctag DENY

   DENY

   /* Privilege, Illegal User Identity, mismatch with current login user ID */

;
```

_____

RELATED TL1 COMMANDS/MESSAGES

ACT-USER
ED-PID
DLT-USER-SECU
ENT-USER-SECU
RTRV-USER-SECU

ED-USER-SECU

CPY-PRGM

CPY-PRGM: Copy Program

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

CPY-PRGM:*tid*::*ctag*::,,,*dest_tid[,src_partition];*

DESCRIPTION

The **CPY-PRGM** command can be initiated by users to copy the software generic contained in the active or the inactive memory partition of one network element (the source) to the inactive memory partition of another network element (the destination).

Copying the program (software download) occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

A maximum of 15 downloads can be in progress at any given time.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

dest_tid

Destination target identifier. This is the target identifier of the destination network element to which the program will be copied. It has no default value. A valid value must be entered.

Refer to Target Identifier (TID) under TL1-Related Provisioning section for valid alphanumeric characters allowed for the value of the TID of the destination network element.

src_partition

Source Network Element's memory partition. This parameter specifies the memory partition of the source network element from which the program will be copied. It may have one of the following values: The memory partition "inactive" or "active".

    inactive

        This requests a software copy from the **inactive** memory partition of the source NE to the inactive memory partition of the *dest_tid*.

    active

        This requests a software copy from the **active** memory partition of the source NE to the inactive memory partition of the *dest_tid*.

    If no value is provided, the network elements assumes inactive as the default value.

OUTPUT FORMAT

If the network element fully complies with the **CPY-PRGM** request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the software download occurs in the background and takes several minutes to a few hours, the user will be allowed to log-off during this time if the user decides to do so.

The user will be able to retrieve the active standing condition of software download in progress via the **RTRV-COND-ALL** command.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of **CPY-PRGM** command for a WaveStar OLS 1.6T system:

```
CPY-PRGM:OLS-1.6T::123456::,,,Node5NE,inactive;
```

```
IP 123456

<

    OLS-1.6T 98-05-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a network element receives this command with a *src_partition* value other than inactive or active, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid SRC_PARTITION */

;
```

If the *dest_tid* is syntactically incorrect, the following error response will be returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid destination TID */

;
```

If the *tid* is being programmed by another download program, the following error response will be returned:

```
    sid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed, a SW download in progress */

;
```

The *dest_tid* cannot be the *tid*. If the *tid* is entered as the *dest_tid*, the following error response will be returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid destination TID */

;
```

If the destination tid is null, the following error response will be returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid destination TID */

;
```

If communications cannot be established to the destination network element because the destination tid is not known or the destination tid is no longer reachable, the following error response will be returned:

```
    sid date time

M  ctag DENY

    IITA

    /* Input, Invalid TArget identifier, destination TID not reachable*/

;
```

If executing this command would initiate a second software copy operation to the same *dest_tid*, the following error response will be returned:

```
    sid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed, a CPY-PRGM is already in

    progress to the same Destination Network Element from this

    Network Element */

;
```

If the *dest_tid* is already being used as a *dest_tid* for a copy operation from a different *tid*, the following error response will be returned:

```
    sid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, a CPY-PRGM is already in

    progress to the Destination Network Element from a different

    Source Network Element */

;
```

If the *dest_tid* is already being used as a *tid* for a copy operation to a different *dest_tid*, the following error response will be returned:

```
    sid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, a CPY-PRGM is already in

    progress from the Destination Network Element to a different

    Source Network Element */

;
```

Up to 15 downloads may be initiated from the *tid*. If executing this command would exceed this limit, the following error response will be returned:

```
    sid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, Too many CPY-PRGM requests */

;
```

RELATED TL1 COMMANDS/MESSAGES

None

DLT-ASAP-PROF

DLT-ASAP-PROF: Delete ASAP (Alarm Severity Assignment Profile) Profile

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

DLT-ASAP-PROF:*tid***::***ctag***::***pftype***,***pfname***;**

DESCRIPTION

The **DLT-ASAP-PROF** command is used to delete an ASAP profile.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pftype

Profile type. The valid values for this parameter are

BAY (Bay)
CLIENT (Client)
COM (General Communication)
ENV (Environment)
OCHAN (Optical Channel)
OLINE (Optical Line)
PACK (Circuit Pack)
SLOT (Slot)
SHELF (Shelf)
SUPVY (Supervisory Signal)
SW (Software Management)

SYSTEM (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters. It is case sensitive.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    tid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
 DLT-ASAP-PROF:LT-1.6T::123456::client,abcdefg123;



 IP 123456

 <


    LT-1.6T 99-10-26 16:42:11

 M  123456 COMPLD

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an invalid *pftype* parameter is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pftype */

 ;
```

If an invalid *pfname* parameter is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pfname */

 ;
```

If the specified *pfname* does not exist for the specified *pftype,* the following error response is returned:

```
    tid date time

M  ctag DENY

    SDNC

    /* Status, Data Not Consistent, pfname does not exist for pftype */

 ;
```

If the profile identified by *pfname* has been assigned to at least one entity then that profile is said to be active. If the specified profile is active, the following error response is returned:

```
    tid date time

M   ctag DENY

    SNVS

    /* Status, Not in Valid State, profile is active */

;
```

If the user is attempting to delete the default profile for the specified *pftype*, the following error response is returned:

```
    tid date time

M   ctag DENY

    SNVS

    /* Status, Not in Valid State, can not delete default profile */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
ED-ASAP-PROF
ENT-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-AID-ASGNMT
RTRV-ASAP-PROF
RTRV-PROF-ASGNMT
```

DLT-ASSOC-OTPS

DLT-ASSOC-OTPS: Delete Association OT_Port_Signal

The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3).

This command is available starting in WaveStar OLS 400G Release 1.0.

INPUT FORMAT

DLT-ASSOC-OTPS:*tid*:*src_aid*,*dest_aid*:*ctag*::*assoc;*

DESCRIPTION

Caution:
    Execution of this command may affect service.

The **DLT-ASSOC-OTPS** command message can be initiated by a user to request deletion of associations between the following pieces of equipment:

OTUs and OMUs, ODUs, OTUs , ORSs, WADs, WDUs, WMUs and external pieces of equipment,
ODUs, WADs, or WDUs, and external pieces of equipment,
OMUs, WADs, or WMUs, and external pieces of equipment, and
ORSs and OTUs, client equipment, and external equipment (such as another OLS terminal).

Deletions can be made to all associations.

Please refer to Discussion R6.0-ALL_ENT_ASSOC_OTPS_LCM-1030 for a detailed description on the various types of associations.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

src_aid

Source Access Identifier. This is the address of the source OTU, ODU, ORS, WAD, WDU, WMU port, or EXTEQUIP for external equipment.

Entity: Single Source Port (ODU, OTU, ORS, WAD, WDU, WMU)
Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650, 0001, 0002, OUT1, OUT2, OUT3, OUT4, 1AOUT, 1BOUT, 2AOUT, 2BOUT, C1OUT, C2OUT), EXTEQUIP

For WMU and WDU, only even channels are available for adding and dropping.

The EXTEQUIP value must be used for the source access identifier of the Terminal Add, External Add, Protection External Add, and Protection Terminal Add type associations. This value cannot be used for the source access identifier of any other type of association.

dest_aid

Destination Access Identifier. This is the address of the destination OMU, OTU, ORS, WAD, WDU, or WMU port for which the command is intended, or EXTEQUIP for external equipment.

Entity: Single Destination Port (OMU, OTU, ORS, WAD, WDU, WMU)
Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650, IN, IN1, IN2, IN3, IN4, 1AIN, 1BIN, 2AIN, 2BIN, C1IN, C2IN), EXTEQUIP

The EXTEQUIP value must be used for the destination access identifier of the Terminal Drop, External Drop, Protection External Drop, and Protection Terminal Drop type associations. This value cannot be used for the destination access identifier of any other type of association.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal

digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

assoc

Association type. This parameter specifies the type of association being requested. It may have one of the following values: "ADD", "XADD", "DROP", "XDROP", "TADD", OR "TDROP", "PADD", "PXADD", "PDROP", "PXDROP", "PTADD", or "PTDROP".

ADD
> Add. This requests an association FROM an OTU port TO an OMU, OTU, WAD, or WMU port.

XADD
> External Add. This requests an association FROM an external transmission terminal TO an OMU, WAD, or WMU port.

DROP
> Drop. This requests an association FROM an ODU, WAD or WDU port TO an OTU port.

XDROP
> External Drop. This requests an association FROM an ODU, WAD, or WDU port TO an external transmission terminal.

TADD
> Terminal Add. This requests an association FROM an external transmission terminal TO an OTU port.

TDROP
> Terminal Drop. This requests an association FROM an OTU port TO an external transmission terminal.

PADD
> Protection Add. This requests an association FROM an ORS line output port TO an OTU input port.

PXADD
> Protection External Add. This requests an association FROM an external equipment (such as another OLS terminal) TO an ORS line input port.

PDROP
> Protection Drop. This requests an association FROM an OTU output port TO an ORS line input port.

PXDROP
> Protection External Drop. This requests an association FROM an ORS line output port TO an external equipment (such as another OLS terminal).

PTADD
> Protection Terminal Add. This requests an association FROM an external equipment TO an ORS client input port.

PTDROP
> Protection Terminal Drop. This requests an association FROM an ORS client output port TO an external equipment.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    sid date time
M   ctag COMPLD
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

The following example deletes an add association between an OTU port ("port-5-3-3-9280") and an OMU port ("port-2-3-11-9280").

```
DLT-ASSOC-OTPS:WAVES-
TAR-OLS-400G-3:PORT-5-3-3-9280,PORT-2-3-11-9280:1::ADD;

IP 1
<

    WAVESTAR-OLS-400G-3 98-05-20 13:52:11
M   1 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification just shown) null or non-null command parameter blocks (:), parameters (not supported by OLS 400G, delimited by ","), or termination characters (;), the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives this command without a *src_aid* or *dest_aid* value or with a *src_aid* or *dest_aid* value that does not identify a single ODU, OMU, OTU, ORS, WAD, WDU, or WMU port, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Source or Destination AID missing or invalid */
;
```

If the network element receives this command with a *src_aid* or *dest_aid* value that specifies a WDU or WMU port with odd channels, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Source or Destination AID invalid */
;
```

If the network element receives this command with (1) a *src_aid* value of "EXTEQUIP" and an *assoc* value of anything other than TADD, XADD, PTADD, and PXADD, or (2) a *src_aid* value other than "EXTEQUIP" for a TADD, XADD, PTADD, or PXADD type association, or (3) a *src_aid* value for an ORS port and an *assoc* value of anything other than PADD, PXDROP, or PTDROP, or (4) a *src_aid* other than for an ORS port and an *assoc* value of PADD, PXDROP, or PTDROP, the following error response will be returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Source AID is invalid for the requested association */
;
```

If the network element receives this command with a *dest_aid* value of "EXTEQUIP" and an *assoc* value of anything other than TDROP, XDROP, PTDROP, and PXDROP, or (2) a *dest_aid* value other than "EXTEQUIP" for a TDROP, XDROP, PTDROP, or PXDROP type association, or (3) a *dest_aid* value for an ORS port and an *assoc* value of anything other than PDROP, PXADD, or PTADD, or (4) a *dest_aid* other than for an ORS port and an *assoc* value of PADD, PXDROP, or PTDROP, the following error response will be returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Destination AID invalid for requested association */
;
```

If this command is received with an *assoc* which does not exactly match that of the existing association specified by the *src_aid* and *dest_aid*, this command will be denied with the following error response:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid ASSOC */
;
```

If the network element receives this command with an *assoc* value that is not supported by OLS 400G, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid ASSOC */
;
```

If the association specified by this command does not exist, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, specified association does not exist */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-ASSOC-OTPS
RTRV-ASSOC-OTPS

DLT-USER-SECU

DLT-USER-SECU: Delete User Security

The User Privilege Code (UPC) for this command is Security Level 5 (S5).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

DLT-USER-SECU:*tid*:*uid*:*ctag*;

DESCRIPTION

Caution:
Execution of this command will remove a user account. That user will no longer be able to log in.

The **DLT-USER-SECU** command is used by a user with a UPC of S3 or higher to delete a user id. Super user logins cannot be deleted.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

This is the User Identifier of a user. Valid values are a case-sensitive alphanumeric string of 1 to 10 characters. Only a single *uid* is supported in this command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the delete user security request, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```

If the *uid* is currently logged into the network element when this command is successfully executed, the user identified by the *uid* is disconnected, and the network element responds to the user who entered the **DLT-USER-SECU** with the completion message (shown above).

If the network element receives a **DLT-USER-SECU** command containing a non-existing *uid*, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
DLT-USER-SECU:LT-1.6T:kjlee:123456;
```

```
IP 123456

<
```

```
    LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **DLT-USER-SECU** command with an invalid *uid* (a user identifier with the improper set and/or sequence of characters), the following error response is returned:

```
    sid date time

M  ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid UID */

;
```

Two super user logins must exist in the network element at all times. If the user attempts to delete a super user login, the following error response is returned:

```
    sid date time

M  ctag DENY

    PIFC

    /* Privilege, Illegal Field Control

    Attempting to delete a super login.  Two super user

    logins are required at all times.

    */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
ENT-USER-SECU
ED-USER-SECU
RTRV-USER-SECU
```

DWNLD-SW

DWNLD-SW: Download Software

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

INPUT FORMAT

DWNLD-SW:*tid*::*ctag*:::*spec_block;*

DESCRIPTION

The DWNLD-SW command can be initiated by users to copy a software generic from a remote system to the local inactive code partition of the Flash Memory Module (FMM). The copy will be made using the OSI standard FTAM protocol. The remote system must be reachable in the local NE's OSI IS-IS routing domain or via a RFC 1006 Transport Service Bridge (TSB) in the local NE's OSI IS-IS routing domain.

Software download occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

PSEL

Remote System Presentation Selector. This is the OSI Presentation Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *psel* is a variable length string of minimum 1 and maximum 4 octets. The *psel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *psel* starts with two digits (ranging from 01 to 04) specifying the length of the *psel* followed by the string representing the address. For example, the string entered as 0104 signifies a 1 octet *psel* with first octet of 0x04.

SSEL

Remote System Session Selector. This is the OSI Session Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *ssel* is a variable length string of minimum 1 and maximum 4 octets. The *ssel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *ssel* starts with two digits (ranging from 01 to 04) specifying the length of the *ssel* followed by the string representing the address. For example, the string entered as 025353 signifies a 2 octet *ssel* with first octet of 0x53 and second octet of 0x53.

TSEL

Remote System Transport Selector. This is the OSI Transport Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *tsel* is a variable length string of minimum 1 and maximum 4 octets. The *tsel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *tsel* starts with two digits (ranging from 01 to 04) specifying the length of the *tsel* followed by the string representing the address. For example, the string entered as 025454 signifies a 2 octet *tsel* with first octet of 0x54 and second octet of 0x54.

NSAP

Network Service Access Point. This is used to identify the OSI network address of the remote system or RFC 1006 TSB for establishing the FTAM association for software download. This parameter is not optional.

The *nsap* is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the *nsap* entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

If the OSI stack is used end-to-end, then the *nsap* is the address of the remote system itself. If instead a RFC 1006 TSB is used, the *nsap* is the address of the TSB. The TSB will provide for address translation between the OSI and TCP/IP domains.

PATHNAME

Absolute path on the remote system where the database to be restored is located. This is the full path of the directory where the database file(s) to be restored are located. It is a printable string of up to 128 characters, surrounded by quotation marks ("). Quotation marks are not allowed inside of the printable string. If MS-DOS pathnames are used with backslashes ("\"), each back-slash must be escaped with a second backslash.This parameter is not optional.

The directory named by this parameter is expected to contain the information file OLS400G_PKG. This file will contain a list of all the required files for the download.

IP_ADDRESS

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the remote system. The ip_address is the address of the remote system on the other side of the TSB.

OUTPUT FORMAT

If the network element fully complies with the DWNLD-SW request, the following normal completion response is returned:

```
IP ctag

<


    tid date time

M  ctag COMPLD

;
```

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the software download occurs in the background and takes several minutes to a few hours, the user will be allowed to log-off during this time if the user decides to do so.

The user will be able to retrieve the active standing condition of software download in progress via the **RTRV-COND-ALL** command. The outcome of the download can be retrieved with the RTRV-LOGcommand once the software download in progress condition clears.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of a DWNLD-SW command for a WaveStar OLS 1.6T system to copy software from a remote system using an OSI stack end-to-end:

```
DWNLD-SW:OLS-1.6T::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=1339084080000000000000000000001f334c060181,

PATHNAME="/usr/admin/ols400g/Rx.y.z";



IP 123456

<


    OLS-1.6T 99-02-24 14:01:42

M  123456 COMPLD

;
```

The following example shows an input and output of DWNLD-SW command for a WaveStar OLS 1.6T system to copy software from a remote system using a RFC1006 TSB:

```
DWNLD-SW:OLS-1.6T::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=13390840800000000000000000000008006a060181,
```

```
PATHNAME="/home/net/dwdm/lucent/ols400g-x.y.z",

IP_ADDRESS=207.34.52.6;
```

```
IP 123456

<


   OLS-1.6T 99-02-24 14:03:27

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a network element receives this command with a missing or invalid *psel* value, the following error response is returned:

```
   tid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid or missing PSEL */

;
```

If a network element receives this command with a missing or invalid *ssel* value, the following error response is returned:

```
      tid date time

M   ctag DENY

      IDNV

      /* Input, Data Not Valid, invalid or missing SSEL */

   ;
```

If a network element receives this command with a missing or invalid *tsel* value, the following error response is returned:

```
      tid date time

M   ctag DENY

      IDNV

      /* Input, Data Not Valid, invalid or missing TSEL */

   ;
```

If a network element receives this command with a missing or invalid *nsap* value, the following error response is returned:

```
      tid date time

M   ctag DENY

      IDNV

      /* Input, Data Not Valid, invalid or missing NSAP */

   ;
```

If a network element receives this command with a missing or invalid *pathname*value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing PATHNAME */

;
```
───

If a network element receives this command with an invalid *ip_address* value, that is, a non-null value that is not four decimal numbers from 0 to 255 seprated by periods ("."), the following error response is returned:

───

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid IP_ADDRESS */

;
```
───

If the the local NE is already being used as a destination for a dwnld-sw, cpy-pgm or init-swd software copy, the following error response will be returned:

───

```
    tid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed, a DWNLD-SW, CPY-PRGM or INIT-SWD

       command is already in progress to the local Network Element */

;
```
───

RELATED TL1 COMMANDS/MESSAGES

CPY-PGM
INIT-SWD

ED-ASAP-PROF

ED-ASAP-PROF: Edit ASAP (Alarm Severity Assignment Profile) Profile The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3). This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

ED-ASAP-PROF:*tid***:***pftype***,***pfname***,***[alarm_id]***:***ctag***::***[spec_block]***;**

DESCRIPTION

The **ED-ASAP-PROF** command is used to change the name or the alarm severities of an existing profile.

An existing alarm or status condition must be cleared before the new alarm severity will take effect. In the extreme case, when there is no other way to clear the condition, this may even mean resetting the network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)
> **SHELF** (Shelf)
> **SUPVY** (Supervisory Signal)
> **SW** (Software Management)
> **SYSTEM** (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

alarm_id

Alarm Identifier. This is the alarm or status condition for which the alarm severity values are being provisioned. If the command is only being used to change the profile name this parameter may be omitted. The allowable values of the alarm_id parameter are listed in the ASAP profile tables attached to [Appendix A](#)of the PRD.

Note: Click on the underlined hyperlink above to open Appendix A. Then click on the worksheet tab(s) at the bottom of the screen for the profile type(s) of interest. These tables list the *Alarm ID's* associated

with each profile type, and indicating the alarm severities for each *Alarm ID* in the profile of that type named "Default".

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

> Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command. For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command. For Wavestar OLS 1.6T Release 3, the software does not distinguish between service affecting and non-service affecting Alarm ID's. Thus, for a each Alarm ID there shall be either a SONET Service Independent severity or a SONET Service Dependent Non-Service Affecting severity and either an SDH Service Independent severity or an SDH Service Dependent Non-Service Affecting severity. *newname*

New name. This is an alphanumeric string of 1 to 24 characters. Specifying a value for the ***newname*** parameter causes the ***pfname*** of the addressed profile to change to the value ***newname***.

si

> > Service-Independent Alarm Severity for the specified *alarm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and NI_No_Indication.
>
> > NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

sd_sa

> > Service-Dependent Service-Affecting Alarm Severity for the specified *alarm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and NI_No_Indication.
>
> > NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

sd_nsa

> > Service-Dependent Non-Service-Affecting Alarm Severity for the specified *alarm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and

NI_No_Indication.

NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    tid date time
M   ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
ED-ASAP-PROF:LT-1.6T:OLINE,SPECIAL,ISPANLOSS:123456::SD_NSA=MN;
```

```
IP 123456
<

    LT-1.6T 99-10-26 16:42:11
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If an invalid *pftype* is specified, then the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid pftype */
;
```

If an invalid *pfname* is specified, then the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
```

```
     /* Input, Data Not Valid, invalid pfname */
;
```

If the specified *pfname* does not exist for the specified *pftype*, then the following error response is returned:

```
     tid date time
M    ctag DENY
     IDNC
     /* Input, Data Not Consistent, pfname does not exist for pftype */
;
```

If the specified *pfname* is "default" with any combination of lowercase and uppercase letters (for example "Default" or "default" or "DEFAULT" or "dEfault") and a value for *newname* is specified, the following error response is returned:

```
     tid date time
M    ctag DENY
     SROF
     /* Status, Requested Operation Failed, cannot rename default profile */
;
```

If the specified *newname* is "default" with any combination of lowercase and uppercase letters (for example "Default" or "default" or "DEFAULT" or "dEfault"), the following error response is returned:

```
     tid date time
M    ctag DENY
     SROF
     /* Status, Requested Operation Failed, cannot create default profile */
;
```

If the profile identified by *pfname* has been assigned to at least one entity then that profile is said to be active. If a *newname* value is supplied to change the name of an active profile, then the following error response is returned:

```
     tid date time
M    ctag DENY
     SNVS
     /* Status, Not in Valid State, profile is active */
;
```

If a *newname* value is supplied that is the same as the *pfname* of an existing profile of the specified *pftype*, then the following error response is returned:

```
     tid date time
M    ctag DENY
     IEAE
     /* Input, Entity Already Exists, newname already in use */
;
```

If the specified *alarm_id* is not consistent with the specified *pftype*, then the following error response is

returned:

```
    tid date time
M   ctag DENY
    SDNC
    /* Status, Data Not Consistent, alarm_id is inconsistent with pftype */
;
```

If a value is specified for *si*, *sd_sa* or *sd_nsa* and there is no value for that parameter in the profile of the same *pftype* named "Default", then the following error response is returned:

```
    tid date time
M   ctag DENY
    SDNC
    /* Status, Data Not Consistent, no corresponding severity in
default profile */
;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-ASAP-PROF
ENT-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-ASAP-PROF
RTRV-PROF-ASGNMT
```

ED-DAT

ED-DAT: Edit Date_and_Time

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ED-DAT:*tid***::***ctag***::**[*date*][,*time*][:*spec_block*];

DESCRIPTION

Caution:
> Execution of this command may corrupt performance monitoring data.

The **ED-DAT** command can be initiated by users to request the network element to change its system date and time to a given value.

The activation time of some pending commands may be skipped or repeated as a result of changing the system date or time of the network element. Appropriate actions should be taken to ensure the proper execution of these commands.

Delayed activation is not allowed for this command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

date

Date. This is the requested *date* in the following format: YY-MM-DD, where YY is the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31. If not specified, *date* remains the same.

If the NE is provisioned to operate in an SDH environment, the format of the date is DD-MM-YY.

time

Time. This is the requested *time* in the following format: HH-MM-SS, where HH is the hour in a 24 hour format ranging from 00 to 23; MM is the minute ranging from 00 to 59; and SS is the second ranging from 00 to 59. If not specified, *time* remains the same.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of the arrangement of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be attempted to be changed at the NE. If the current value of the parameter *name1* is already *value1* in the example just shown, then *name1* will not be changed.

For the **ED-DAT** command, the *spec_block* may contain one or all of more of the following parameters:

`tz`

Standard Time Zone. `tz` is a string of 3 or less characters.

   `strtdst`

   Start Daylight Savings Time. `strtdst` is a date in the following format: MM-DD.

   `stopdst`

   Stop Daylight Savings Time. `stopdst` is a date in the following format: MM-DD.

   `dstz`

   Daylight Savings Time Zone. `dstz` is a string of 3 or fewer characters.

OUTPUT FORMAT

```
    sid date time

 M  ctag COMPLD

 ;
```

OUTPUT PARAMETERS

sid

Source identifier. This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day).

If this message is successful *date* equals the input date.

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

If this message is successful *time* equals the input time plus the time (seconds) required to send the response message.

M

This indicates that the output message is generated in response to a manual command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

COMPLD

This indicates that the command has been completed.

EXAMPLE INPUT/OUTPUT

For a SONET environment:

```
ed-dat:LT-OLS::XYZ123::00-12-31:TZ=EST,STRTDST=04-04,STOPDST=10-31;
```

```
IP XYZ123
```

```
<
```

```
    LT-OLS 00-12-31,09:30:49

M  XYZ123 COMPLD

;
```

For an SDH environment:

---

ed-dat:LT-OLS::XYZ123::31-12-00:TZ=EST,STRTDST=04-04,STOPDST=10-31;

```
IP XYZ123

<


    LT-OLS 31-12-00,09:30:49

M  XYZ123 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ED-DAT** command.

If the network element receives an **ED-DAT** command with an incorrectly formatted date or time, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid date or time specified */

;
```

The value of DD is also checked for sanity with MM (for example, February 30 can not exist), and for sanity with the year for MM-DD equaling 02-29 for leap years. Also, values of HH\(>=24, MM>59, and/or SS>59 are invalid. If an error of this type occurs, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid date or time specified */

;
```

If the network element receives an **ED-DAT** command with a SONET date (YY-MM-DD) for a network element that is provisioned to operate in an SDH environment, or an SDH date (DD-MM-YY) for a network element that is provisioned to operate in a SONET environment, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, DATE format inconsistent with NE standard */

;
```

If the network element receives an **ED-DAT** command with an incorrectly formatted `tz`, `strtdst`, `stopdst` or `dstz`*spec_block* parameter, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid spec_block parameter */

;
```

RELATED TL1 COMMANDS/MESSAGES

None

ED-PID

ED-PID: Edit Private_Identifier(Password)

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ED-PID:*tid*:*uid*:*ctag*::*old_pid*,*new_pid*;

DESCRIPTION

The **ED-PID** command can be initiated to change the user's password (PID) on the network element.

When the network element receives an **ED-PID** command, the password associated with the given login identifier will be changed on the network element provided that:
- The login identifier is currently active on the access channel on which the command is received;
- The *old_pid* provided matches the current password for the login identifier; and
- The *new_pid* provided satisfies the password requirements of the network element; and
- At least seven (7) calendar days have passed since the last password change for that login (if password aging is enabled).

If password aging is enabled, a user may not change a password unless at least seven (7) calendar days have passed since the last password change of that login.

If password aging is disabled, a user may change a password without any restrictions.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

User identifier. This is the unique case-sensitive user login identifier for which the **ED-PID** login command is intended.

Grouping and/or ranging of *uid* values for this command is not allowed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

old_pid

Old private identifier (password). This is included in the command by the user and must exactly match the current PID for the login identifier.

new_pid

with a minimum of six characters and a maximum of ten characters, where at least one is alphabetic, one is numeric, and one is symbolic. Password must not contain the user's own uid and the uid is checked for case-insensitive. Passwords are case-sensitive.

Password strings will be encrypted when stored in the network element. They will not be encrypted when transmitted from the CIT to the network element. Passwords are never transmitted from the network element.

NOTE:
The *new_pid* value must differ from the *old_pid* value in at least one character.

Symbolic characters:
! ' ( ) * + - . / < > [ ] ^ ' { | } ~

Numeric characters:
0 1 2 3 4 5 6 7 8 9

Alphabetic characters:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

OUTPUT FORMAT

If the password change request completes successfully, and transitions the state of the login procedure from the "Password_Expired" state to the "Login_Active" state, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

    /*  Lucent Technologies <system>

    <release>
```

```
    User Privilege Level: <privilege>

    LUCENT TECHNOLOGIES - PROPRIETARY

    THIS SOFTWARE CONTAINS INFORMATION OF LUCENT TECHNOLOGIES

    AND IS NOT TO BE DISCLOSED OR USED EXCEPT IN ACCORDANCE

    WITH APPLICABLE AGREEMENTS.

    NOTICE:  THIS IS A PRIVATE COMPUTER SYSTEM.

    USE OF THIS SOFTWARE IS GOVERNED SOLELY AS EXPRESSLY

    AUTHORIZED IN THE RELEVANT AGREEMENT BETWEEN


    LUCENT TECHNOLOGIES AND CUSTOMER.

    UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.

    */

  ;
```

The string `WaveStar OLS 1.6T` is used for the `<system>` value.

The `<release>` string is of the form:

`1.6T_RELEASE_x.y.z-1600`

where `x.y.z` reflects the actual software release number.

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
>   **S[0-5]**
>   For **S**ecurity Administration Authorization Level 0 through 5.

P[0-5]
  For **P**rovisioning Authorization Level 0 through 5.
PM[0-5]
  For **P**erformance **M**onitoring Authorization Level 0 through 5.
M[0-5]
  For **M**aintenance Authorization Level 0 through 5.
T[0-5]
  For **T**est Access Authorization Level 0 through 5.

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
S[1-5]
  For **S**ecurity Administration Authorization Level 0 through 5.
P[0-5]
  For **P**rovisioning Authorization Level 0 through 5.
PM[0-5]
  For **P**erformance **M**onitoring Authorization Level 0 through 5.
M[0-5]
  For **M**aintenance Authorization Level 0 through 5.
T[0-5]
  For **T**est Access Authorization Level 0 through 5.

The response just shown is provided by the network element only if the **ED-PID** command is being used to update an expired password upon user login (**ACT-USER**). Otherwise, the following response is provided by the network element.

If the password change request completes successfully, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a successful password change operation.

```
ED-PID:LT-1.6T:PeterPan:123456::soup3r+,8_6oober;
```

```
IP 123456
```

```
<
```

```
    LT-1.6T 99-10-26 16:42:11
```

```
M  123456 COMPLD
```

```
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ED-PID** command.

If the network element receives an **ED-PID** command with a login identifier specified by *uid* that is not currently logged in on the access channel over which the command is received, the following error response is returned to the OS:

```
    sid date time
```

```
M  ctag DENY
```

```
    PIUI
```

```
    /* Privilege, Illegal User Identity, user ID not logged in */
```

```
;
```

If the network element receives an **ED-PID** command with an *old_pid* value that does not match the currently provisioned *pid* for the associated user login identifier, the following error response is returned to the OS:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid OLD_PID */

;
```

If the network element receives an **ED-PID** command with a missing *new_pid*, or a *new_pid* that does not meet the required attributes of a valid user login identifier password, the following error response is returned to the OS:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid NEW_PID */

;
```

If the network element receives an **ED-PID** command with a *new_pid* value equal to the *old_pid* value, the following error response is returned to the OS:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, NEW_PID same as OLD_PID */

;
```

If the network element receives an **ED-PID** command before the minimum password aging time period (7 days) has passed, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, insufficient time for password aging */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
ACT-USER
CANC-USER
DLT-USER-SECU
ENT-USER-SECU
RTRV-USER-SECU
```

ED-USER-SECU

ED-USER-SECU

ED-USER-SECU: Edit User Security

The User Privilege Code (UPC) for this command is Security Level 5 (S5).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ED-USER-SECU:*tid*:*uid*:*ctag*::[*new_uid*],[*new_pid*],,[*uap*][:*keyword_block*];

DESCRIPTION

This **ED-USER-SECU** command is used by a user with a UPC of S5 to edit the security parameters associated with a user (that is, user ID, password, user privileges, the password aging interval), and to enable/disable a login of any non-Super user, and/or to alter a temporary login. The user executing the command can not edit any of the user's own login parameters, including *uid, pid*, and *uap*. Only a Super user is allowed to edit the user ID and/or password of another Super user.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

User Identifier. Its valid values are a case-sensitive alphanumeric string of 1 to 10 characters. This is the *uid* to be changed and/or whose password and/or privilege level is to be changed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

new_uid

New User Identifier. Its valid values are a case-sensitive alphanumeric string of 1 to 10 characters. If omitted, this parameter is not changed.

new_pid

If omitted, this parameter is not changed.

Passwords consist of a string of alphanumeric and symbolic characters with a minimum of six characters and a maximum of ten characters, where at least one alphabetic, one is numeric, and one is symbolic. Password must not contain the user's own uid and the uid is checked for case-insensitive. Passwords are case-sensitive.

Password strings must be encrypted when stored in the network element. They will not be encrypted when transmitted from the CIT to the network element. Passwords are never transmitted from the network element.

Symbolic characters:
! ' ( ) * + - . / < > [ ] ^ ' { | } ~

Numeric characters:
0 1 2 3 4 5 6 7 8 9

Alphabetic characters:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

uap

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
   S[0-5]
        For **S**ecurity Administration Authorization Level 0 through 5.
   P[0-5]
        For **P**rovisioning Authorization Level 0 through 5.
   PM[0-5]
        For **P**erformance **M**onitoring Authorization Level 0 through 5.
   M[0-5]
        For **M**aintenance Authorization Level 0 through 5.

T[0-5]
> For **T**est Access Authorization Level 0 through 5.

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
S[1-5]
> For **S**ecurity Administration Authorization Level 0 through 5.

P[0-5]
> For **P**rovisioning Authorization Level 0 through 5.

PM[0-5]
> For **P**erformance **M**onitoring Authorization Level 0 through 5.

M[0-5]
> For **M**aintenance Authorization Level 0 through 5.

T[0-5]
> For **T**est Access Authorization Level 0 through 5.

> If omitted, the User Access Privilege is not changed.

keyword_block

Keyword Parameter Block. This parameter field is used for modification of temporary login attributes, editing the password aging for the user, and/or enabling/disabling the user login. Temporary login attributes are applicable to non-Super users only.

Parameters within the *keyword_block* are specified using a name defined construct of: **PARAME-TER**=*value* in a comma separated list.

For the **ED-USER-SECU** command, the *keyword_block* may contain neither or both of the following temporary login parameters and must contain the password aging parameter:
TYPE
> If a temporary login is desired, this parameter must equal "TEMPORARY".
> **temporary**
>> Temporary Login. This indicates that this login is assigned for temporary access to the network element.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format: YY-MM-DD, where YY is the last two digits of the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

The expiration date must be set if **TYPE=temporary**.

If the NE is provisioned to operate in an SDH environment, the format of the expiration date is DD-MM-YY.

PAGE

Password Aging Interval. This parameter specifies the period in days after which the user has to change the password of his or her account. It can take a value between 7 and 999 days, or 0, which disables the password aging mechanism. If the parameter is omitted (null), the currently effective value remains in effect.

ALW_LOGIN

Allow User Login. This parameter is used to enable or disable a user login and can take the following values: "YES", "NO". The original value is "YES". If no value is supplied for ALW_LOGIN, ALW_LOGIN parameter will remain in its current value (enabled or disabled).

NOTE: User access privilege (UAP) must be entered in the format of Sv&Pw&PMx&My&Tz. Where: "&" is the delimiter; S (Security Administration), P (Provisioning), PM (Performance Monitoring), M (Maintenance), and T (Test Access) are keywords used for the command function categories; v, w, x, y, z are values 0 to 5 for user authorization level in ascending user privilege, with 1 for the lowest user privilege. A privilege level of 0 means there is no authorization for that functional category. For example, S1&P0&PM3&M3&T0 is a valid UAP. At a minimum, S1 must be assigned for each login.

OUTPUT FORMAT

If the network element fully complies with the edit user security request, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

;
```

If the *uid* is currently logged into any network element when this command is successfully executed, whether or not any parameters are changed, the user identified by the *uid* is disconnected, and the network element responds to the user who entered the **ED-USER-SECU** with the completion message (shown above).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example changes the current *uid*, **kjlee**, to a *new_uid*, **ilf**, assigns **ilf** a *new_pid* and a *uap*, and changes password aging interval *PAGE* to 120.

```
ed-user-secu:LT-1.6T:kjlee:123456::ilf,pass12+,,S1&P2&PM0&M0&T0:PAGE=120;



IP 123456

<


    LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ED-USER-SECU** command from users trying to change their own *uid* (user identifier) value, the following error response is returned:

```
    sid date time

M  ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

;
```

If the network element receives an **ED-USER-SECU** command from users trying to change their own pid value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

;
```

If the network element receives an **ED-USER-SECU** command from users trying to change their own *uap* (user access privilege) value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

;
```

If the network element receives an **ED-USER-SECU** command from users trying to modify the Super user's access privilege, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* invalid modified Super user privilege */

;
```

If the network element receives an **ED-USER-SECU** command from users trying to modify a non-Super user's access privilege with a uap of S5&P5&PM5&M5&T5, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* invalid given Super user privilege */

;
```

If the network element receives an **ED-USER-SECU** command from a non-Super user trying to modify the new_pid of a Super user, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Changing Super user password */

;
```

If the network element receives an **ED-USER-SECU** command with an invalid *uid* (user identifier) value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid UID */

;
```

If the network element receives an **ED-USER-SECU** command with a *new_uid* (new user identifier) that matches an existing *uid* (user identifier), other than the one specified in the *uid* field, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, duplicate NEW_UID */

;
```

If the network element receives an **ED-USER-SECU** command with an invalid *new_uid* (new user identifier) value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid NEW_UID */

;
```

If the network element receives an **ED-USER-SECU** command with an invalid *new_pid* (password) value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid NEW_PID */

;
```

If the network element receives an **ED-USER-SECU** command with a **TYPE** other than **temporary**, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TYPE */

;
```

If the network element receives an **ED-USER-SECU** command with an invalid *EXPDAT*, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid EXPDAT */

;
```

If the network element receives an **ED-USER-SECU** command without an **EXPDAT** when **TYPE** is specified, **or** without a **TYPE** when **EXPDAT** is specified in the *keyword_block*, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid keyword_block */

;
```

If the network element receives an **ED-USER-SECU** command with an invalid *PAGE*, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid PAGE */

  ;
```

If the network element receives an **ED-USER-SECU** command from users trying to change their own page value, the following error response is returned:

```
    sid date time

M   ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

  ;
```

RELATED TL1 COMMANDS/MESSAGES

```
ED-PID
DLT-USER-SECU
ENT-USER-SECU
RTRV-USER-SECU
```

ENT-ASAP-PROF

ENT-ASAP-PROF: Enter ASAP (Alarm Severity Assignment Profile) Profile

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

ENT-ASAP-PROF:*tid***::***ctag***::***pftype***,***pfname***[,***pfsource***];**

DESCRIPTION

The **ENT-ASAP-PROF** command is used to create a new ASAP profile. If a profile source (***pfsource***) is specified, the new profile is identical to the profile of type ***pftype*** and name ***pfsource***. If no ***pfsource*** is specified, the new profile is identical to the default profile of type ***pftype*** and name ***default***.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)

    SHELF (Shelf)
    SUPVY (Supervisory Signal)
    SW (Software Management)
    SYSTEM (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

pfsource

Profile source. This is the name of an existing profile of the specified profile type which will be copied to produce the new profile. This parameter is optional. If no profile source is specified, the new profile will be identical to the default profile of the specified profile type. It is an alphanumeric string of 1 to 24 characters.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    tid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
ENT-ASAP-PROF:LT-1.6T::123456::client,abcdefg123;
```

```
IP 123456

<
```

```
    LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an invalid *pftype* is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pftype */

;
```

If an invalid *pfname* is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pfname */

;
```

If a profile of the specified *pftype* with the name specified by *pfsource* does not exist, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, pfsource does not exist */

;
```

_____

If the maximum number of user-created profiles already exists, the following error response is returned:

_____

```
    tid date time

M   ctag DENY

    SDNC

    /* Status, Data Not Consistent, maximum number of profiles exceeded */

;
```

_____

If a profile of the specified *pftype* and *pfname* already exists, the following error response is returned:

_____

```
    tid date time

M   ctag DENY

    IEAE

    /* Input, Entity Already Exists */

;
```

_____

If the specified *pfname* is "default" with any combination of uppercase and lowercase letters (for example "default" or "DEFAULT" or "dEfault"), the following error response is returned:

_____

```
     tid date time

 M   ctag DENY

     SROF

     /* Status, Requested Operation Failed, cannot create default profile */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-ASAP-PROF
ED-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-ASAP-PROF
RTRV-PROF-ASGNMT
```

_____

ENT-ASSOC-OTPS

ENT-ASSOC-OTPS: Enter Association OT_Port_Signal

The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3).

This command is available starting in WaveStar OLS 400G Release 1.0.

INPUT FORMAT

ENT-ASSOC-OTPS:*tid*:*src_aid*,*dest_aid*:*ctag*::*assoc*,*[chnlpwr]*,*[prtlctn];*

DESCRIPTION

The **ENT-ASSOC-OTPS** command message can be initiated by a user to request establishment of associations between the following pieces of equipment:

OTUs and OMUs, ODUs, OTUs , ORSs, WADs, WDUs, WMUs, and external pieces of equipment,
ODUs, WADs, or WDUs, and external pieces of equipment,
OMUs, WADs or WMUs, and external pieces of equipment, and
ORSs and OTUs, client equipment, and external equipment (such as another OLS terminal).

Add associations are defined between an OTU output port and an OMU, WAD, or WMU input port or between an OTU output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the OTU port and the OTU, OMU, WAD, or WMU port and the expected frequency of the OTU ports installed in a particular slot. For example, if OTU port-4-2-5-9350 is associated with OMU port-1-1-11-9350, then there is an assumption made that:

1. there is or will be a fiber connection between the OTU output port labeled 9350 OUT in slot-4-2-5 and the OMU input port labeled IN 9350 in slot-1-1-11, and
2. the expected code of OTU circuit pack installed in slot-4-2-5 is one that outputs frequency 193.50 THz.

Since the concept of Optical Channel is supported by the system, there are also implications of alarm suppression of signal defect conditions reported from the OTU, OMU, WAD, or WMU IN port and points further downstream if a signal defect condition is detected and reported or suppressed at the OTU port. OTU transmit lasers are left off until there are valid associations made on the input and output ports on an OTU.

External Add associations are defined between an external transmission terminal and an OMU, WAD, or WMU input port. This association may be used for interworking with other WaveStar products without the use of OTUs on the input, or for concatenating end terminals using one through OTU between two end terminals. They provide a mechanism to define the expected fiber connection between the external terminal and the OMU, WAD, or WMU port. for example, if an external terminal is associated with OMU port-1-1-11-9350, and the power level is set to "low", then there is an assumption made that:

1. there is or will be a fiber connection between the external terminal and the OMU input port labeled IN 9350 in slot 1-1-11, and

2. the expected power level is in the "less than OC-192" signal range.

The External Add association indicates the wavelength expected at a particular OMU, WAD, or WMU input port but does not include the fault correlation aspects of association operation.

For External Add associations, the source aid is EXTEQUIP.

Drop associations are defined between an ODU, WAD, or WDU output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the ODU, WAD, or WDU output port and the OTU input port but not the expected frequency of the OTU ports installed in a particular slot. For example, if ODU port-1-1-1-9350 is associated with OTU port-4-1-7-IN2, then there is an assumption made that there is a fiber connection between the ODU output port labeled OUT 9350 in slot-1-1-1 and the OTU input port labeled IN2 in slot-4-1-7 . There is also an implication of alarm suppression of signal defect conditions reported from the OTU IN port due to defect conditions reported at the ODU OUT port and points further upstream. In particular, an optical line LOS or OCAIM condition detected at an OA should result in the suppression of LOS and LOF conditions at OTUs associated with the ODUs, WADs, or WDUs in the same optical line as the OA. Beginning with 400G Release Three, the associations are entered and displayed in the direction of the signal flow, from source to destination.

External Drop associations are defined between an ODU, WAD, or WDU output port and an external transmission terminal. This association may be used for interworking with other WaveStar products without the use of OTUs on the output, or for concatenating end terminals using one through OTU between two end terminals. They provide a mechanism to define the expected fiber connection between the external terminal and the ODU, WAD, or WDU output port. For example, if an external terminal is associated with ODU port-1-1-1-9350, then there is an assumption made that there is a fiber connection between the external terminal input port and the ODU output port labeled OUT 9350 in slot-1-1-1.   The external drop association indicates the wavelength expected at a particular ODU, WAD, or WDU output port but does not include the fault correlation aspects of association operation.

For external drop associations, the destination aid is EXTEQUIP.

Terminal Drop associations are defined between an OTU port and an external transmission terminal. They provide a mechanism to define the expected fiber connection between the OTU output port and the external terminal, and they also determine the expected frequencies supported by the OTU circuit packs installed in a particular slot. For example, if OTU port-3-1-9-0001 is associated with a termi-nal, then the expected code of OTU circuit pack installed in slot-3-1-9 is one that outputs signals in the 1310 nm wavelength range. For terminal drop associations, the destination aid is EXTEQUIP.

Terminal Add associations are defined between an external transmission terminal and an OTU input port. They provide a mechanism to identify the OTU input ports to which port state auto-provision-ing applies. For example, if OTU port-4-1-7-IN2 is associated with a terminal, then there is an assumption made that there is a fiber connection between the OTU input port labeled IN2 in slot-4-1-7 and the external transmission terminal. For terminal add associations, the source aid is EXTEQUIP.

Protection Add associations are defined between an ORS line output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the ORS line output port and the OTU input port. For example, if ORS port-4-2-5-1AOUT is associated with OTU port-1-1-11-IN2, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS line output port labeled 1AOUT in slot-4-2-5 and the OTU input port labeled IN2 in slot-1-1-11,
2. slot-4-2-5 is a slot where an ORS can be installed per the provisioned system configuration, and
3. slot-1-1-11 is a slot where an OTU can be installed per the provisioned system configuration.

There are fault correlation assumptions made in the case of Protection Add associations. When an Add OTU detects an incoming signal LOS defect, and the ORS pack and that port's associated Add OTU pack are in the same NE, software shall correlate ORS and OTU alarms. If software correlates that the fault is in the ORS pack, software will report the ORS alarm. If software correlates that the fault is in the OTU pack, software will apply the existing OTU alarm correlation.

Protection External Add associations are defined between an external equipment (such as another OLS terminal) and an ORS line input port in an End Terminal to End Terminal Drop connection with the ORS and OTU not in the same NE. They provide a mechanism to define the expected fiber connection between the external equipment and the ORS line input port. For example, if an external equipment is associated with ORS port-1-1-11-1BIN, then there is an assumption made that:

1. there is or will be a fiber connection between the external equipment and the ORS line input port labeled 1BIN in slot 1-1-11,
2. the source address is EXTEQUIP, and
3. slot 1-1-11 is a slot where an ORS can be installed per the provisioned system configuration. The Protection External Add association indicates the input port of the particular ORS, but does not include the fault correlation aspects of association operation.

Protection Drop associations are defined between an OTU output port and an ORS line input port. They provide a mechanism to define the expected fiber connection between the OTU output port and the ORS line input port. For example, if OTU port-1-1-1-9350 is associated with ORS port-4-1-1-1BIN, then there is an assumption made that:

1. there is or will be a fiber connection between the OTU output port labeled OUT 9350 in slot-1-1-1 and the ORS line input port labeled 1BIN in slot-4-1-1,
2. slot-1-1-1 must be a slot where an OTU can be installed per the provisioned system configuration, and
3. slot-4-1-1 must be a slot where an ORS can be installed per the provisioned system configuration.

There are also fault correlation assumptions made in the case of Protection Drop associations. When a given channel in an ORS detects that a line-side incoming signal has LOS defect, and the ORS pack and that port's associated OTU pack are in the same NE, software shall correlate ORS and OTU alarms. If software correlates that the fault is in the fiber between the OTU and the ORS pack, software will report the line-side "incoming ORS line LOS" condition with ORS's line-side input port as its AID. If software correlates that the fault is in the OTU pack, or is a signal problem coming into the OTU pack, software will apply the existing OTU fault correlation.

When a given channel in an ORS detects that a line-side incoming signal has LOS defect, and the ORS pack and that port's associated OTU pack are not in the same NE, software will not perform fault correlation of ORS and OTU alarms. Software will report the line-side "incoming ORS line

LOS" condition with ORS's line-side input port as its AID.

Protection External Drop associations are defined between an ORS line output port and an external equipment (such as another OLS terminal) in an End Terminal to End Terminal Add connection with the ORS and OTU not in the same NE. They provide a mechanism to define the expected fiber connection between the ORS line output port and the external equipment. For example, if an external equipment is associated with ORS port-1-1-1-1AOUT, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS line output port labeled 1AOUT in slot-1-1-1 and the external equipment input port,
2. the destination address is EXTEQUIP, and
3. slot 1-1-1 must be a slot where an ORS can be installed per the provisioned system configuration. The Protection External Drop association does not include the fault correlation aspects of association operation.

Protection Terminal Add associations are defined between an external equipment and an ORS client input port. They provide a mechanism to define the expected fiber connection between the external equipment and the ORS client input port. For example, if ORS port-4-1-1-C1IN is associated with an external terminal, then there is an assumption made that:

1. there is or will be a fiber connection between the external equipment and the ORS client input port labeled C1IN in slot 4-1-1,
2. the source aid is EXTEQUIP, and
3. slot 4-1-1 must be a slot where an ORS can be installed per the provisioned system configuration.

Protection Terminal Drop associations are defined between an ORS client output port and an external equipment. They provide a mechanism to define the expected fiber connection between the ORS client output port and the external equipment. For example, if ORS port-3-1-9-C1OUT is associated with a terminal, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS client output port labeled C1OUT in slot 3-1-9 and the external equipment,
2. slot 3-1-9 must be a slot where an ORS can be installed per the provisioned system configuration, and
3. the destination aid is EXTEQUIP.

Once an OTU/ORS slot has an association that defines the slot as an OTU or ORS slot, subsequent associations that would define the slot as the other type are not allowed.

Add associations are defined between an OTU output port and an OMU, or WAD input port or between an OTU output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the OTU port and the OTU, OMU, or WAD port and the expected frequency of the OTU ports installed in a particular slot. For example, if OTU port-4-2-5-9350 is associated with OMU port-1-1-11-9350, then there is an assumption made that:

1. there is or will be a fiber connection between the OTU output port labeled 9350 OUT in slot-4-2-5 and the OMU input port labeled IN 9350 in slot-1-1-11, and
2. the expected code of OTU circuit pack installed in slot-4-2-5 is one that outputs frequency 193.50 THz.

Since the concept of Optical Channel is supported by the system, there are also implications of alarm suppression of signal defect conditions reported from the OTU, OMU, orWAD IN port and points further downstream if a signal defect condition is detected and reported or suppressed at the OTU

port. OTU transmit lasers are left off until there are valid associations made on the input and output ports on an OTU.

External Add associations are defined between an external transmission terminal and an OMU or WAD input port. This association may be used for interworking with other WaveStar products without the use of OTUs on the input, or for concatenating end terminals using one through OTU between two end terminals. They provide a mechanism to define the expected fiber connection between the external terminal and the OMU, or WAD port. for example, if an external terminal is associated with OMU port-1-1-11-9350, and the power level is set to "low", then there is an assumption made that:
   1. there is or will be a fiber connection between the external terminal and the OMU input port labeled IN 9350 in slot 1-1-11, and
   2. the expected power level is in the "less than OC-192" signal range.
The External Add association indicates the wavelength expected at a particular OMU, or WAD input port but does not include the fault correlation aspects of association operation.

For External Add associations, the source aid is EXTEQUIP.

Drop associations are defined between an ODU or WAD output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the ODU or WAD output port and the OTU input port but not the expected frequency of the OTU ports installed in a particular slot. For example, if ODU port-1-1-1-9350 is associated with OTU port-4-1-7-IN2, then there is an assumption made that there is a fiber connection between the ODU output port labeled OUT 9350 in slot-1-1-1 and the OTU input port labeled IN2 in slot-4-1-7 . There is also an implication of alarm suppression of signal defect conditions reported from the OTU IN port due to defect conditions reported at the ODU OUT port and points further upstream. In particular, an optical line LOS or OCAIM condition detected at an OA should result in the suppression of LOS and LOF conditions at OTUs associated with the ODUs or WADs, in the same optical line as the OA. Beginning with 400G Release Three, the associations are entered and displayed in the direction of the signal flow, from source to destination.

External Drop associations are defined between an ODU or WAD output port and an external transmission terminal. This association may be used for interworking with other WaveStar products without the use of OTUs on the output, or for concatenating end terminals using one through OTU between two end terminals. They provide a mechanism to define the expected fiber connection between the external terminal and the ODU or WAD output port. For example, if an external terminal is associated with ODU port-1-1-1-9350, then there is an assumption made that there is a fiber connection between the external terminal input port and the ODU output port labeled OUT 9350 in slot-1-1-1.   The external drop association indicates the wavelength expected at a particular ODU or WAD output port but does not include the fault correlation aspects of association operation.

For external drop associations, the destination aid is EXTEQUIP.

Terminal Drop associations are defined between an OTU port and an external transmission terminal. They provide a mechanism to define the expected fiber connection between the OTU output port and the external terminal, and they also determine the expected frequencies supported by the OTU circuit packs installed in a particular slot. For example, if OTU port-3-1-9-0001 is associated with a termi-

nal, then the expected code of OTU circuit pack installed in slot-3-1-9 is one that outputs signals in the 1310 nm wavelength range. For terminal drop associations, the destination aid is EXTEQUIP.

Terminal Add associations are defined between an external transmission terminal and an OTU input port. They provide a mechanism to identify the OTU input ports to which port state auto-provisioning applies. For example, if OTU port-4-1-7-IN2 is associated with a terminal, then there is an assumption made that there is a fiber connection between the OTU input port labeled IN2 in slot-4-1-7 and the external transmission terminal. For terminal add associations, the source aid is EXTEQUIP.

Protection Add associations are defined between an ORS line output port and an OTU input port. They provide a mechanism to define the expected fiber connection between the ORS line output port and the OTU input port. For example, if ORS port-4-2-5-1AOUT is associated with OTU port-1-1-11-IN2, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS line output port labeled 1AOUT in slot-4-2-5 and the OTU input port labeled IN2 in slot-1-1-11,
2. slot-4-2-5 is a slot where an ORS can be installed per the provisioned system configuration, and
3. slot-1-1-11 is a slot where an OTU can be installed per the provisioned system configuration.

There are fault correlation assumptions made in the case of Protection Add associations. When an Add OTU detects an incoming signal LOS defect, and the ORS pack and that port's associated Add OTU pack are in the same NE, software shall correlate ORS and OTU alarms. If software correlates that the fault is in the ORS pack, software will report the ORS alarm. If software correlates that the fault is in the OTU pack, software will apply the existing OTU alarm correlation.

Protection External Add associations are defined between an external equipment (such as another OLS terminal) and an ORS line input port in an End Terminal to End Terminal Drop connection with the ORS and OTU not in the same NE. They provide a mechanism to define the expected fiber connection between the external equipment and the ORS line input port. For example, if an external equipment is associated with ORS port-1-1-11-1BIN, then there is an assumption made that:

1. there is or will be a fiber connection between the external equipment and the ORS line input port labeled 1BIN in slot 1-1-11,
2. the source address is EXTEQUIP, and
3. slot 1-1-11 is a slot where an ORS can be installed per the provisioned system configuration. The Protection External Add association indicates the input port of the particular ORS, but does not include the fault correlation aspects of association operation.

Protection Drop associations are defined between an OTU output port and an ORS line input port. They provide a mechanism to define the expected fiber connection between the OTU output port and the ORS line input port. For example, if OTU port-1-1-1-9350 is associated with ORS port-4-1-1-1BIN, then there is an assumption made that:

1. there is or will be a fiber connection between the OTU output port labeled OUT 9350 in slot-1-1-1 and the ORS line input port labeled 1BIN in slot-4-1-1,
2. slot-1-1-1 must be a slot where an OTU can be installed per the provisioned system configuration, and
3. slot-4-1-1 must be a slot where an ORS can be installed per the provisioned system configuration.

There are also fault correlation assumptions made in the case of Protection Drop associations. When

a given channel in an ORS detects that a line-side incoming signal has LOS defect, and the ORS pack and that port's associated OTU pack are in the same NE, software shall correlate ORS and OTU alarms. If software correlates that the fault is in the fiber between the OTU and the ORS pack, software will report the line-side "incoming ORS line LOS" condition with ORS's line-side input port as its AID. If software correlates that the fault is in the OTU pack, or is a signal problem coming into the OTU pack, software will apply the existing OTU fault correlation.

When a given channel in an ORS detects that a line-side incoming signal has LOS defect, and the ORS pack and that port's associated OTU pack are not in the same NE, software will not perform fault correlation of ORS and OTU alarms. Software will report the line-side "incoming ORS line LOS" condition with ORS's line-side input port as its AID.

Protection External Drop associations are defined between an ORS line output port and an external equipment (such as another OLS terminal) in an End Terminal to End Terminal Add connection with the ORS and OTU not in the same NE. They provide a mechanism to define the expected fiber connection between the ORS line output port and the external equipment. For example, if an external equipment is associated with ORS port-1-1-1-1AOUT, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS line output port labeled 1AOUT in slot-1-1-1 and the external equipment input port,
2. the destination address is EXTEQUIP, and
3. slot 1-1-1 must be a slot where an ORS can be installed per the provisioned system configuration. The Protection External Drop association does not include the fault correlation aspects of association operation.

Protection Terminal Add associations are defined between an external equipment and an ORS client input port. They provide a mechanism to define the expected fiber connection between the external equipment and the ORS client input port. For example, if ORS port-4-1-1-C1IN is associated with an external terminal, then there is an assumption made that:

1. there is or will be a fiber connection between the external equipment and the ORS client input port labeled C1IN in slot 4-1-1,
2. the source aid is EXTEQUIP, and
3. slot 4-1-1 must be a slot where an ORS can be installed per the provisioned system configuration.

Protection Terminal Drop associations are defined between an ORS client output port and an external equipment. They provide a mechanism to define the expected fiber connection between the ORS client output port and the external equipment. For example, if ORS port-3-1-9-C1OUT is associated with a terminal, then there is an assumption made that:

1. there is or will be a fiber connection between the ORS client output port labeled C1OUT in slot 3-1-9 and the external equipment,
2. slot 3-1-9 must be a slot where an ORS can be installed per the provisioned system configuration, and
3. the destination aid is EXTEQUIP.

Once an OTU/ORS slot has an association that defines the slot as an OTU or ORS slot, subsequent associations that would define the slot as the other type are not allowed.

For a 10G MUX OTU that is to be used as a Source, the provisioning of the multiplexing output port (MUX OCh10G) with the *prtlctn* parameter set to "OUT" shall precede the provisioning of any of the OC-48/STM-16 input ports.

If an OTU is first provisioned with an input port of IN1/2, OLS software shall assume this OTU is not a 10G MUX OTU and process accordingly. Any subsequent 10G MUX OTU association for that slot shall be rejected as invalid. Conversely, if an OTU is first provisioned with an association specific to the 10G MUX OTU (i.e., high speed output port with *prtlctn* set to "OUT"), OLS software shall assume this OTU is a 10G MUX OTU and process accordingly.

This sequencing requirement should be reflected in the operational procedure when the ENT-ASSOC-OTPS TL1 commands are entered.

There is no sequencing restriction when associations for a specific slot are entered for the sink side only of the 10G MUX OTU.

The following are sample configurations in which the 10G MUX OTU source side is used:

(a) An ADD Connection (with TERMINAL ADD + ADD associations) with the TERMINAL ADD association at the input of the 10G MUX OTU source side, and an ADD association at the MUX OCh10G output port which should be provisioned first.

(b) A Through connection (double OTU) for the Ring Terminal (with DROP + two ADD associations) with the DROP association modeling the connection between an ODU/WAD and the first OTU, the first ADD association at the second OTU (10G MUX OTU) source side, and the second ADD association at the MUX OCh10G output port which should be provisioned first.

(c) An ADD Connection (with PROTN TERMINAL ADD + PROTN ADD + ADD associations) with the PROTN ADD association modeling the connection from the ORS to the OTU (10G MUX) at the input of the 10G MUX OTU source side, and an ADD association at the MUX OCh10G output port which should be provisioned first.

(d) An End Terminal to End Terminal Add Applicaton Connection with the ORS and OTU (10G MUX) in the same NE (with PROTN ADD + TERMINAL DROP associations) with the PROTN ADD association modeling the connection from an ORS to the OTU (10G MUX) at the input of the 10G MUX OTU source side, and the TERMINAL DROP association at the MUX OCh10G output port which should be provisioned first.

For a MUX OTU (including 10G MUX OTU, 4:1 TRANS MUX OTU and 8:1 GbE MUX OTU) that is to be used as a Source, the provisioning of the multiplexing output port (MUX OCh10G for 10G MUX OTU, OC-192/STM-64 or OCh10G for 4:1 TRANS MUX OTU, or OC-192/STM-64 for 8:1 GbE MUX OTU with the *prtlctn*parameter set to "OUT" shall precede the provisioning of any of the OC-48 (or OC-48c)/STM-16 input ports.

If an OTU is first provisioned with an input port of IN1/2, OLS software shall assume this OTU is not a MUX OTU and process accordingly. Any subsequent MUX OTU associa- tion for that slot shall be rejected as invalid. Conversely, if an OTU is first provisioned with an asso- ciation specific to the MUX OTU (i.e., high speed output port with prtlctn set to "OUT"), OLS soft- ware shall assume this OTU is a MUX OTU and process accordingly.

This sequencing requirement should be reflected in the operational procedure when the ENT-ASSOC-OTPS TL1 commands are entered.

There is no sequencing restriction when associations for a specific slot are entered for the sink side only of the MUX OTU.

The following are sample configurations in which the MUX OTU source side is used:

(a) An ADD Connection (with TERMINAL ADD + ADD associations) with the TERMINAL ADD association at the input of the MUX OTU source side, and an ADD association at the MUX OTU source side high speed output port (MUX OCh10G for the 10G MUX OTU, OC-192/STM-64 or OCh10G for the 4:1 TRANS MUX OTU, or OCh10G for the 8:1 GbE MUX OTU) which should be provisioned first.

(b) A Through connection (double OTU) for the Ring Terminal (with DROP + two ADD associations) with the DROP association modeling the connection between an ODU/WAD and the first OTU, the first ADD association at the second OTU (MUX OTU) source side, and the second ADD association at the MUX OTU source side high-speed output port which should be provisioned first.

(c) An ADD Connection (with PROTN TERMINAL ADD + PROTN ADD + ADD associations) with the PROTN ADD association modeling the connection from the ORS to the OTU (MUX OTU) at the input of the MUX OTU source side, and an ADD association at the MUX OTU's source side high-speed output port which should be provisioned first.

(d) An End Terminal to End Terminal Add Applicaton Connection with the ORS and MUX OTU in the same NE (with PROTN ADD + TERMINAL DROP associations) with the PROTN ADD association modeling the connection from an ORS to the MUX OTU at the input of the MUX OTU source side, and the TERMINAL DROP association at the MUX OTU's source side high-speed output port which should be provi- sioned first.

INPUT PARAMETERS

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

   src_aid

   Source Access Identifier. This is the address of the source OTU, ODU, ORS, WAD, WDU, or WMU port, or EXTEQUIP for the external equipment.

   Entity: Single Source Port (ODU, OTU, ORS, WAD, WDU, WMU)
   Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650, 0001, 0002, OUT1, OUT2, OUT3, OUT4, 1AOUT, 1BOUT, 2AOUT, 2BOUT, C1OUT, C2OUT), EXTEQUIP

   For WMU and WDU, only even channels are available for adding and dropping.

   The EXTEQUIP value *must* be used for the source access identifier of the Terminal Add, External Add, Protection External Add, and Protection Terminal Add type associations. This value cannot be used for the source access identifier of any other type of association.

dest_aid

The EXTEQUIP value *must* be used for the destination access identifier of the Terminal Drop, External Drop, Protection External Drop, and Protection Terminal Drop type associations. This value cannot be used for the destination access identifier of any other type of association.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

assoc

Association type. This parameter specifies the type of association being requested. It may have one of the following values: "ADD", "XADD", "DROP", "XDROP", "TADD", "TDROP", "PADD", "PXADD", "PDROP", "PXDROP", "PTADD", or "PTDROP".

ADD
> Add. This requests an association FROM an OTU port TO an OMU, OTU, WAD, or WMU port.

XADD
> External Add. This requests an association FROM an external transmission terminal TO an OMU, WAD, or WMU port.

DROP
> Drop. This requests an association FROM an ODU, WAD, or WDU port TO an OTU port.

XDROP
> External Drop. This requests an association FROM an ODU, WAD, or WDU port TO an external transmission terminal.

TADD
> Terminal Add. This requests an association FROM an external transmission terminal TO an OTU port.

TDROP
> Terminal Drop. This requests an association FROM an OTU port TO an external transmission terminal.

PADD
> Protection Add. This requests an association FROM an ORS line output port TO an OTU input port.

PXADD
Protection External Add. This requests an association FROM an external equipment (such as another OLS terminal) TO an ORS line input port.

PDROP
> Protection Drop. This requests an association FROM an OTU output port TO an ORS line input port.

PXDROP
> Protection External Drop. This requests an association FROM an ORS line output port TO an external equipment (such as another OLS terminal).

PTADD
> Protection Terminal Add. This requests an association FROM an external equipment TO an ORS client input port.

PTDROP
> Protection Terminal Drop. This requests an association FROM an ORS client output port TO an external equipment.

chnlpwr

Channel Power. This parameter specifies the power level of the channel coming from an external transmission terminal into an OMU. It is only required for the External Add type association. It may have one of the following values: "HIGH" or "LOW".

HIGH
> This indicates the channel power is coming from an OC-192/STM-64 or OC-192FEC/STM-64FEC signal.

LOW
> This indicates the channel power is coming from any signal lower than OC-192.

prtlctn

Port Location. The allowable values for **prtlctn** are 1, "2", and "OUT".

Port location "OUT" identifies the physical multiplexing output port location of an OTU with multiple input ports and one output port (referred to as a MUX OTU, such as 10G MUX OTU). This parameter is always required for the provisioning of the multiplexing output port (MUX OCh10G) for **assoc** (Association Type) of ADD with the MUX OTU used as the Source, and must precede the provisioning of any of the OC-48/STM-16 input ports. This parameter will be DENY'ed for the provisioning of the low-speed output ports (e.g., Port OUT1/2/3/4) for the sink side of the MUX OTU.

> For the regular OTUs (i.e., not 10G MUX OTU), this parameter identifies the physical output port location and may be optionally set to "1" or "2". Output port location 1 is related to input Port IN1. Output port location 2 is related to input Port IN2. This parameter is optional if **assoc** (Association Type) is ADD, TDROP, or PDROP. The command will be DENYed if a value is entered for **prtlctn** and **assoc** is TADD, XADD, DROP, XDROP, "PADD", "PXADD", "PXDROP", "PTADD", or "PTDROP". The **prtlctn** parameter is needed only when the physical output port location for the output port frequency is not the standard port location.
> (1) If the last component of the src_aid is 0001, **prtlctn** is not required. If specified, prtlctn must be set to 1.
> (2) If the last component of the src_aid is 0002, **prtlctn** is not required. If specified, prtlctn must be set to 2.

OUTPUT FORMAT

> If the network element fully complies with this command, the following output message is returned:

```
    sid date time
M   ctag COMPLD
 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example establishes an add association between OTU port "port-5-1-7-9190" and OMU port "port-1-1-11-9190":

```
ENT-ASSOC-OTPS:WAVES-
TAR-OLS-400G-3:PORT-5-1-7-9190,PORT-1-1-11-9190:X32::ADD;

IP X32
<
    WAVESTAR-OLS-400G-3 98-05-22 11:21:52
M  X32 COMPLD
;
```

The following example establishes an external add association between an external transmission terminal sending an OC-48/STM-16 signal and OMU port "port-1-1-11-9190".

```
ENT-ASSOC-OTPS:WAVESTAR-OLS-400G-3:EXTE-
QUIP,PORT-1-1-11-9190:X32::XADD,LOW;

IP X32
<
    WAVESTAR-OLS-400G-3 99-06-22 11:21:52
M  X32 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without a *src_aid* or *dest_aid* value or with a *src_aid* or *dest_aid* value that does not identify a single ODU, OMU, OTU, ORS, WAD, WDU, or WMU port, the following error response is returned:

```
    sid date time
M  ctag DENY
```

```
      IIAC
      /* Input, Invalid Access Identifier,
      Source or Destination AID missing or invalid */
   ;
```

If the network element receives this command with *src_aid* and *dest_aid* values that specify the same slot, the following error response will be returned:

```
      sid date time
M   ctag DENY
      IIAC

      /* Input, Invalid Access Identifier,
      Source and Destination AIDs must not specify the same slot
      */
   ;
```

If the network element receives this command with an invalid or missing *assoc* value, the following error response is returned:

```
      sid date time
M   ctag DENY
      IDNV
      /* Input, Data Not Valid, invalid ASSOC */
   ;
```

An exception to requirement ENT_ASSOC_OTPS-1170 is as follows:

The system shall not return an error response if:
- the network element is configured as part of a C-Band system, and a TDROP command is received with a *src_aid* value for an L-Band system, or
- the network element is configured as part of an L-Band system, and a TDROP command is received with a *src_aid* value for a C-Band system.

If an OTU/ORS slot already has an association that defines the slot as an OTU slot, and the network element receives this command to define the slot as the ORS type, the following error response will be returned:

```
      sid date time
M   ctag DENY
      IIAC
      /* Input, Invalid Access Identifier,
      Already an OTU slot */
```

```
    ;
```

If the network element receives this command for a connection with a *src_aid*or *dest_aid* for WMU, but that connection has already been provisioned with a *src_aid* or *dest_aid* for WDU, the following error response is returned.

If the network element receives this command for a connection with a *src_aid* or *dest_aid* for WDU, but that connection has already been provisioned with a *src_aid* or *dest_aid* for WMU, the following error response is returned.

```
    sid date time
M   ctag DENY
    SAAS
    /* Status, Already ASsociated,
    Establishing this association requires that the existing
    association identified with the addressed WMU or WDU be
    deleted.
    */
    ;
```

If an OTU/ORS slot already has an association that defines the slot as an ORS slot, and the network element receives this command to define the slot as the OTU type, the following error response will be returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Already an ORS slot */
    ;
```

If the network element receives this command with a *src_aid* or *dest_aid* value that specifies a WDU or WMU port with odd channels, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Source or Destination AID invalid */
    ;
```

If the network element receives this command with (1) a *src_aid* value of "EXTEQUIP" and an *assoc* value of anything other than TADD, XADD, PTADD, and PXADD, or (2) a *src_aid* value other than "EXTEQUIP" for a TADD, XADD, PTADD, or PXADD type association, or (3) a *src_aid* value for an ORS port and an *assoc* value of anything other than PADD, PXDROP, or PTDROP, or (4) a *src_aid* other than for an ORS port and an *assoc* value of PADD, PXDROP, or PTDROP, the following error response will be returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Source AID is invalid for the requested association */
;
```

If the network element receives this command with a *dest_aid* value of "EXTEQUIP" and an *assoc* value of anything other than TDROP, XDROP, PTDROP, and PXDROP, or (2) a *dest_aid* value other than "EXTEQUIP" for a TDROP, XDROP, PTDROP, or PXDROP type association, or (3) a *dest_aid* value for an ORS port and an *assoc* value of anything other than PDROP, PXADD, or PTADD, or (4) a *dest_aid* other than for an ORS port and an *assoc* value of PADD, PXDROP, or PTDROP, the following error response will be returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier,
    Destination AID invalid for requested association */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would cause associations with different source aids to share the same destination aid, the following error response is returned:

```
    sid date time
M   ctag DENY
    SAAS
    /* Status, Already ASsociated,
    Establishing this association requires that the existing
    associations identified with the addressed OTU, ORS, ODU,
    WAD, WDU, WMU, or OMU be deleted.
    */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it would cause associations with one source aid to different destination aids in the same direction, the following error response is returned:

```
    sid date time
M   ctag DENY
    SAAS
    /* Status, Already ASsociated,
    Establishing this association requires that the existing
    associations identified with the addressed OTU, ORS, ODU,
    WAD, WDU, WMU, or OMU be deleted.
    */
;
```

If an otherwise valid instance of this command is received, but for which the association cannot be made because it is an ADD association from an OTU to an OMU, WAD, or WMU and the wavelengths in the source and destination AIDs do not match, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, wavelength mismatch between
    the source and destination
    */
;
```

If the network element receives this command with an invalid *chnlpwr* value, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid chnlpwr value
    */
;
```

If the network element receives this command with a *chnlpwr* value for an association type other than External Add, the following error response is returned:

```
      sid date time
M   ctag DENY
      IDNV
      /* Input, Data Not Valid, chnlpwr cannot be used with
requested
      association
      */
   ;
```

If the network element receives this command with a request for an External Add type association without a *chnlpwr* value, the following error response is returned:

```
      sid date time
M   ctag DENY
      IDNV
      /* Input, Data Not Valid, chnlpwr value is required for
      the External Add association.
      */
   ;
```

If the network element receives this command with a value for **prtlctn** other than 1, 2 or OUT for *assoc* value of ADD, TDROP, or PDROP, the following error response is returned:

```
      sid date time
M   ctag DENY
      IDNV
      /* Input, Data Not Valid, Invalid Port Location */
   ;
```

If the network element receives this command with a value for **prtlctn** of 1 when the last component of the **src_aid** is 0002, or if the network element receives this command with a value for **prtlctn** of 2 when the last component of the **src_aid** is 0001, the following error response is returned:

```
      sid date time
M   ctag DENY
      IDNV
      /* Input, Data Not Valid, prtlctn must agree with
      src_aid of 0001 or 0002.*/
   ;
```

If the network element receives this command with a value for *prtlctn* when the last component of the *src_aid* is OUT1/2/3/4, the following error response is returned:

```
    sid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, prtlctn must not be specified
    for src_aid of OUT1, OUT2, OUT3, or OUT4.*/
 ;
```

RELATED TL1 COMMANDS/MESSAGES

DLT-ASSOC-OTPS
RTRV-ASSOC-OTPS

ENT-CID-SECU

ENT-CID-SECU: Enter Channel_Identifier Security

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ENT-CID-SECU:*tid*:*aid*:*ctag*::[:*spec_block*];

DESCRIPTION

The **ENT-CID-SECU** command is initiated to set port security parameters for the CIT and OS TL1 interface ports. No inactivity timer is maintained for all the Data Communication Network TL1 channels.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the communication ports for which parameters need to be set. A null value is not allowed.

Entity: Port (COM)
Legal Values: (ALL,CIT,OS-TCPIP,OS-OSI)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific block. This optional parameter field is used for most basic capabilities of the **ENT-CID-SECU** command. Parameters set within the specific block are positionally independent and are set using a construct such as: PARAMETER=*value* in a comma-separated list. The specific

block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single **ENT-CID-SECU** command.

TMOUT

This parameter sets the time out interval for the CIT, OS-TCP/IP and OS-OSI TL1 interface ports. It has an integer value in the range 0-999 minutes. A value of 0 disables the time out mechanism. The original value is 35 minutes. When a null value is provided, the current value is unchanged.

PORTACC
PORTTYPE
BAUDRATE
CHAN
OSTYPE
CALLADDR
YEARFMT

OUTPUT FORMAT

If the network element fully complies with the **ENT-CID-SECU** request, the following normal completion response is returned:

```
    sid date time



M  ctag COMPLD



;
```

If the **ENT-CID-SECU** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display.)

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an **ENT-CID-SECU** command that provisions security parameters for a CIT port.

```
ENT-CID-SECU:LT-1.6T:CIT:123456:::TMOUT=10,,,,,,,;
```

```
IP 123456
```

```
<
```

```
   LT-1.6T 1998-10-26 16:42:11
```

```
M  123456 COMPLD
```

```
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the command is received with an invalid aid, the following error response is returned:

```
    sid date time
```

```
M  ctag DENY
```

```
    IIAC
```

```
    /* Input, Invalid Access Identifier */
```

```
;
```

If an **ENT-CID-SECU** command is received with an invalid TMOUT parameter, the following error response is returned:

```
    sid date time
```

```
M  ctag DENY
```

```
    IDNV
```

```
    /* Input, Data Not Valid, invalid TMOUT parameter */
```

```
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-CID-SECU

ENT-NE-SECU

ENT-NE-SECU: Enter Network_Element Security

The User Privilege Code (UPC) for this command is Security Level 5 (S5).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ENT-NE-SECU:*tid*::*ctag*::*spec_block*;

DESCRIPTION

The **ENT-NE-SECU** command can be initiated by a user with a UPC of S5 to set the global login-aging period, logins-allowed security parameters, user ID lockout threshold and period. When logins are disallowed using this command, any currently active non-Super session will immediately be disconnected and all non-Super users will not be able to log into the NE while the logins are disabled..

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *NAME=value,NAME=value,...* type construct with no constraints on the order of parameters. Constructs such as *NAME1=value1,NAME3=value3,...* are acceptable and in this example only the parameters *NAME1* and *NAME3* will be changed at the network element. If the current value of the parameter *NAME1* is already *value1* in the example just shown, *NAME1* will not be changed.

For the **ENT-NE-SECU** command, the *spec_block* must contain one or more of the following parameters:

ALW_UID

This parameter allows or disallows non-Super user logins into the network element. This parameter can take one of the two values: "YES" or "NO". The original value is "YES". If this parameter is omitted (null), the currently effective value remains in effect.

When logins are disallowed using this command, any currently active non-Super user session will immediately be disconnected.

UOUT

This parameter specifies the period in days during which a user had to login at least once to retain the login. It can take a value between 1 and 999 days, or 0, which disables the login aging mechanism. The original value is 120 days. If the parameter is omitted (null), the currently effective value remains in effect.

MXINV

> User Id Lockout Threshold - This parameter sets the number of sequential attempts the user is allowed before being locked out for the period set by the DURAL parameter. The original value is 5 attempts. The range is 2 to 99. If the parmeter is omitted (null), the currently effective value remains in effect.

DURAL

> User Id Lockout Period. This parameter sets the number of minutes a user will be locked out after exceeding the allowed number of invalid sequential attempts. The original value is 10 minutes. The range for this parameter is 0 to 99 minutes. Setting this parameter to 0 eliminates the lockout period. If the parmeter is omitted (null), the currently effective value remains in effect.

NOTE: If a Super user executes this command and changes the ALW_UID parameter to NO, then all logged in users, except Super users, will be logged out and will not be able to login in again until the ALW-UID parameter in set to the value YES.

OUTPUT FORMAT

If the network element fully complies with the **ENT-NE-SECU** request, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```
_____

If the **ENT-NE-SECU** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (in the screen display just shown).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an **ENT-NE-SECU** command that provisions the network element's security parameters.

_____

```
ent-ne-secu:LT-1.6T::CTAG::ALW_UID=Yes,UOUT=90,MXINV=3,DURAL=15;



IP CTAG

<


   LT-1.6T 1999-10-26 16:42:11

M  CTAG COMPLD

;
```
_____

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an **ENT-NE-SECU** command is received with an invalid *alw_uid* parameter, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid ALW_UID */

;
```

If an **ENT-NE-SECU** command is received with an invalid *uout* parameter, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid UOUT */

;
```

If the network element receives an **ENT-USER-SECU** command with an invalid **DURAL**, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DURAL */

;
```

If the network element receives an **ENT-USER-SECU** command with an invalid **MXINV**, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MXINV */

;
```

If an **ENT-NE-SECU** command is received with a null *spec_block* parameter, the following error response is returned:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
RTRV-NE-SECU
```

_____

ENT-OCHTRC

ENT-OCHTRC: Enter Optical Channel Path Trace

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

ENT-OCHTRC:*tid*:*aid*:*ctag*:::[*spec_block*];

DESCRIPTION

The **ENT-OCHTRC** command can be initiated by users to assign a user-settable text string to the optical channel path trace transmitted in the OJ3 bytes of the WaveWrapper overhead at the addressed entity. This command can also be initiated by users to assign a user-settable text string to the expected received optical channel path trace at the addressed entity.

The transmitted optical channel path trace is utilized only by an OTU operating in OCh Source Mode (defined below). The expected received optical channel path trace is utilized only at an OTU operating in either OCh Repeater Mode or OCh Sink Mode (defined below). The operating mode of an OTU is controlled by the ENT-OTPS command. When a trace is addressed to an OTU that cannot currently utilize it, it must be stored for later use if and when the operating mode of that OTU is changed to a mode where it can utilize that trace.

OCh Source Mode: In this mode the client signal is wrapped in the OCh-OH creating a WaveWrapper formatted signal for transport between OLS 1.6T network elements. At this point the transmitted OCh Trace is inserted.

OCh Repeater Mode: In this mode the WaveWrapper is regenerated without altering the client signal. Non Intrusive Monitoring is performed. Here the OCh Trace is monitored and compared with the provisioned expected value. A WaveWrapper Path Trace Mismatch is alarmed and reported if they do not match, but no consequent action occurs.

OCh Sink Mode: In this mode the WaveWrapper wrapper is removed and the client signal is output. Here the OCh Trace is monitored and compared with the provisioned expected value. A WaveWrapper Path Trace Mismatch is alarmed and reported if they do not match. If consequent action is enabled, then the OTU's laser will be turned off upon detection of this alarm condition.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Port (OTU IN and OUT)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN, IN1, IN2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. This is used to enter the user-settable strings to the transmit optical channel path trace field of a WaveWrapper originating signal. Parameters within the *spec_block* are specified using a name-defined construct of: **PARAMETER**=*value* in a comma separated list.

Furthermore, each parameter listed below may appear at most once within the *spec_block* for a single **ENT-OCHTRC** command

For the **ENT-OCHTRC** command, the *spec_block* may contain zero or more of the following parameters:

XMPOH

Transmitted optical channel path trace overhead message (**XMPOH**). The **XMPOH** is a string of up to 15 ASCII alphanumeric and special characters as specified below. The message must be enclosed using delimiters. The delimiter to be used is **\"** [that is, backslash followed by double-quotes].

An **XMPOH** of less than 15 characters is padded out to the right to 15 characters with unprintable characters whose Hex representation is 00.

If **XMPOH** is not specified, the previously provisioned value is not changed.

This parameter is used only when addressing an OTU operating in OCh Source Mode, where the client signal is wrapped in the optical channel overhead, creating a WaveWrapper signal for transport in the OLS 1.6T. It will be ignored by an OTU operating in any other mode.

The user is allowed to enter any combination of up to 15 ASCII characters as the **XMPOH**. The user may not use the delimiter \" [that is, backslash followed by double quotes] as part of the 15 character string. The allowed ASCII characters are shown in the table below:

Graphic Symbol	Name	Coded Representation
0-9	Digits	3/0 - 3/9
A-Z	Latin capital letters	4/1 - 5/10
a-z	Latin small letters	6/1 - 7/10
!	Exclamation mark	2/1
"	Quotation mark	2/2
#	Number sign	2/3
$	Dollar sign	2/4
%	Percent sign	2/5
&	Ampersand	2/6
'	Apostrophe	2/7
(	Left parenthesis	2/8
)	Right parenthesis	2/9
*	Asterik	2/10
+	Plus sign	2/11
,	Comma	2/12
-	Hyphen, minus sign	2/13
.	Full stop	2/14
/	Solidus	2/15
:	Colon	3/10
;	Semicolon	3/11
<	Less-than-sign	3/12
=	Equals sign	3/13
>	Greater-than-sign	3/14
?	Question mark	3/15
@	Commercial at	4/0
[	Left square bracket	5/11
\	Reverse solidus	5/12

]	Right square bracket	5/13
^	Circumflex accent	5/14
_	Low line, underline	5/15
`	Grave accent	6/0
{	Left curly bracket	7/11
|	vertical line	7/12
}	Right curly bracket	7/13
~	Tilde	7/14
	<SPACE>	2/0

The coded representation is the 7 bit hex representation as specified by the
CCITT Recommendation T.50 (09/92) International Reference Alphabet.

The constant string "RESET-OCH-TRACE" is the original value of **XMPOH**. This 15-byte string is composed entirely of characters from the allowable character set and will be treated by the software just as any other allowable trace string. The string **XMPOH**="RESET-OCH-TRACE" will reset the value of **XMPOH** to its original value.

For any value of **XMPOH** composed of characters from the allowable character set plus 0x00 pad bytes, including the original value "RESET-OCH-TRACE", the software causes the Network Element to transmit this as the optical channel path trace in accordance with ITU recommendation G.831 (The first byte of 16 bytes is used for CRC7 calculation which is not readable. The other 15 bytes are used to transmit the optical channel path trace byte information. The 16 byte optical channel path trace is inserted into the WaveWrapper overhead, following the same format used for the SONET J0 trace according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

EXPPOH

Expected incoming optical channel path trace overhead message (**EXPPOH**). The **EXPPOH** is a string of up to 15 ASCII alphanumeric and special characters as specified below. The message must be enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double-quotes].

A **EXPPOH** of less than 15 characters is padded out to the right to 15 characters with unprintable characters whose Hex representation is 00.

If **EXPPOH** is not specified, the previously provisioned value is not changed.

This parameter is used only when addressing an OTU operating in OCh Through Mode where the WaveWrapper is regenerated without altering the client signal within, or OCh Sink Mode where the client signal is unwrapped from the optical channel overhead. It will be ignored by an OTU operating in any other mode.

The allowable character set for **EXPPOH** shall be the same character set defined above for **XMPOH**.

The constant string "RESET-OCH-TRACE" is the original value of **EXPPOH**. This 15-byte string is composed entirely of characters from the allowable character set and will be treated by the software just as any other allowable trace string. The string **EXPPOH**="RESET-OCH-TRACE" will reset the value of **EXPPOH** to its original value.

For any value of **EXPPOH** composed of characters from the allowable character set plus 0x00 pad bytes, including the original value "RESET-OCH-TRACE", the software causes the Network Element to expect to receive this as the optical channel path trace in accordance with ITU recommendation G.831 (The first byte of 16 bytes is used for CRC7 calculation which is not readable. The other 15 bytes are used to transmit the optical channel path trace byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

If there is no *spec_block* entry, the current **XMPOH** and **EXPPOH** will not change.

OUTPUT FORMAT

If the network element fully complies with the **ENT-OCHTRC** request, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

;
```

If the **ENT-OCHTRC** command does not alter the existing transmitted optical channel path trace string, the network element provides a normal completion response.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
ENT-OCHTRC:OLS-1.6T:port-1-2-3-IN1:123456:::XMPOH=\"ExptSectTrc1234\";
IP 123456

<
```

```
    OLS-1.6T 98-09-08 16:34:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-OCHTRC** command with an invalid *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element receives an **ENT-OCHTRC** command with an invalid *spec_block* parameter(s), the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid */

;
```

If this command is received with an invalid **XMPOH** value, including missing leading or trailing escaped quotes (\") and/or more than 15 characters in the string and/or unallowed characters in the string, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid XMPOH */

 ;
```

If this command is received with an invalid **EXPPOH** value, including missing leading or trailing escaped quotes (\") and/or more than 15 characters in the string and/or unallowed characters in the string, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid EXPPOH */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OCHTRC
ENT-OTPS

ENT-OLPP

ENT-OLPP: Enter Optical_Line Provisioned_Parameters The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-OLPP:*tid*:*aid*:*ctag*::*spec_block*;

DESCRIPTION

The **ENT-OLPP** command is used to provision the following parameters for each OA output port:

- Output optical power per channel for "low" power channels (typically OC-48/STM-16/OCh2.5G bit rate and less)
- Difference in power level between "low" power channels and "high" power channels (typically OC-192/STM-64 bit rate and higher)
- Pre-tilt value for the OA. The pre-tilt value is composed of the four parameters *ftype*, *lbo*, *tfact* and *tfilter* as defined below.
- Span loss in dB of the optical line the OA output is connected to. This parameter is used to support the Long Single Span feature
- Clamping the OA output to 0-channel power. This parameter is used to support span loss measurement at installation time.

To support the Long Single Span feature, the software in the OA determines the minimum OA output power based on the provisioned span loss according to the following table. As described in requirement ENT_OLPP-1006, spans with 31 dB or less loss are treated as 31 dB.

Span Loss dB	Min. OA Pwr dBm
====	====
31	10
32	11
33	12
34	13
35	14
36	15
37	16

If the the number of channels present, their designation as "low" or "high" power channels, the target power per channel and "low" / "high" power difference provided by the user do

not equate to the minimum OA output power, the channels that are present may operate at a degraded performance level due to having too much power. During installation, there are installation tests that work best if transmit OA outputs power when the fiber is disconnected. This is in conflict with the automatic power shut-down feature. Examples of installation tests are:

- ❍ Measuring span loss (specifically, the loss of the inside plant (includes office cabling and LGX's) and the outside plant)
- ❍ Attempting to test a single line system
- ❍ Slow recovery of APSD for various types of test (such as CP removal and replacement and line failures)

It is important to have accurate span loss measurements. Up to R3.0, supervisory signal is used for span loss measurement. The span loss measurement using supervisory signal is not as accurate as using the transmit OA output power. To address this issue, starting R3.1, Wavestar OLS 1.6T shall have a TL1 command to clamp the transmit OA to output 0-channel power regardless there is an APSD condition or not.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the OA output port or ports for which the command is intended.

Entity: OA Output Port
Legal Values: PORT-(ALL), PORT-(1-4)-(ALL), PORT-(1-4)-(1-3)-(ALL),
PORT-(1-4)-(1-3)-(1-12)-(OUT)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of the arrangement of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be attempted to be changed at the NE. If the current value of the parameter *name1* is already *value1* in the example just

shown, then *name1* will not be changed.

For the **ENT-OLPP** command, the *spec_block* may contain one or more of the following parameters:

oppc

Optical Power Per Channel. oppc is a string of 3 or fewer characters. oppc always refers to the target power per channel for a "low" power signal, even if none of the optical channels are used to transport "low" power signals. The NE software internally will convert this to a target power per channel for "high" power signals that is higher than the "low" power target by an amount determined by the *lhpd* parameter.

The value of the optical power per channel parameter is limited to the range 0.5 dBm to 9.5 dBm, inclusive, in steps of 1.0 dBm. The original value of this parameter is 3.5 dBm. Note that due to power divergence within the system, the actual measured power for a given channel can differ significantly from the value of this parameter.

lhpd

Low / High Power Delta. lhpd is a string of 3 or fewer characters. lhpd is the difference in power level between "low" power signals (typically OC-48/STM-16/OCh2.5G and lower bit rates) and "high" power signals (typically OC-192/STM-64 and higher bit rates). The NE software uses this parameter as part of the OA gain tilt calculations.

The value for the lhpd parameter is limited to the range 0.0 to 6.0 dB, inclusive, in steps of 0.5 dB. In Release 2 and earlier releases, this parameter was not provided and the difference in power level between "low" and "high" power signals was fixed at 3.0 dB. The original value of this parameter is 0.0 dB. When the NE software receives an ENT-SYS command to set the NETYPE parameter to a value specified in column A of the table below, the NE software shall automatically provision the lhpd parameter with the value in column B. After setting the lhpd parameter according to the table below, if the NE software receives this command with a new valid lhpd value, the NE software shall set the lhpd parameter to that new value.

(A) netype	(B) lhpd
400G end terminals and ring terminals	3 dB
800G end terminals and ring terminals	0 dB
Repeaters	0 dB

ftype

Fiber Type. ftype is a string denoting the optical fiber type in this span.

In Release 3, the fiber type choice is limited to the following:

SSMF   Includes Standard Single Mode Fiber (commonly known as "SSMF"), and LEAF

SmAeff   Includes Small Effective Area fibers such as TrueWave, TrueWave RS, and TrueWave Classic

other   Reserved for future fiber types

The original value of this parameter is **SSMF**.

lbo

LBO Value. `lbo` is a string of 4 or fewer characters denoting the Line Build Out (LBO) value in dB. The value of this parameter should include all losses between the OA OUT port and the outside plant cable (for example, LGX and connector losses in addition to any LBO installed on the OA OUT port). This parameter will be in the format LBO=xx.x format, where xx.x represents a numerical value.

Valid values are within a range of 0 dB min to 20.0 dB max.   Any attempt to enter a value outside of this range or not in the xx.x format will result in an error message. The original value of this parameter is 0.0 dB. For C+L applications, where the C+L Combiner units are used, the value of this parameter should include all losses between the OA OUT port and the outside plant cable (for example, C+L Combiner, LGX and connector losses in addition to any LBO installed on the OA OUT port). The parameter is for the local system.

tfact

Tilt Factor. `tfact` is a string of 3 or fewer characters denoting a value ranging from 0.1 to 1.0 inclusive that the user will select from a rule table. The rule table and the algorithm for selecting a value in it will be provided separately from this requirement.

Valid values are: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0. Any attempt to enter a different value will result in an error message.

The original value for `tfact` is 1.0.

tfilter

Tilt Filter. `tfilter` takes one of two values: YES and NO. This parameter should be set to the value YES if a linear tilt filter is used in the addressed OA. A linear tilt filter is used for certain fiber types to reduce the need to pre-tilt the OA output spectrum using the internal VOA.

The original value for `tfilter` is NO.

sploss

Span Loss. `sploss` is a string of 2 characters indicating the span loss in dB of the addressed optical line.

Valid values are: 31, 32, 33, 34, 35, 36, 37. Spans with 31 dB or less loss are represented as 31. The original value of `sploss` is 31.

clamping

Clamping a transmit OA output to 0-channel power. `clamping`parameter takes one of two values: **ON** and **OFF**.

ON   Operates the "clamping a transmit OA to 0-channel power" mode.
OFF Releases the "clamping a transmit OA to 0-channel power" mode.

The original value of this parameter is **OFF**.

This parameter should only be allowed for a transmit OA. If the network element receives

this command with a *clamping* parameter to an *aid* value that is a Receive OA, the network element will reply with an error message.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    sid date time
M   ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
ENT-OLPP:LT-OLS-1.6T:PORT-1-1-3-OUT:XYZ123::OPPC=3.5;

IP xyz123
<
    LT-OLS-1.6T 98-01-06,09:30:49
M   XYZ123 COMPLD
;
```

ERROR RESPONSES

In addition to the non-message-specific error responses listed in the **RTRV-HDR** error responses description, the following error responses are also provided, as specified. If the network element receives this command without an *aid* value or with an *aid* value that is invalid for an optical line, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an *aid* value that is PORT-(ALL), PORT-(1-4)-(ALL), or PORT-(1-4)-(1-3)-(ALL) and with spec block parameter of *COMP_OA_AID*, the following error response is returned:

```
    sid date time
M   ctag DENY
```

```
    IIAC
    /* Input, Invalid Access Identifier with spec-block of
COMP_OA_AID */
;
```

If the network element receives this command with an otherwise valid *aid* value but for which the command is directed at a line which does not exist for the provisioned NETYPE, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives this command with a *OPPC* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid OPPC */
;
```

If the network element receives this command with a *LHPD* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LHPD */
;
```

If the network element receives this command with a *FTYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid FTYPE */
```

```
    ;
```

If the network element receives this command with a *LBO* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LBO */
;
```

If the network element receives this command with a *TFACT* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TFACT */
;
```

If the network element receives this command with a *TFILTER* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TFILTER */
;
```

If the network element receives this command with a *SPLOSS* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SPLOSS */
;
```

If the network element receives this command with a *CLAMPING* value that is not supported by the current network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid CLAMPING  */
;
```

The *CLAMPING* parameter should only be allowed for a Transmit OA. This parameter shall not be provisionable to a Receive OA.

If the network element receives this command with a *CLAMPING* parameter to an *aid*

value that is a Receive OA, the following error response is returned:

```
     sid date time
M    ctag DENY
     IDNV
     /* Input, Data Not Valid,
      parameter is not applicable to a Receive OA. */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OLPP

ENT-OSI

ENT-OSI: Enter OSI The User Privilege Code (UPC) for this command is Security Level 5 (S5).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-OSI:*tid*::*ctag*:*[gen_block][:[:[spec_block]]];*

DESCRIPTION

ENT-OSI command messages can be initiated by a user to request the provisioning of area address lists that affect the data communications control aspects of the Agent. When an OLS receives an **ENT-OSI** command from the user, the OLS shall provision the appropriate area addresses and NODE and LAN ISIS protocol according to the parameter settings in the command. The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

gen_block

General block. This optional parameter field provides the capability to extend the usefulness of this command beyond the limits of those fields specified in Bellcore TR-199, Issue 1. For WaveStar OLS applications, the general block must be null.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command. For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command. *LOCALADDRESS*

Local Area Address. This is used to identify the area to which this node belongs. Areas may be introduced to reduce the mutual exchange of routing information between nodes, so that larger management networks are possible.

The local area address is a variable length string of maximum 13 bytes. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFF. Each byte is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two

digits (ranging from 01 to 0D) specifying the length of the address followed by the string representing the address. For example, the local area address entered as 03AB08FA signifies a 3 byte address with first byte of 0xAB, second byte of 0x08 and the third byte of 0xFA.

The *localaddress* value ending with **0001** is not a supported address. The error response associated with the out of supported address range shall be returned.

NOTE: For example, the *localaddress* value of 03020001 is not supported.

LANISISLVL

NODEISISLVL

ISISLVL

This parameter is used to identify the ISIS protocol of the network layer (layer-3) of the OSI protocol stack. Level-1 ISIS provides interconnectiviy between nodes in an area. Level-2 ISIS provides connectivity between areas. The ISIS level for LAN and node cannot be different, hence the level is set for both LAN and node.

This parameter must have one of the following values:

LEVEL-1

> ISIS Level-1 for both node and LAN

LEVEL-2

> ISIS Level-2 for both node and LAN

If this parameter is not set, then ISIS Level-2 is assumed.

DRP

Designated Router Priority. This is used to identify the designated router priority of a node. The value of this parameter is used for selection of the designated routers per area on a LAN. The node with the highest priority will fulfill the designated router function.

A level-2 designated router is selected from one of the level-2 nodes on the LAN. The level-2 node with the highest priority will be selected.

The value is in the range of 0 (lowest priority) to 127 (highest priority). The designated router priority only applies if the LAN or the node IS/IS level is Level-2.

TRANSFERMODE

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The *APSD_UNAVAIL* parameter is optional.

The only valid value for *APSD_UNAVAIL* is ON.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    sid date time
M   ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to provision the OSI parameters. Note that the local area address is a 4 byte string.

```
ent-osi:OLS-1.6T::123456:::localaddress=0439000080,isislvl=LEVEL-2,drp=64,
APSD_UNAVAIL=ON;

IP 123456
<
    OLS-1.6T 98-06-06 16:42:11
M  123456 COMPLD
;
```

The following example shows a command to provision the OSI parameters. Note that the local area address is a 4 byte string.

```
ent-osi:OLS-1.6T::123456:::localaddress=0439000080,isislvl=LEVEL-2,drp=64;
IP 123456
<
    OLS-1.6T 98-06-06 16:42:11
M  123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV-HDRERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

```
    sid date time
M  ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
    sid date time
M  ctag DENY
```

```
    IISP
    /* Input, Invalid Syntax or Punctuation, parameter(s) multiply
defined */
;
```

If the network element receives this command with an invalid *localaddress* value, or one that is out of the supported range, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LOCALADDRESS */
;
```

The *localaddress* value ending with **0001** is not a supported address. The error response associated with the out of supported address range shall be returned.

NOTE: For example, the *localaddress* value of 03020001 is not supported.

If the network element receives this command with a *isislvl* value that is not supported by the network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid ISISLVL */
;
```

If the network element receives this command with a *drp* value that is out of the supported range, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid DRP */
;
```

If the network element receives this command with an invalid *APSD_UNAVAIL* parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid APSD_UNAVAIL */
;
```

If the local NE has been locked by some other command so that the NE cannot reboot, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, the execution of this
command failed because
      another operation is in progress that prevents the system from
being rebooted.*/
```

```
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OSI

ENT-OTPS

ENT-OTPS: Enter OT_Port_Signal The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-OTPS:*tid*:*aid*:*ctag*:*[gen_block][:[:[spec_block][:pst]]];*

DESCRIPTION

The **ENT-OTPS** command is used to provision various parameters related to OTU and ORS ports. Although it is addressed to the IN ports it also affects parameters related to the corresponding OUT ports. When a network element receives an **ENT-OTPS** command from the user, it shall provision the appropriate ports according to the parameter settings in the command. The ENT-OTPS command is also used to provision the CFDIRESP parameter related to the OC 192 FEC OTU with version 2.1 ASIC and 10G MUX OTU at the Sink side. The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the OTU port or ports for which the command is intended.

Entity: Port (OTU)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4,C1IN,C2IN,1AIN,1BIN,2AIN,2BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

gen_block

General block. This optional parameter field provides the capability to extend the usefulness of this command beyond the limits of those fields specified in Bellcore TR-199, Issue 1. For

this application, the general block must be null.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=value**in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

oc192in

OC-192 Input. This parameter indicates whether the expected input is a standard OC-192 signal or an OC-192 signal with optical channel (OCH) overhead information added. The allowable values for this parameter are "OC192", "OCH" and "DEFAULT". The original value is "DEFAULT".

When the value of the oc192in parameter is provisioned to be "DEFAULT" the operation is as follows:

- If the OTU circuit pack in the related slot is an add-type OTU, the behavior will be as if oc192in was set to "OC192" and oc192out was set to "OCH". That is, the OTU will operate as an optical channel overhead source.

- If the OTU circuit pack in the related slot is a through-type OTU, the behavior will be as if oc192in was set to "OCH" and oc192out was set to "OCH". That is, the OTU will operate as an optical channel overhead repeater.

- If the OTU circuit pack in the related slot is an drop-type OTU, the behavior will be as if oc192in was set to "OCH" and oc192out was set to "OC192". That is, the OTU will operate as an optical channel overhead sink.

When the value of the oc192in parameter is set to "DEFAULT", the value of oc192in reported by the RTRV-OTPS TL1 command will be "DEFAULT", regardless of the operating mode of the OTU, and the value of oc192out will also be as provisioned by the user, regardless of the operating mode of the OTU.

oc192out

OC-192 Output. This parameter indicates whether the output signal is to be a standard OC-192 signal or an OC-192 signal with optical channel (OCH) overhead information added. The allowable values for this parameter are "OC192" and "OCH". The original value is "OC192".

oc192fec

OC-192 Forward Error Correction. The allowable values for this parameter are "On" and "Off". The original value is "On". Note that if the value of the *oc192in*parameter is "OC192" (the original value) then the *oc192fec*parameter has no effect.That is, forward error correction only occurs when *oc192in*is set to "OCH" and *oc192fec*is set to "On".

hsbbsig

High-Speed Broadband Signal. This parameter indicates the anticipated type of input signal to a High-Speed Broadband OTU circuit pack. This parameter is only used when the value of the *hsbbcdr* parameter is "Yes". Otherwise, the parameter is ignored. The allowable values for this parameter are "Gigabit Ethernet", "OC-3", "OC-12", and "OC-48". These are the only input signal types that are supported in 3R mode. The original value is "OC-3".

hsbbfreq

High-Speed Broadband Frequency. It represents the frequency on the incoming signal in megahertz. This parameter is only used when the value of the *hsbbcdr* parameter is "No". Otherwise, the parameter is ignored and any internal need for the frequency is derived from the *hsbbsig* parameter. *hsbbfreq* is an integer in the range of 100 to 2500. The original value is 100.

hsbbcdr

High-Speed Broadband Clock Data Recovery. The allowable values for this parameter are "Yes" and "No". "Yes" corresponds to 3R mode, and "No" corresponds to 2R (bypass) mode. If the value of *hsbbcdr* is "Yes" then *hsbbsig* is used and *hsbbfreq* is ignored. If the value of *hsbbcdr* is "No" then *hsbbsig* is ignored and *hsbbfreq* is used. The original value is "Yes".
This parameter should only be provisioned when there is a good signal (with no signal failure alarms) on the input port of the HSBB OUT or when there is no HSBB OTU equipped in the addressed slot. There may be improper signal failure alarming and clearing if the parameter value is changed while there is a standing signal failure alarm with the HSBB OTU equipped in the addressed slot.

aisresp

AIS Response. This parameter determines whether an OTU which is sending its output to external equipment will respond to the detection of AIS-L at its input by shutting off its output laser or by passing the AIS-L signal. The allowable values for this parameter are "Off" and "AIS". The original value is "Off". The AIS Response parameter applies only to the OC-48/STM-16 OTUs.

cfdiresp

The Client FDI Response parameter applies to the OC-192/STM-64 FEC with version 2.1 ASIC and 10G MUX OTUs. The allowable values for this parameter are "Off" and "On". The original value is "Off".

The CFDIRESP parameter applies to the IN port of the OC-192/STM-64 FEC with version 2.1 ASIC OTUs. The   CFDIRESP parameter applies to the individual input port that corresponds to each of the output ports of the 10G MUX   OTU at the Sink side.

ochpresp

The Optical Channel Path Trace Mismatch Response is available starting in Wavestar OLS 1.6T Release 3.0.1. The default behavior, without this response parameter, is to pass the received optical channel. Optical Channel Path Trace Mismatch Response. This parameter determines whether an OTU which is receiving a WaveWrapper signal will respond to the detection of optical channel path trace mismatch at its input by turning off its output laser or by passing the received optical channel. This is the consequent action. The allowable values

for this parameter are "Off" and "Pass". The original value is "Pass".

protn

Protection. This parameter determines whether the addressed OTPS path through an OC-192 ADD/THRU/DROP OTU with FEC or a 10G MUX OTU is used in a restoration path. The allowable values for this parameter are "Enabled" and "Disabled". The original value is "Disabled".

This parameter is used to modify the maintenance behavior of the OTU's to support interworking with LambdaRouter. To enable such interworking, the **protn** parameter is set to "Enabled" at the initial Add OTU and at the final Drop OTU. The setting at intermediate OTU's does not matter. When not interworking with LambdaRouter, the **protn** parameter is set to "Disabled" at all OTU's.

When interworking with LambdaRouter, if there is no input to the OTU, the Primary State (**pst**) for the IN port(s) should be set to OOS-MA-IS. This can be done using the ENT-OTPS command or the UPD-SYS command.

pst

Primary state. This parameter is used to set the primary state of the port(s) (that is, the optical signal input). The primary state parameter is position defined. An OTU IN port can be in one of three states: OOS-MA-AS, IS, or OOS. When an OTU IN port *pst* is OOS-MA-AS, it will automatically transition to the IS state upon the detection at the port of a valid input. When an OTU IN port *pst* is OOS, the monitoring of incoming signals is disabled. The port exits this state to the OOS-MA-AS state through another **ENT-OTPS** command.

For this command, *pst* must be null or have one of the following two values: "OOS-MA-AS" or "OOS". The original value is "OOS-MA-AS".

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
   sid date time
M  ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to set the primary state of the OTU IN port IN2 of Bay 1, Shelf 3, Slot 1 to OOS:

```
ent-otps:LT-1.6T:PORT-1-3-1-IN2:123456::::oos;
```

```
IP 123456
<

    LT-1.6T 99-01-26 16:42:11
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. In addition to the non-message-specific error responses listed in the **RTRV-HDRERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition. If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives this command without an *aid* value or with an invalid *aid*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
```

```
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an *aid* value indicating an ORS IN port and with any entries in the *spec_block* (that is, with a value for any provisionable parameter except for *pst*), the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with a *OC192IN* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid OC192IN */
;
```

If the network element receives this command with a *OC192OUT* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid OC192OUT */
;
```

If the network element receives this command with a *OC192FEC* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid OC192FEC */
;
```

If the network element receives this command with a *HSBBSIG* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
```

```
    IDNV
    /* Input, Data Not Valid, invalid HSBBSIG */
;
```

If the network element receives this command with a *HSBBFREQ* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid HSBBFREQ */
;
```

If the network element receives this command with a *HSBBCDR* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid HSBBCDR */
;
```

If the network element receives this command with a *AISRESP* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid AISRESP */
;
```

If the network element receives this command with a CFDIRESP value that is not supported by network element, the following error response is returned:

```
     sid date time
 M   ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid CFDIRESP */
 ;
```

If the network element receives this command with a *OCHPRESP* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
```

```
    /* Input, Data Not Valid, invalid OCHPRESP */
;
```

If the network element receives this command with a *PROTN* value that is not supported by network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PROTN */
;
```

If the network element receives this command with a *primary state* value that is not supported by the network element, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PST */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-OTPS
UPD-SYS

ENT-PROF-ASGNMT

ENT-PROF-ASGNMT: Enter Profile Assignment

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

ENT-PROF-ASGNMT:*tid***:***aid***:***ctag***::***pftype***,***pfname***[,***aid_type***];**

DESCRIPTION

The **ENT-PROF-ASGNMT** command assigns a particular Alarm Severity Assignment Profile (ASAP) profile of type ***pftype*** and name ***pfname*** to one or more specific entities.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

aid

Access Identifier. The *aid* values associated with each *Alarm ID* are shown in the ASAP profile tables attached to Appendix A of the PRD.

Note: Click on the underlined hyperlink above to open Appendix A. Then click on the worksheet tab(s) at the bottom of the screen for the profile type(s) of interest. These tables list the the *aid* values associated with each *pftype* and *alarm_id.*

pftype

Profile type. The valid values for this parameter are

   BAY (Bay)

> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)
> **SHELF** (Shelf)
> **SUPVY** (Supervisory Signal)
> **SW** (Software Management)
> **SYSTEM** (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

aid_type

AID Type. This optional parameter is used in conjunction with the required *aid* parameter to determine which AID's will be provisioned by the command. Only those AID's indicated by both the *aid* value and the *aid_type* value, if supplied, will be provisioned. If no AID's are indicated in both values, no AID's will be provisioned and there will be no error message. The allowable values for the *aid_type* parameter are **BOS**, **DGE_IN**, **EI**, **OA**, **OA_IN**, **OA_SUP_TX**, **ODU**, **ODU_IN**, **OMON**, **OMON_IN**, **OMU**, **ORS_IN**, **OTU**, **OTU_IN**, **SUPVY**, **SUPVY_IN**, **WAD**, **WAD_DROP_IN**, **WDU**, **WDU_IN** and **WMU**.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    tid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for `RTRV-HDR`.

EXAMPLE INPUT/OUTPUT

```
ENT-PROF-ASGNMT:LT-1.6T:PORT-1-2-4-IN1:123456::CLIENT,SPECIAL;
```

```
IP 123456

<


   LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an invalid *pftype* is specified, the following error response is returned:

```
   tid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid pftype */

;
```

If an invalid *pfname* is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pfname */

;
```

If the specified *pfname* does not exist for the specified *pftype*, then the following error response is returned:

```
    tid date time

M  ctag DENY

    SDNC

    /* Status, Data Not Consistent, pfname does not exist for pftype */

;
```

If the specified *aid* does not include any entities consistent with the specified *pftype*, then the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNC

    /* Input, Data Not Consistent, aid is inconsistent with pftype */

;
```

If an invalid *aid_type* is specified, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid aid_type */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-ASAP-PROF
ED-ASAP-PROF
ENT-ASAP-PROF
RTRV-ASAP-PROF
RTRV-PROF-ASGNMT
```

ENT-RMA

ENT-RMA: Enter Registration Manager Attributes This command is available starting in WaveStar OLS 1.6T release 2. The User Privilege Code (UPC) for this command is Security Level 5 (S5).

INPUT FORMAT

ENT-RMA:*tid*:*[aid]*:*ctag[:::spec_block]*;

DESCRIPTION

When a network element receives an **ENT-RMA** command from a user, the network element will modify its T1.245 Directory Services Registration Management attributes if the received attributes are different from the currently effective attributes.

> **NOTE:**
> Registration Management level attributes remain in effect until modified (for example, by another execution of the TL1 command **ENT-RMA**).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid*value, if supplied, specifies that system parameters are to be modified. Entity: System
The allowable value is: (SYSTEM)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag*are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The Registration Management attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block*are specified using a *name=value,name=value,...*type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...*are acceptable and in this example only the parameters *name1*and *name5*will be changed at the network element. If the current value of the parameter *name1*is already *value1*in the above example, *name1*will not be changed.

For the **ENT-RMA** command, the *spec_block* may contain one or more of the following parameters:

RM_ACTIVE

Registration Manager Active. This parameters has one of two values: "enable" or "disable".It determines whether the addressed NE will function as a Registration Manager in the local IS-IS level 1 routing area. The original value is "disable".

DSA_PSEL

DSA Presentation Selector. This parameter indicates the OSI Stack Presentation layer context to use when registering with a primary or secondary Directory Services Agent.

The Presentation Selector (P-SEL) is a variable length string of minimum 1 and maximum 4 octets. The P_SEL value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid P-SEL starts with two digits (ranging from 01 to 04) specifying the length of the P-SEL followed by the string representing the address. For example, the string entered as 0104 signifies a 1 octet P-SEL with first octet of 0x04.

DSA_SSEL

DSA Session Selector. This parameter indicates the OSI stack Session layer context to use when registering with a primary or secondary Directory Services Agent.

The Session Selector (S-SEL) is a variable length string of minimum 1 and maximum 4 octets. The S_SEL value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid S-SEL starts with two digits (ranging from 01 to 04) specifying the length of the S-SEL followed by the string representing the address. For example, the string entered as 025353 signifies a 2 octet S-SEL with first octet of 0x53 and second octet of 0x53.

DSA_TSEL

DSA Transport Selector. This indicates the OSI stack Transport layer context to use when registering with a primary or secondary Directory Services Agent.

The Transport Selector (T-SEL) is a variable length string of minimum 1 and maximum 4 octets. The T_SEL value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid T-SEL starts with two digits (ranging from 01 to 04) specifying the length of the T-SEL followed by the string representing the address. For example, the string entered as 025454 signifies a 2 octet S-SEL with first octet of 0x54 and second octet of 0x54.

PRI_DSA_NSAP

Primary DSA NSAP. This is used to identify the OSI network address of the primary DSA to register with.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

SEC1_DSA_NSAP

First Secondary DSA NSAP. This is used to identify the OSI network address of the first Secondary DSA to register with.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

SEC2_DSA_NSAP

Second Secondary DSA NSAP. This is used to identify the OSI network address of the second

Secondary DSA to register with.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

SEC3_DSA_NSAP

Third Secondary DSA NSAP. This is used to identify the OSI network address of the third Secondary DSA to register with.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

PREFIX_COUNTRY

Directory Name Prefix Country Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of two (2) characters that identifies the Relative Distinguished Name (RDN) of the local country.

PREFIX_ORG

Directory Name Prefix Organization Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the local organization.

PREFIX_SUBORG1

Directory Name Prefix Sub-organization #1 Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the first local sub-organization.

PREFIX_SUBORG2

Directory Name Prefix Sub-organization #2 Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the second local sub-organization.

PREFIX_SUBORG3

Directory Name Prefix Sub-organization #3 Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the third local sub-organization.

PREFIX_SUBORG4

Directory Name Prefix Sub-organization #4 Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the fourth local sub-organization.

PREFIX_SUBORG5

Directory Name Prefix Sub-organization #5 Identification. This is used to identify the network the local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the fifth local sub-organization.

PREFIX_SUBORG6

Directory Name Prefix Sub-organization #6 Identification. This is used to identify the network the

local NE is supposed to be a part of. This is a string of up to sixty-four (64) characters that identifies the Relative Distinguished Name (RDN) of the sixth local sub-organization.

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The *APSD_UNAVAIL* parameter is optional.

The only valid value for *APSD_UNAVAIL* is ON.

OUTPUT FORMAT

If the network element fully complies with the **ENT-RMA** request, the following completion response is returned.

```
   tid date time
M  ctag COMPLD
;
```

If the **ENT-RMA** command does not alter the existing Registration Manager attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to modify a NE to become a Registration Manager with a given Primary and first Secondary DSA:

```
ent-rma:OLS-1.6T:system:123456:::RM_ACTIVE=enable,DSA_PSEL=0104,
DSA_SSEL=025353,DSA_TSEL=025354,
PRI_DSA_NSAP=13390840800000000000000000008006a060181,
SEC1_DSA_NSAP=13390840800000000000000000008006a060136,
PREFIX_COUNRY=US,PREFIX_ORG=\"lucent\",APSD_UNAVAIL=ON;

IP 123456
<
   OLS-1.6T 99-02-19 09:42:01
M  123456 COMPLD
;
```

The following example shows a command to modify a NE to become a Registration Manager with a given Primary and first Secondary DSA:

```
ent-rma:OLS-1.6T:system:123456:::RM_ACTIVE=enable,DSA_PSEL=0104,
DSA_SSEL=025353,DSA_TSEL=025354,
PRI_DSA_NSAP=13390840800000000000000000008006a060181,
SEC1_DSA_NSAP=13390840800000000000000000008006a060136,
PREFIX_COUNRY=US,PREFIX_ORG=\"lucent\";

IP 123456
```

```
    <
       OLS-1.6T 99-02-19 09:42:01
    M  123456 COMPLD
    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ENT-RMA** command. If a network element receives an **ENT-RMA** command with a RM_ACTIVE value other than "enable" or "disable", the following error response is returned:

```
    tid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid RM_ACTIVE */
;
```

If a network element receives an **ENT-RMA** command with a RM_ACTIVE value of "enable" and an invalid or missing DSA_PSEL value, the following error response is returned:

```
    tid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing DSA_PSEL.  Correct
DSA_PSEL
       must be supplied for an active Registration Manager. */
;
```

If a network element receives an **ENT-RMA** command with a RM_ACTIVE value of "enable" and an invalid or missing DSA_SSEL value, the following error response is returned:

```
    tid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing DSA_SSEL.  Correct
DSA_SSEL
       must be supplied for an active Registration Manager. */
;
```

If a network element receives an **ENT-RMA** command with a RM_ACTIVE value of "enable" and an invalid or missing DSA_TSEL value, the following error response is returned:

```
    tid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing DSA_TSEL.  Correct
DSA_TSEL
       must be supplied for an active Registration Manager. */
;
```

If a network element receives an **ENT-RMA** command with an invalid PRI_DSA_NSAP value, the following error response is returned:

```
    tid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PRI_DSA_NSAP. */
```

```
    ;
```

If a network element receives an **ENT-RMA** command with an invalid SEC1_DSA_NSAP value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SEC1_DSA_NSAP. */
;
```

If a network element receives an **ENT-RMA** command with an invalid SEC2_DSA_NSAP value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SEC2_DSA_NSAP. */
;
```

If a network element receives an **ENT-RMA** command with an invalid SEC3_DSA_NSAP value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SEC3_DSA_NSAP. */
;
```

If a network element receives an **ENT-RMA** command with a RM_ACTIVE value of "enable" and an invalid or missing PREFIX_COUNTRY value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing PREFIX_COUNTRY.  Correct
PREFIX_COUNTRY
       must be supplied for an active Registration Manager. */
;
```

If a network element receives an **ENT-RMA** command with a RM_ACTIVE value of "enable" and an invalid or missing PREFIX_ORG value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing PREFIX_ORG.  Correct PREFIX_ORG
       must be supplied for an active Registration Manager. */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG1 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
```

```
    /* Input, Data Not Valid, invalid PREFIX_SUBORG1 */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG2 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PREFIX_SUBORG2 */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG3 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PREFIX_SUBORG3 */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG4 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PREFIX_SUBORG4 */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG5 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PREFIX_SUBORG5 */
;
```

If a network element receives an **ENT-RMA** command with an invalid PREFIX_SUBORG6 value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PREFIX_SUBORG6 */
;
```

If the network element receives this command with an invalid *APSD_UNAVAIL* parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid APSD_UNAVAIL */
;
```

If an **ENT-RMA** command is received with an invalid *aid* value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If a network element receives an **ENT-RMA** command with a spec_block parameter attribute that does not match the *aid*, or that parameter is not supported by the particular software release in the receiving system, the following error response is returned:

```
    tid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-RMA

ENT-SECTRC

ENT-SECTRC: Enter Section_Trace

The User Privilege Code (UP) for this command is Maintenance Level 3 (M3).

This command is available starting in Wave Star LOS 1.6T Release 2.0.

INPUT FORMAT

ENT-SECTRC:*tid:aid:ctag:::[spec_block];*

DESCRIPTION

The **ENT-SECTRC** command can be initiated by users to assign user-settable strings to the receive section trace field (J0 byte) of a SDH/SONET section terminating signal for both OC-48/STM-16 and OC-192/STM-64.

INPUT PARAMETERS

id

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Port (OUT IN and OUT)
Legal Values: PORTAL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN1,IN2,IN3,IN4,OUT1,OUT2,OUT3,OUT4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed
only if all other characters are digits.

spec_block

Specific Parameter Block. This parameter field is used to enter the user-settable strings to receive section trace fields of a SDH/SONET section terminating signal. Parameters within the *spec_block* are specified using a name-defined construct of: **PARAMETER**=*value* in a comma separated list.

For the **ENT-SECTRC** command, the *spec_block* may contain zero or more of the following parameters:

Furthermore, each parameter listed below may appear at most once within the *spec_block* for a single **ENT-SECTRC** command.

MODE

Mode of section trace message. The user shall be able to provision the section trace message to be in either 16 byte or 64 byte mode. Possible values for this parameter are 16_byte or 64_byte. For 16_byte mode, the value of this parameter determines the allowable length of **EXPSECTRC**. However, **EXPSECTRC** does not apply to the 64_byte mode. Setting the value of **MODE** to 64_byte would only allow the user to retrieve an incoming section trace of 64 byte. The original value of this parameter is 16_byte.

MODE should only be provisioned to 64_byte for OTUs which support 64 byte section trace (J0).

EXPSECTRC

Expected incoming section trace message. This indicates the expected Section Trace (J0) Byte content. The length of this string is dependent upon the value of the parameter **MODE**. The message must be enclosed using delimiters. The delimiter to be used is **\"** [that is, backslash followed by double-quotes].

For **MODE** = 16_byte, the **EXPSECTRC** is a string of up to 15 ASCII alphanumeric and special characters as specified below. An **EXPSECTRC** of less than 15 characters is padded out to the right to 15 unprintable characters whose Hex representation is 00.

For **MODE** = 64_byte, the **EXPSECTRC** does not apply. Software does not compare the incoming section trace with expected section trace. In this case, the value for the **EXPSECTRC** is null (**EXPSECTRC**=\"\").

If **EXPSECTRC** is not specified, the previously provisioned value is not changed.

The original value for **EXPSECTRC** is 0x01, displayed as RESET_SECTRC.

The string **EXPSECTRC**="RESET_SECTRC" is reserved to reset the value of **EXPSECTRC** to its original value.

ITU Recommendation G.707 (ITU) defines the J0 as follows:
○ The section access point identifier may use either a single byte (containing the code 0-255)
○ The access point identifier format as defined in section 3 of ITU-T Recommendation G.831 and ITU-T Recommendation G.707.

The Network Element must have the capability to recognize the received SDH/SONET J0 section trace format:

○ If the user enters any other string, other than "RESET_SECTRC", as the value for **EXPSECTRC**, the software causes the Network Element to expect the received J0 byte string in accordance with ITU recommendation G.831 (The first byte is used for CRC7 calculation which is not readable. The other bytes are used to transmit the J0 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

XMMODE

XMSECTRC

If there is no *spec_block* entry, the currently effective section trace strings provisioned in the network element prevail.

OUTPUT FORMAT

If the network element fully complies with the **ENT-SECTRC** request, the following normal completion response is returned:

```
   tid date time
M  ctag COMPLD
;
```

If the **ENT-SECTRC** command does not alter the existing section trace strings, the network element provides a normal completion response.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
ENT-SECTRC:OLS-1.6T:port-1-2-1-IN1:123456:::MODE=64_byte,EXPSEC-
TRC=\"\";
IP 123456
<
   OLS-1.6T 98-09-08 16:34:11
M  123456 COMPLD
;
```

```
ENT-SECTRC:OLS-1.6T:port-1-2-1-IN1:123456:::MODE=16_byte,EXPSEC-
TRC=\"ExptSectTrc1234\";
IP 123456
```

```
<
    OLS-1.6T 98-09-08 16:34:11
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-SECTRC** command with an invalid *aid* value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives an **ENT-SECTRC** command with an invalid *spec_block* parameter(s), the following error response is returned

---

```
    tid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If this command is received with an invalid **MODE** value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid MODE */
;
```

If this command is received with an invalid **EXPSECTRC** value, including missing leading or trailing escaped quotes [backslash followed by double-quotes], and/or more than 15 characters in the string when **MODE** = 16_byte, and/or any value other than \"\" in the string when **MODE** = 64_byte, and/or characters that are not supported, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid EXPSECTRC */
;
```
_____

Note: For the case where **EXPSECTRC** is longer than allowable, this error response should be returned for a command provisioning **EXPSECTRC** only. If both **EXPSECTRC** and **MODE** are provisioned via the command and **EXPSECTRC** is longer than allowable, a **MODE**-**EXPSECTRC** mismatch error should be returned.

If this command is received with valid **MODE** and **EXPSECTRC** which do not match each other, the following error response is returned:

_____

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, MODE-EXPSECTRC mismatch */
;
```
_____

Note: This error response should be returned for a command provisioning both **MODE** and **EXPSEC-TRC**. For invalid provisioning of **EXPSECTRC** or **MODE** alone, the invalid **EXPSECTRC** or invalid **MODE** error should be returned.

If user changes the **MODE** to another valid value, but fails to change the **EXPSECTRC** value accordingly, a `MODE-EXPSECTRC mismatch` message shall be returned.

RELATED TL1 COMMANDS/MESSAGES

RTRV-SECTRC

ENT-SUPR

ENT-SUPR: Enter Supervisory

The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-SUPR:*tid*:*aid*:*ctag*:[:[*type*][:[*spec_block*]]];

DESCRIPTION

The **ENT-SUPR** command messages can be initiated by a user to request WaveStar OLS 1.6T to provision various parameters of a supervisory channel in a specified network element.

When WaveStar OLS 1.6T receives an **ENT-SUPR** command from the user, it will provision the supervisory channel according to the parameter settings specified in the command.

The provisioned values remain active until modified (for example, by another command).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the supervisory channel for which this command is intended.

Entity: Supervisory Channel [End terminals, Ring terminals, and Repeaters]
Legal Values: (LINE)-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

OW1TYPE

Type of Orderwire 1. This parameter is used to set the type of Orderwire 1 for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *OW1TYPE* may have one of the following values: "local" and "express".

> **local**
> > This sets the Orderwire 1 type to local.
> **express**
> > This sets the Orderwire 1 type to express.

OW2TYPE

Type of Orderwire 2. This parameter is used to set the type of Orderwire 2 for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *OW2TYPE* may have one of the following values: "local" and "express".

> **local**
> > This sets the Orderwire 2 type to local.
> **express**
> > This sets the Orderwire 2 type to express.

OW3TYPE

Type of Orderwire 3. This parameter is used to set the type of Orderwire 3 for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *OW3TYPE* may have one of the following values: "local" and "express".

local
> This sets the Orderwire 3 type to local.

express
> This sets the Orderwire 3 type to express.

PROVDLTYPE

Type and orientation of provisionable Data Link. This parameter is used to set the type and orientation of the provisionable Data Link for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *PROVDLTYPE* may have one of the following values: "local-user","local-network" and "express".

local-user
> This sets the provisionable Data Link to local and its orientation to user.

local-network
> This sets the provisionable Data Link to local and its orientation to network.

express
> This sets the provisionable Data Link to express (orientation has no meaning for this Data Link type).

FIXDLTYPE

Type and orientation of fixed Data Link. This parameter is used to set the type and orientation of the fixed Data Link for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *FIXDLTYPE* may have one of the following values: "local-user" or "local-network".

local-user
> This sets the fixed Data Link to local and its orientation to user.

local-network
> This sets the fixed Data Link to local and its orientation to network.

> *SDTHR*
LEVEL

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    sid date time

M   ctag COMPLD

  ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example provisions the WaveStar 1.6T supervisory signal "LINE-1E" as follows:
- Orderwire 1 Type is LOCAL
- Orderwire 2 Type is EXPRESS
- Orderwire 3 Type is EXPRESS
- The Provisionable Data Link Type and Orientation is EXPRESS
- The Fixed Data Link Type is LOCAL-NETWORK

```
ent-supr:LT-1.6T:line-1e:123456:::OW1TYPE=LOCAL,OW2TYPE=EXPRESS,OW3TYPE=EXPRESS,PROVDLTYPE=EXPRESS,FIXDLTYPE=LOCAL-NETWORK;



IP 123456

<


   LT-1.6T 98-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
   sid date time

M  ctag DENY

   IISP

   /* Input, Invalid Syntax or Punctuation, parameter(s) multiply defined */

;
```

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
    sid date time

M  ctag DENY


    IISP

    /* Input, Invalid Syntax or Punctuation*/

 ;
```

If the network element receives this command with a *OW1TYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid OW1TYPE */

 ;
```

If the network element receives this command with a *OW2TYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid OW2TYPE */

 ;
```

If the network element receives this command with a *OW3TYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid OW3TYPE */

;
```

If the network element receives this command with a *PROVDLTYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid PROVDLTYPE */

;
```

If the network element receives this command with a *FIXDLTYPE* value that is not supported by network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid FIXDLTYPE */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-SUPR

ENT-SYS

ENT-SYS: Enter System The User Privilege Code (UPC) for this command is Security Level 5 (S5). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-SYS:*tid*:*[aid]*:*ctag[*:::*spec_block]*;

DESCRIPTION

When a network element receives an **ENT-SYS** command from a user, the network element will modify its system level and/or IP address with the received attributes if the received attributes are different from the currently effective attributes at the system.

NOTE:

System level attributes remain in effect until modified, for example, by another execution of the TL1 command **ENT-SYS**.

NOTE:

When the **ENT-SYS** command is used to change the value of the *netype* (Network Element Type) parameter it may be necessary to re-provision some slot and port level parameters. The network element software uses logical addresses for slots and ports which can move relative to the physical addresses when the *netype* is changed. This means that provisioned parameter values can move from one physical slot or port to another. The practical effect is that after changing the *netype*, the user should verify the slot and port level technical provisioning and make any necessary corrections. Auto-provisioned parameter values are returned to their original values when the *netype* is changed. OTPS associations may be deleted when the *netype* is changed if they are not supported by the new configuration, for example if the netype is changed from `"2F_END_80"` to `"2F_RPTR"`.

CAUTION:

Execution of this command to change the value of some parameters (for example, NETYPE and IP address) resets the system automatically. APSD is not available until the system reboot is completed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* value, if supplied, specifies that system parameters are to be modified. Entity: System

The allowable value is: (SYSTEM)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is

allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-SYS** command, the *spec_block* may contain one or more of the following parameters:

NEW_TID

New Target Identifier. The **NEW_TID** is the new name of the network element to which the command is addressed.

The original value of this parameter is `LT-400G`.

When the **NEW_TID** value is changed, the overhead controller shall automatically reset.

STD

Standard. This parameter has one of two values: "SONET" or "SDH".
`SONET` indicates that the network element is provisioned to operate in a SONET environment.
`SDH` indicates that the network element is provisioned to operate in a SDH environment.

The original value of this parameter is `SONET`.

When the **STD** value is changed, the system shall automatically reset.

NETYPE

Network Element Type. This parameter can have the following values and indicates the network element type for the network element identified in the **TID** (see the User/Service Manual for further details):
`"2F_END_80"`, `"2F_END_80_800G"`, `"2F_FULL_AD_80"`, `"2F_FULL_AD_80_800G"`,
`"2F_4CH_AD"`, `"2F_4CH_AD2"`, `"2F_RPTR"`, `"2F_END_80L"`, `"2F_END_80_800GL"`,
`"2F_FULL_AD_80_800GL"`, `"2F_RPTRL"`, `"2F_END_16"`, `"2F_FULL_AD_16"`, and
`"2F_RPTR_16"`.

The Orignal value of this parameter for a Terminal (non-Repeater) system is `2F_END_80_800G` and for a Repeater is `2F_RPTR`.

The following list expands the definition of the **NETYPE** values:

> For C-band systems:

`2F_END_80`
> A "2 Fiber End Terminal" network element configured for a maximum of 80 low-speed channels.

`2F_END_80_800G`
> A "2 Fiber End Terminal" network element configured for a maximum of 80 10 Gb/s signals channels with 50 GHz channel spacing.

`2F_FULL_AD_80`
> A "2 Fiber Ring Terminal (Full Add/Drop)" network element configured for a maximum of 80 low-speed channels.

`2F_FULL_AD_80_800G`

A "2 Fiber Ring Terminal (Full Add/Drop)" network element configured for a maximum of 80 10 Gb/s signals channels with 50 GHz channel spacing.

2F_4CH_AD

A "2 Fiber Ring Terminal (4 Channel Add/Drop) Type 1" network element.

2F_4CH_AD2

A "2 Fiber Ring Terminal (4 Channel Add/Drop) Type 2" network element.

2F_RPTR

A "2 Fiber Repeater" network element.

2F_END_16

A "2 Fiber End Terminal" network element configured for a maximum of 16 optical channels.

2F_FULL_AD_16

A "2 Fiber Full Add / Drop Terminal" network element configured for a maximum of 16 optical channels.

2F_RPTR_16

A "2 Fiber Repeater" network element for systems with a maximum of 16 optical channels.

For L-band systems:

2F_END_80L

A "2 Fiber End Terminal" network element configured for a maximum of 80 low-speed channels

2F_END_80_800GL

A "2 Fiber End Terminal" network element configured for a maximum of 80 10 Gb/s signals channels with 50 GHz channel spacing.

2F_FULL_AD_80_800GL

A "2 Fiber Ring Terminal (Full Add/Drop)" network element configured for a maximum of 80 10 Gb/s signals channels with 50 GHz channel spacing.

2F_RPTRL

A "2 Fiber Repeater" network element.

When the **NETYPE** value is changed, the system shall automatically reset.

IP_ADDRESS

The Internet Protocol (IP) Address is the address used by the OS to identify the network element and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

When the **IP_ADDRESS** is changed, the overhead controller shall automatically reset.

DFLTRTR_IPADDRESS

The Default Router (IP) Address is the address of the router for out-going messages from the network element that are targeted outside the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The default router is a part of the local subnetwork and must have an address that is consistent with the other elements in the local subnetwork.

When the **DFLTRTR_IPADDRESS** is changed, the overhead controller shall automatically reset.

LOCAL_SUBNETMASK

The Local Subnet Mask Internet Protocol (IP) Address is a mask used by the network element software to

route messages within the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point ("."). The numbers have an integer value between *0* and *255* (inclusive).

The original value of this parameter is 0.0.0.0.

When the **LOCAL_SUBNETMASK** is changed, the overhead controller shall automatically reset.

NAT_IPADDRESS

The internal Network Address Translation IP Address is a Class A non-10.0.0.0 Net IP address used by the network element to map any Class A address of Net 10 (Standard 10.0.0.0) to avoid any internal routing conflicts. Only the first byte of the non-10.0.0.0 Net IP address is provisionable. The acceptable number of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and the remaining three bytes must have a value of "0". The original value of the NAT IP address is 126.0.0.0.

The NAT IP address shall not be provisioned to have the same network address as in the user's network, otherwise any traffic to/from via that network address will be dropped.

When the Internal Translated IP Address is changed on a non-repeater node, the OVHDCTRL will reboot.

QUICK_TRAN

The QUICK_TRAN refers to restoration of transmission quickly after a power-up cycle or power failure. This parameter shall have a value of **ENABLED** or **DISABLED**. The original value shall be **DISABLED**. If the parameter is omitted, the currently effective value will remain in effect. Setting this command shall not cause rebooting of network element.

CIT_PORT_IP

The Internet Protocol (IP) Address is the address used by the CIT to identify the network element and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The original value of the CIT port IP address is 192.168.0.1. Setting the CIT port IP address to the value 0.0.0.0 will restore the CIT port IP address value to the original value of 192.168.0.1. There is no way for the user to set the CIT port IP address to the value 0.0.0.0.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_IP** is changed, the system controller shall automatically reset.

CIT_PORT_DFLTRTR_IP

The CIT Port Default Router (IP) Address is the address of the router for out-going messages from the CIT port of the network element that are targeted outside the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The default router is a part of the local subnetwork and must have an address that is consistent with the other elements in the local subnetwork. The original value of the CIT port default router IP address is 0.0.0.0.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_DFLTRTR_IP** is changed, the system controller shall automatically reset.

CIT_PORT_LOCAL_SUBNETMASK

The Local Subnet Mask Internet Protocol (IP) Address is a mask used by the network element software to route messages within the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point ("."). The numbers have an integer value between *0* and *255* (inclusive). The original value of the CIT port local subnet mask is 255.255.255.0.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_LOCAL_SUBNETMASK** is changed, the system controller shall automatically reset.

CIT_PORT_NAT_IP

The internal Network Address Translation IP Address is a Class A non-10.0.0.0 Net IP address used on the CIT port by the network element to map any Class A address of Net 10 (Standard 10.0.0.0) to avoid any internal routing conflicts. Only the first byte of the non-10.0.0.0 Net IP address is provisionable. The acceptable number of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and the remaining three bytes must have a value of "0". The original value of the NAT IP address is 126.0.0.0.

The NAT IP address shall not be provisioned to have the same network address as in the user's network, otherwise any traffic to/from via that network address will be dropped.

When the **CIT_PORT_NAT_IP** is changed, the system controller shall automatically reset.

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The **APSD_UNAVAIL** parameter is optional.

The only valid value for **APSD_UNAVAIL** is ON.

If the *spec_block* is null, the currently effective attributes at the network element system prevails.

CAUTION: Execution of this command may affect service. Network element access may be affected. The operation of other nodes in the ring may be affected.

If duplicate TIDs are created, the node will be isolated via the remote access.

OUTPUT FORMAT

If the network element fully complies with the **ENT-SYS** request, the following completion response is returned.

```
    sid date time
M   ctag COMPLD
;
```

If **new_tid** is specified in the *spec_block* of the input command, the *sid* assumes the value of **new_tid**. If the **ENT-SYS** command does not alter the existing system level attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to modify the **system** name to 1-BROAD-STREET-CO (may be an old or new TID depending on the properties of the object):

```
ENT-SYS:OLS-1.6T:SYSTEM:123456:::NEW_TID=1-BROAD-STREET-CO,APSD_UNAVAIL=ON;

IP 123456

    1-BROAD-STREET-CO 93-10-26 16:42:11
M   123456 COMPLD
;
```

The following example shows a command to modify the IP Address of the NE CIT port, the IP Address of the
Default Router for the CIT port, the Local Subnetwork for the CIT port, and NAT IP Address for the CIT
port:

```
ENT-SYS:OLS-1.6T:SYSTEM:123456:::CIT_PORT_IP=10.17.23.11,
CIT_PORT_DFLTRTR_IP=10.17.38.108,CIT_PORT_LOCAL_SUBNETMASK=255.255.255.0,
CIT_PORT_NAT_IP=30.0.0.0,APSD_UNAVAIL=ON;

IP 123456

    OLS-1.6T 93-10-26 16:42:11
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDRERROR RESPONSES** section. The error responses listed there also apply to
the **ENT-SYS** command. If a network element receives an **ENT-SYS** command with a **new_tid** value
that is not valid, the following error response is returned:

```
    sid date time
M   ctag DENY
    IITA
    /* Input, Invalid Target Identifier, invalid NEW_TID */
;
```

If a network element receives an **ENT-SYS** command with a **STD** value other than SONET or SDH, the
following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid STD */
;
```

The following error response is returned if a network element receives an **ENT-SYS** command with an
illegal **NETYPE** value:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid NETYPE */
;
```

If a network element receives this command with an **ip_address** value that is not comprised of four
integers between *0* and *255*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid IP_ADDRESS */
;
```

If a network element receives this command with an **CIT_PORT_IP** value that is not comprised of four integers between *0* and *255*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid CIT_PORT_IP */
;
```

If a network element receives this command with a **CIT_PORT_DFLTRTR_IP** value that is not comprised of four integers between *0* and *255*, the following error response is returned:

```
  sid date time
M ctag DENY
  IDNV
  /* Input, Data Not Valid, invalid CIT_PORT_DFLTRTR_IP */
;
```

If a network element receives this command with a **dftlrtr_ipaddress** value that is not comprised of four integers between *0* and *255*, the following error response is returned:

```
  sid date time
M ctag DENY
  IDNV
  /* Input, Data Not Valid, invalid DFTLRTR_IPADDRESS */
;
```

If a network element receives this command with a **local_subnetmask** value that is not comprised of integers between *0* and *255*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LOCAL_SUBNETMASK */
;
```

If a network element receives this command with a **CIT_PORT_LOCAL_SUBNETMASK** value that is not comprised of integers between *0* and *255*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid CIT_PORT_LOCAL_SUBNETMASK */
;
```

If a network element receives this command with an **nat_ipaddress** value that is not comprised of four integers with a value of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and/or the remaining three integers are not all zero, the following error response is returned:

```
   sid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid Network Address Translation IP ADDRESS */
;
```

If a network element receives this command with an **CIT_PORT_NAT_IP** value that is not comprised of four integers with a value of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and/or the remaining three integers are not all zero, the following error response is returned:

```
   sid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid CIT_PORT_NAT_IP */
;
```

If the network element receives this command with an invalid *APSD_UNAVAIL* parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid APSD_UNAVAIL */
;
```

If an **ENT-SYS** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If a network element receives an **ENT-SYS** command with a `spec_block` parameter attribute that does not match the *aid*, or that parameter is not supported by the particular software release in the receiving system, the following error response is returned:

```
    tid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the local NE has been locked by some other command so that the NE cannot reboot, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, the execution of this
command failed because
      another operation is in progress that prevents the system from
being rebooted.*/
;
```

If a network element receives this command with **quick_tran** value other than "ENABLED" or

"DISABLED", the following error response will be returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input Data Not Valid, Invalid quick_tran.*/
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-SYS
PROV-SYS

ENT-TMGSRC-SUPR

ENT-TMGSRC-SUPR: Enter Supervisory_Timing_Source

The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

ENT-TMGSRC-SUPR:*tid*:*aid*:*ctag*:::[*spec_block*];

DESCRIPTION

When a network element receives an **ENT-TMGSRC-SUPR** command from the user, it shall provision the appropriate Supervisory circuit pack specified by the *aid* according to the parameter settings in the command.

The provisioned values remain active until modified.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the Supervisory Circuit Pack slots for which the command is intended.

Entity: Slot (Supervisory Circuit Pack for NETYPES 2F_END_80, 2F_FULL_AD_80, 2F_4CH_AD, 2F_4CH_AD2, 2F_END_80_800G, 2F_END_80_800GL, 2F_FULL_AD_80_800G, 2F_FULL_AD_80_800GL, 2F_END_16, 2F_FULL_AD_16, 2F_END_80L)
Legal Values: SLOT-(1)-(2)-(7)

Entity: Slot (Supervisory Circuit Pack for NETYPE 2F_RPTR, 2F_RPTR_16, 2F_RPTRL)
Legal Values: SLOT-(1)-(1)-(9)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with

a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

TMGSRC

Timing source. This parameter is used to set the timing source for the supervisory channel(s) addressed by the *aid*.

If included in the *spec_block* at all, *TMGSRC* may have one of the following values: "internal", "line_east" and "line_west".

internal
    This sets the internal clock as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

line_east
    This sets the East side line as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

line_west
    This sets the West side line as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    tid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to set the timing source of the Supervisory Circuit Pack in a 2 Fiber End Terminal equipped with 80 wavelengths to "line_east":

```
ent-tmgsrc-supr:LT-1.6T:SLOT-1-2-7:123456:::tmgsrc=line_east;
```

```
IP 123456

<

    LT-1.6T 93-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

In addition to the non-message-specific error responses listed in the **RTRV-HDR ERROR RESPONSES** section, the following error responses are listed in the order and priority that the network element checks for each condition.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (not supported by the network element, delimited by ","), or termination characters (;), the following error response is returned:

```
    tid date time

M   ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If the network element receives this command with the same parameter specified more than once, the following error response is returned:

```
    tid date time

M   ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If the network element receives this command without an *aid* value or with an *aid* value that is invalid for the *modifier* provided, the following error response is returned:

```
    tid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element receives this command with a *TMGSRC* value that is not supported by network element, the following error response is returned:

```
   tid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid TMGSRC */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-TMGSRC-SUPR

ENT-TSB

ENT-TSB: Enter Transport Service Bridge This command is available starting in WaveStar OLS 1.6T release 2. The User Privilege Code (UPC) for this command is Security Level 5 (S5).

INPUT FORMAT

ENT-TSB:*tid*:*[aid]*:*ctag[:::spec_block]*;

DESCRIPTION

When a network element receives an **ENT-TSB** command from a user, the network element will modify its Transport Service Bridge (TSB) attributes so that the T1.245 Directory Services Registration Management protocols can be transported over an RFC 1006 TSB. Attributes are changed only if the received attributes are different from the currently effective attributes.

> **NOTE:**
>
> TSB attributes remain in effect until modified (for example, by another execution of the TL1 command **ENT-TSB**).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* value, if supplied, specifies that system parameters are to be modified. Entity: System
The allowable value is: (SYSTEM)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The Registration Management attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **ENT-TSB** command, the *spec_block* may contain one or more of the following parameters:

PRI_TSB_NSAP

Primary RFC 1006 Transport Service Bridge (TSB) NSAP. This is used to identify the OSI network address of the first RFC 1006 OSI / TCP-IP network bridge to use to access the primary and secondary DSAs.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 00 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA. An address length of 00 sets the value to null.

If this parameter is not null, the user wishes to access the DSA(s) via a TCP-IP network that is between the DSA(s) and the local OSI domain.

The original value for this parameter is "00".

SEC_TSB_NSAP

Secondary RFC 1006 TSB NSAP. This is used to identify the OSI network address of the second RFC 1006 OSI / TCP-IP network bridge to use to access the primary and secondary DSAs.

The NSAP is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 00 to 13) specifying the length of the address followed by the string representing the address. For example, the NSAP entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.   An address length of 00 sets the value to null.

If this parameter is not null, the user wishes to access the DSA(s) via a TCP-IP network that is between the DSA(s) and the local OSI domain.
The original value for this parameter is "00".

PRI_DSA_IP_ADDRESS

Primary DSA IP Address. This is used to identify the TCP-IP network address of the primary DSA to register with.

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the DSA system. The address is that of the DSA on the other side of the TSB.

SEC1_DSA_IP_ADDRESS

First Secondary DSA IP Address. This is used to identify the TCP-IP network address of the first secondary DSA to register with.

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the DSA system. The address is that of the DSA on the other side of the TSB.

SEC2_DSA_IP_ADDRESS

Second Secondary DSA IP Address. This is used to identify the TCP-IP network address of the second secondary DSA to register with.

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the DSA system. The address is that of the DSA on the other side of the TSB.

SEC3_DSA_IP_ADDRESS

Third Secondary DSA IP Address. This is used to identify the TCP-IP network address of the third secondary DSA to register with.

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the DSA system. The address is that of the DSA on the other side of the TSB.

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The *APSD_UNAVAIL* parameter is optional.

The only valid value for *APSD_UNAVAIL* is ON.

OUTPUT FORMAT

If the network element fully complies with the **ENT-TSB** request, the following completion response is returned.

```
    tid date time
M   ctag COMPLD
;
```

If the **ENT-TSB** command does not alter the existing TSB attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a command to modify a NE's TSB attributes to use a given Primary and first Secondary DSA, with DSA access provided via a primary and secondary RFC 1006 TSB:

```
ent-tsb:OLS-1.6T:system:123456:::PRI_TSB_NSAP=1339084080000000000000000000008006a060181,
SEC_TSB_NSAP=1339084080000000000000000000008006a060136,PRI_DSA_IP_ADDRESS=145.13.12.211,
SEC_DSA_IP_ADDRESS=145.19.12.211,APSD_UNAVAIL=ON;

IP 123456
<
    OLS-1.6T 99-02-19 09:42:01
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **ENT-TSB** command. If a network element receives an **ENT-TSB** command with an invalid PRI_TSB_NSAP value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid PRI_TSB_NSAP */
;
```

If a network element receives an **ENT-TSB** command with an invalid SEC_TSB_NSAP value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SEC_TSB_NSAP */
;
```

If a network element receives an **ENT-TSB** command with an invalid SEC1_DSA_IP_ADDRESS value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid SEC1_DSA_IP_ADDRESS */
;
```

If a network element receives an **ENT-TSB** command with an invalid SEC2_DSA_IP_ADDRESS value, the following error response is returned:

```
    tid date time
```

```
    M   ctag DENY
        IDNV
        /* Input, Data Not Valid, invalid SEC2_DSA_IP_ADDRESS */
    ;
```

If a network element receives an **ENT-TSB** command with an invalid SEC3_DSA_IP_ADDRESS value, the following error response is returned:

```
        tid date time
    M   ctag DENY
        IDNV
        /* Input, Data Not Valid, invalid SEC3_DSA_IP_ADDRESS */
    ;
```

If the network element receives this command with an invalid *APSD_UNAVAIL* parameter, the following error response is returned:

```
        tid date time
    M   ctag DENY
        IDNV
        /* Input, Data Not Valid, invalid APSD_UNAVAIL */
    ;
```

If an **ENT-TSB** command is received with an invalid *aid* value, the following error response is returned:

```
        tid date time
    M   ctag DENY
        IIAC
        /* Input, Invalid Access Identifier */
    ;
```

If a network element receives an **ENT-TSB** command with a `spec_block` parameter attribute that does not match the *aid*, or that parameter is not supported by the particular software release in the receiving system, the following error response is returned:

```
        tid date time
    M   ctag DENY
        IISP
        /* Input, Invalid Syntax or Punctuation */
    ;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-RMA
RTRV-RMA
RTRV-TSB

ENT-USER-SECU

ENT-USER-SECU: Enter User Security

The User Privilege Code (UPC) for this command is Security Level 5 (S5).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

ENT-USER-SECU:*tid*:*uid*:*ctag*::*pid*,,*uap*[:*keyword_block*];

DESCRIPTION

The **ENT-USER-SECU** command is used by a user with a UPC of S5 to enter the security parameters associated with a user.

If password aging is enabled, a user may not change his or her own password unless at least seven (7) calendar days have passed since the last password change of that login.

If password aging is disabled, a user may change a password without any restrictions.

The NE will keep track of the date of the last time each user password changed. When a user logs in, this date will be compared with the current date. If the current date is more that the provisioned number of days after the last change, then the NE considers the password expired. A non-Super user's password will also be considered expired the first time when the user logs in successfully after the login was created. This is to force users to select a password different from the one entered by a user with a UPC of S5 when the login was created. This requirement does not apply to the two Super user logins.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

This is the User Identifier of a user. Valid values are a case-sensitive alphanumeric string of 1 to 10 characters.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pid

Passwords consist of a string of alphanumeric and symbolic characters with a minimum of six characters and a maximum of ten characters, where at least one alphabetic, one is numeric, and one is symbolic. Password must not contain the user's own uid and the uid is checked as case-insensitive. Passwords are case-sensitive.

Password strings must be encrypted when stored in the network element. They will not be encrypted when transmitted from the CIT to the network element. Passwords are never transmitted from the network element to the CIT.

Symbolic characters:
! ' ( ) * + - . / < > [ ] ^ ' { | } ~

Numeric characters:
0 1 2 3 4 5 6 7 8 9

Alphabetic characters:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

uap

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:
> **S[0-5]**
>> For **S**ecurity Administration Authorization Level 0 through 5.
> **P[0-5]**
>> For **P**rovisioning Authorization Level 0 through 5.

PM[0-5]
> For **P**erformance **M**onitoring Authorization Level 0 through 5.

M[0-5]
> For **M**aintenance Authorization Level 0 through 5.

T[0-5]
> For **T**est Access Authorization Level 0 through 5.

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:

S[1-5]
> For **S**ecurity Administration Authorization Level 0 through 5.

P[0-5]
> For **P**rovisioning Authorization Level 0 through 5.

PM[0-5]
> For **P**erformance **M**onitoring Authorization Level 0 through 5.

M[0-5]
> For **M**aintenance Authorization Level 0 through 5.

T[0-5]
> For **T**est Access Authorization Level 0 through 5.

keyword_block

Keyword Parameter Block. This parameter field is used for modification of temporary login attributes and/or setting the password aging for the user. Temporary login attributes are applicable to non-Super users only.

Parameters within the *keyword_block* are specified using a name defined construct of: **PARAME-TER**=*value* in a comma separated list.

For the **ENT-USER-SECU** command, the *keyword_block* may contain neither or both of the following temporary login parameters and must contain the password aging parameter:

TYPE
> If a temporary login is desired, this parameter must equal "TEMPORARY".

temporary

Temporary Login. This indicates that this login is assigned for temporary access to the network element.

EXPDAT

Expiration Date. This is the requested **EXPDAT** in the following format: YY-MM-DD, where YY is the last two digits of the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

The expiration date must be set if **TYPE=temporary**.

If the NE is provisioned to operate in an SDH environment, the format of the expiration date is DD-MM-YY.

PAGE

Password Aging Interval. This parameter specifies the period in days after which the user has to change the password of his or her account. It can take a value between 7 and 999 days, or 0, which disables the password aging mechanism. The original value is 30 days. If the parameter is omitted (null), the original value is used.

ALW_LOGIN

Allow User Login. This parameter is used to enable or disable a user login and within the ENT-USER-SECU command, can only take on the value "YES". Its original value is "YES". To disable a user, the ED-USER-SECU command should be used.

NOTE: User access privilege (UAP) must be entered in the format of Sv&Pw&PMx&My&Tz. Where: "&" is the delimiter; S (Security Administration), P (Provisioning), PM (Performance Monitoring), M (Maintenance), and T (Test Access) are keywords used for the command function categories; v, w, x, y, z are values 0 to 5 for user authorization level in ascending user privilege, with 1 for the lowest user privilege. A privilege level of 0 means there is no authorization for that functional category. For example, S1&P0&PM3&M3&T0 is a valid UAP. At a minimum, S1 must be assigned for each login.

OUTPUT FORMAT

If the network element fully complies with the enter user security request, the following normal completion response is returned:

```
    tid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

NOTE:

The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
ENT-USER-SECU:LT-1.6T:kjlee:123456::pass12+,,S1&P2&PM1&M0&T0:

TYPE=temporary,EXPDAT=99-12-31,PAGE=45;



IP 123456

<

    LT-1.6T 99-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **ENT-USER-SECU** command from a user trying to enter his or her own *uid* (user identifier), the following error response is returned:

```
    tid date time

M  ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

;
```

If the network element receives an **ENT-USER-SECU** command with an existing *uid* (user identifier) that is not that user's own *uid*, the following error response is returned:

```
    tid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity */

  ;
```

If the network element receives an **ENT-USER-SECU** command when it already has reached its maximum user logins the following error response is returned:

```
    tid date time

M   ctag DENY

    SLEM

    /* Status, List Exceeds Maximum */

  ;
```

If the network element receives an **ENT-USER-SECU** command with an invalid *pid* (password) value, the following error response is returned:

```
    tid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid PID */

  ;
```

If the network element receives an **ENT-USER-SECU** command with an invalid *uap* (user access privilege) value, the following error response is returned:

```
    tid date time

M   ctag DENY

    PIUC

    /* Privilege, Illegal User Code, invalid UAP */

;
```

If the network element receives an **ENT-USER-SECU** command with a **TYPE** other than **TEMPO-RARY**, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TYPE */

;
```

If the network element receives an **ENT-USER-SECU** command with an invalid **EXPDAT**, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid EXPDAT */

;
```

If the network element receives an **ENT-USER-SECU** command without an **EXPDAT** when **TYPE** is specified, **or** without a **TYPE** when **EXPDAT** is specified in the *keyword_block*, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid keyword_block */

;
```

If the network element receives an **ENT-USER-SECU** command with an invalid *PAGE*, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid PAGE */

;
```

If the network element receives an **ENT-USER-SECU** command with a Super user uap of (S5&P5&PM5&M5&T5) value, the following error response is returned:

```
    tid date time

M   ctag DENY

    PIUI

    /* invalid given Super user privilege */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-USER-SECU
ED-USER-SECU
RTRV-USER-SECU
```

FACTORY-UNIT

FACTORY-UNIT: Factory Unit

The User Privilege Code (UPC) for this command is Test Access Level 4 (T4).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

FACTORY-UNIT:*tid*:*aid*:*ctag*::*testid*;

DESCRIPTION

This command will be used to execute one or more self-contained circuit pack tests for any circuit pack in the system. The test procedures are designed to insure product quality under various temperature and environmental conditions.

The intent is for this command to be used by the factory.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Entity: Single Slot
Legal Values: SLOT-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

testid

Test Identification. This indicates the test identification number. The valid values are: an integer from **1-40** (inclusive),**in_service**, or **all**.

OUTPUT FORMAT

In response to a valid command, the following output report is returned to the user.

```
    tid date time

M   ctag COMPLD

    "aid,RESULT=x,TESTID=x,RSLT_MAP=\"xx,xx,xx,xx,xx\""

 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the slot or operations interface that was tested.

RESULT

Result. This is the result of the test. This field can take one of the following values:

> good

> Good. This indicates that the test was good or successful.

> FAIL

> Fail. This indicates that the test failed or was unsuccessful.

TESTID

Test Identification. This indicates the test identification number.

RSLT_MAP

Result Map. This indicates the success or failure status of a test or tests. The map of results will be enclosed by backslash-quote delimiters (\").

EXAMPLE INPUT/OUTPUT

This example shows the response to the user executing a series of tests on the system controller.

```
FACTORY-UNIT:OLS-1.6T:SLOT-1-2-10:12345::testid=in_service;



IP 12345

<

   OLS-1.6T 97-03-11 18:19:11

M  12345 COMPLD

   "SLOT-1-2-10,RESULT=good,TESTID=128,RSLT_MAP=\"00,00,00,00,00\""

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
   tid date time

M  ctag DENY

   IIAC

   /* Input, Invalid Access Identifier */

;
```

If this command is received with an invalid *testid*, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, Invalid TESTID */

;
```

RELATED TL1 COMMANDS/MESSAGES

FACTORY-UTIL.

FACTORY-UTIL

FACTORY-UTIL: Factory Utility

The User Privilege Code (UPC) for this command is Test Access Level 4 (T4).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

FACTORY-UTIL:*tid*:*aid*:*ctag*::*testid*[,*testdata*];

DESCRIPTION

This command will be used to access circuit pack hardware utilities for any circuit pack in the system. The test procedures are designed to insure product quality and to address temperature and environmental conditions in the factory.

The intent is for this command to be used by the factory.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Entity: Slot
Legal Values: SLOT-(ALL), SLOT-(1-12)-(ALL), SLOT-(1-12)-(1-3)-(ALL),
SLOT-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

testid

Test ID. This indicates the test identification number. The valid values are integers from **0-255**, inclusive.

testdata

Test Data. This is data for the requested utility. The **testdata** is a string of up to 228 ASCII characters. The message must be enclosed using delimiters. The delimiter to be used is **\"** [that is, backslash followed by double-quotes].

OUTPUT FORMAT

In response to a valid command, the following output report is returned to the user.

```
    tid date time

M   ctag COMPLD

    "aid,RESULT=x,TESTID=x,

    RSLT_DATA1=\"xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx\",

    RSLT_DATA2=\"xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx\",

    RSLT_DATA3=\"xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx\",

    RSLT_DATA4=\"xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx\",

    RSLT_DATA5=\"xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx\""

  ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the slot or operations interface that was tested.

RESULT

Result. This is the result of the test. This field can take one of the following values:

> good

Good. This indicates that the test was good or successful.

FAIL

Fail. This indicates that the test failed or was unsuccessful.

TESTID

Test Identification. This indicates the test identification number.

EXAMPLE INPUT/OUTPUT

This example shows the response to the user executing a series of tests on the system controller.

```
FACTORY-UTIL:OLS-1.6T:SLOT-1-2-10:12345::testid=0,testdata=\"123456789abcdefghijk\";



IP 12345
<

   OLS-1.6T 98-03-11 18:19:11

M  12345 COMPLD

   "SLOT-1-2-10,RESULT=FAIL,TESTID=0,

   RSLT_DATA1=\"00,06,00,00,00,00,00,00,00,00,ee,ee,02,78,01\"

   RSLT_DATA2=\"01,43,52,00,00,00,00,00,00,00,00,00,00,00,cd\"

   RSLT_DATA3=\"1e,06,00,00,00,00,00,0b,03,46,4a,04,78,03,0c\"

   RSLT_DATA4=\"46,00,46,01,04,14,1b,12,20,20,20,ff,ff,3f,00\"

   RSLT_DATA5=\"00,00,00,00,00,00,46,00,01,00,05,00,01,00,1e\""

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
    tid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If this command is received with an invalid *testid*, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, Invalid TESTID */

;
```

If this command is received with an invalid **testdata** value, including missing leading and/or trailing escaped quotes (_dblslash_") and/or more than 20 characters in the string, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid testdata parameter */

;
```

RELATED TL1 COMMANDS/MESSAGES

FACTORY-UNIT.

INH-CLK-SRCE

INH-CLK-SRCE: Inhibit Clock Source

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 6.2.

INPUT FORMAT

DESCRIPTION

INPUT PARAMETERS

tid
aid

ctag

OUTPUT FORMAT

OUTPUT PARAMETERS

EXAMPLE INPUT/OUTPUT

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **INH-CLK-SRCE** command.

If an **INH-CLK-SRCE** command is received with an invalid *aid* value, the following error response is returned:

```
   sid date time
M  ctag DENY
   IIAC
   /* Input, Invalid Access Identifier */
;
```

If the network element receives an **INH-CLK-SRCE** command from a user with a valid *aid*, but the OTU is not a 4:1 TRANS MUX pack, the following error response is returned:

```
   sid date time
```

```
M  ctag DENY
   IIAC
   /* Input, unexpected circuit pack */
;
```

If the network element receives an **INH-CLK-SRCE** command from a user and a 4:1 TRANS MUX circuit pack is not inserted in the specified slot, the following error response is returned:

```
   sid date time
M  ctag DENY
   SROF
   /* Status, requested operation failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

INH-FMM-RMVL

INH-FMM-RMVL: Inhibit Flash Memory Module Removal

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

INPUT FORMAT

INH-FMM-RMVL:*tid*::*ctag*;

DESCRIPTION

When a Network Element (NE) receives an **INH-FMM-RMVL** command from a user, the NE disables removal of the Flash Memory Module (FMM) located in the BOS1 Circuit Pack (CP) serving as the System Controller. The NE will cease flashing the FAULT LED of this BOS1 CP and deactivate the FMM eject button on this CP as well.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **INH-FMM-RMVL** request, the following completion response is returned.

```
    IP ctag

    <


        tid date time

    M   ctag COMPLD

    ;
```

If the network element receives an **INH-FMM-RMVL** command from a user when FMM removal had already been disabled, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

---

inh-fmm-rmvl:OLS-400G::123;


```
    IP 123

    <


        OLS-400G 99-02-25 11:45:12

    M   123 COMPLD

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **INH-FMM-RMVL** command.

RELATED TL1 COMMANDS/MESSAGES

`ALW-FMM-RMVL`

INH-MSG-EQPT

`INH-MSG-EQPT`: Inhibit Message Equipment

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

`INH-MSG-EQPT``:tid:aid:ctag[::,,];`

DESCRIPTION

The **`INH-MSG-EQPT`** command is initiated by users to inhibit office alarms or reporting of autonomous messages from a network element if the alarms and autonomous message reporting has not already been inhibited.

This command affects autonomous messages only on a per login session basis. When a network element receives an **`INH-MSG-EQPT`** command from a user, the network element shall inhibit the reporting of autonomous messages to the active login session over which the command was received.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* value must have one of the following values:
"OFFICE_ALMS"
"AUTO_MSG"

This specifies that office alarms or reporting of autonomous messages is inhibited on the network element.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **INH-MSG-EQPT** request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

If the network element receives an **INH-MSG-EQPT** command message from a user when reporting of office alarms or autonomous messages had already been inhibited, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
inh-msg-eqpt:OLS-400G:office_alms:a123xyz;



IP a123xyz

<



    OLS-400G 98-01-06,09:30:49

M   123xyz COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to the **INH-MSG-EQPT** command.

If an **INH-MSG-EQPT** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

ALW-MSG-EQPT

_____

INIT-PM-FTAM

`INIT-PM-FTAM`: Initialize PM Over FTAM

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 6.0.

INPUT FORMAT

INIT-PM-FTAM:tid::ctag:::spec_block;

DESCRIPTION

The **`INIT-PM-FTAM`** command is used to retrieve PM data over FTAM. The OS sends request to
Wavestar OLS 1.6T to start the PM and expect the data will be returned using FTAM mechanism. The
response to the request indicates the NE has accepted the request, start the backend process to prepare the
data and reserved the FTAM resource on the NE. After NE backend has prepared the data and send the
data back via FTAM, or any error has occured, a retrieve PM Via FTAM result notification will be sent
back to the OS to indicate the result.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It
must be a string of 20 or fewer characters from the following set:
    [A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the
response to allow association of the command and response messages. Valid values for *ctag* are
strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal
digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with
a letter. A "." is allowed only if all other characters are digits.

psel

Remote System Presentation Selector. This is the OSI Presentation selector to use to initiate the
FTAM association with the remote system. This parameter is not optional.
The *psel* is a variable length string of minimum 1 and maximum 4 octets. The *psel* value ranges
between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters
in the hexadecimal range of 00 to FF. A valid *psel* starts with two digits (ranging from 01 to 04) spec-
ifying the length of the *psel* followed by the string representing the address. For example, the string

entered as 0104 signifies a 1 octet *psel* with first octet of 0x04.

ssel

Remote System Session Selector. This is the OSI Session selector to use to initiate the FTAM association with the remote system. This parameter is not optional.
The *ssel* is a variable length string of minimum 1 and maximum 4 octets. The *ssel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *ssel* starts with two digits (ranging from 01 to 04) specifying the length of the *ssel* followed by the string representing the address. For example, the string entered as 025353 signifies a 2 octet *ssel* with first octet of 0x53 and second octet of 0x53.

tsel

Remote System Transport Selector. This is the OSI Transport selector to use to initiate the FTAM association with the remote system. This parameter is not optional.
The *tsel* is a variable length string of minimum 1 and maximum 4 octets. The *tsel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *tsel* starts with two digits (ranging from 01 to 04) specifying the length of the *tsel* followed by the string representing the address. For example, the string entered as 025454 signifies a 2 octet *tsel* with first octet of 0x54 and second octet of 0x54.

nsap

Network Service Access Point. This is used to identify the OSI network address of the remote system or RFC 1006 TSB for establishing the FTAM association for database backup. This parameter is not optional.
The *nsap* is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address. For example, the *nsap* entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.
If the OSI stack is used end-to-end, then the *nsap* is the address of the remote system itself. If instead a RFC 1006 TSB is used, the *nsap* is the address of the TSB. The TSB will provide for address translation between the OSI and TCP/IP domains.

correlator

This parameter correlates request and the notification. The notification is associated with the action via the correlator. The correlator is a variable length string maximum of 24 characters.

os_dir

This is the directory where PM files will be stored. The os_dir is a variable length string maximum of 40 characters.

ip_address

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the remote system. The ip_address is the address of the remote system on the other side of the TSB. If this is specified then NSAP is assumed to be that of TSB.

otps_file

If this is present the OTPS data is collected and will be stored in the os_dir/otps_file. The otps_file is a variable length string maximum of 20 characters.
Note: If the specified mondat, montm pair leads to a bin outside the 8.25 hour range for 15-MIN or six day period for 1-DAY tmper then all bins are returned.

oline_file

If this is present the OLINE data is collected and will be stored in the os_dir/oline_file. The oline_file is a variable length string maximum of 20 characters.

ochan_file

If this is present the OCHAN data is collected and will be stored in the os_dir/ochan_file. The ochan_file is a variable length string maximum of 20 characters.

supvy_file

If this is present the SUPVY data is collected and will be stored in the os_dir/supvy_file. The supvy_file is a variable length string maximum of 20 characters.

assoc_file

If this is present the ASSOC data is collected and will be stored in the os_dir/assoc_file. The assoc_file is a variable length string maximum of 20 characters.

The channel association is needed to map RTRV-PM-OTPS and RTRV-PM-OCHAN command output.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN", "1-DAY" not both.

15-MIN
   This requests that 15-minute PM data be sent via FTAM.
1-DAY
   This requests that daily PM data be sent via FTAM .
   Note: If no value or null is provided for this parameter, then the tmper value shall be assumed to be 15-MIN.

mondat

   Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

   For a *tmper* value of 15-MIN, the maximum allowable range of valid dates supported by *mondat* include only the current day and previous day.

   Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondat* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

   For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondat* include the current and previous six days. This parameter, if specified, must have the values of ALL or be in the format of MM-DD (month-day) for SONET and DD-MM for SDH.

MM-DD
   Month-day.
ALL
   Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondat*, the current date is assumed. If the *mondat* specifies a date other than the current date or one of the previous 6 days, the network element responds the same as if "ALL" were specefied.

montm

   Monitored time. This specifies the beginning time of day of the requested performance-monitoring period if *tmper i*s specified as 15-MIN or *tmpr* is not specified. This parameter, if specified, must have the values of ALL or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH
   Hour of day-minute of hour.
ALL
   All applicable beginning times for the given *mondat* value.

If no value is entered for *montm and tmpr* is not equal to 1-DAY, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, `01-03` for a 15-minute PM data is rounded down to `01-00`). If the *tmper* value is `1-DAY` then the *montm* parameter is not used.

If the montm is not within past 8.25 hours for tmper=15-MIN then data for all 15-MIN pm bins is returned.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15-MIN	**ALL**	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	**ALL**	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM_FTAM-1021).
15-MIN	previous day	no value	return error response (invalid MONDAT)
15-MIN	previous day	**ALL**	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	15 min. data from the latest bin up to the given interval
15-MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	All 32 bins of 15 min. PM history data
1-DAY	**ALL**	any	current and previous 6 days data
1-DAY	current day or no value	any	current 1-day data
1-DAY	any one of the previous six days	any	All the history bins for 1 day PM data
any	other	any	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.

OUTPUT FORMAT

If the network element fully complies with the **INIT_PM_FTAM** request, the following completion response is returned.

```
IP ctag
<
   tid date time
M  ctag COMPLD
;
```

_____

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since FTAM may take a while, and the response cannot stay open and waiting a later notification is needed.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The example below shows the command,**INIT-PM-FTAM** , to request the PM data from all 15 minute bins for the date 7-21.

_____

```
INIT-PM-FTAM:LT-400G-NODE-5::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=133908408000000000000000000013a7ba060181,correla-
tor=1234,os_dir=/ems/.pm/FTAM/LT-400G-NODE-5,
ochan_file=0254MOC.dat,tmper=15-MIN,mondat=7-21;
```

```
IP 123456
<
   OLS-400G 98-7-21 17:12:47
M  123456 COMPLD
;
```

{End of DIS R6.0-ALL INIT_PM_FTAM-1029}

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **INIT-PM-FTAM** command with an invalid *tmper* value (that is, anything other than **15-MIN**, **1-DAY**), the following error response is returned:

_____

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TMPER */
;
```

_____

If the network element receives this command with an invalid mondat format, the following error response is returned:
_____

```
      sid date time
   M  ctag DENY
      IDNV
      /* Input, Data Not Valid, invalid MONDAT */
    ;
```

If the network element receives this command with an invalid montm value, the following error response is returned:
_____

```
      sid date time
    M ctag DENY
      IDNV
      /* Input, Data Not Valid, invalid MONTM */
    ;
```
_____

If a network element receives this command with a missing or invalid *psel* value, the following error response is returned:
_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing PSEL */
;
```

_____

If a network element receives this command with a missing or invalid *ssel* value, the following error response is returned:
_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing SSEL */
;
```

_____

If a network element receives this command with a missing or invalid *tsel* value, the following error response is returned:

_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing TSEL */
;
```

_____

If a network element receives this command with a missing or invalid *nsap* value, the following error response is returned:

_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing NSAP */
;
```

_____

If a network element receives this command with an invalid *ip_address* value, that is, a non-null value that is not four decimal numbers from 0 to 255 seprated by periods ("."), the following error response is returned:

_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid IP_ADDRESS */
;
```

_____

If a network element receives this command with missing or invalid *correlator* value, the following error response is returned:

_____

```
  tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing correlator */
;
```

_____

If a network element receives this command with an invalid or none of the five file names the following error response is returned:

```
   tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid or missing file */
;
```

If the FTAM Link In Use, the following error response will be returned:

```
   tid date time
M  ctag DENY
   SROF
   /* Status, Requested Operation Failed, FTAM link in use */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN
RTRV-PM-OLINE
RTRV-PM-OTPS
RTRV-PM-SUPR

INIT-REG-ALL

INIT-REG-ALL: Initialize Register All

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

INIT-REG-ALL:*tid*:*aid*:*ctag*::*cptype*,,,*tmper*[,,];

DESCRIPTION

Caution:
Current day and/or current 15-minute performance monitoring data storage registers for the digital parameters of the addressed aid will be corrupted as a result of this command.

The **INIT-REG-ALL** command is used to request the network element to initialize the specified *current* day and/or *current* 15-minute digital performance-monitoring storage registers.

PM registers for previous day and previous 15-minute time periods are not affected.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility to which the register applies.

Entity: Line
Legal Values: LINE-(ALL), LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

cptype

CP type. This requests that digital performance monitoring registers for the specified CP type be
initialized. This parameter must have one of the values: "OTU", "SUPR", or "ALL."

OTU

This requests that OTU digital registers be initialized.

SUPR

This requests that SUPR digital registers be initialized.

ALL

This requests that both OTU *and* SUPR digital registers be initialized.

tmper

Time period. This requests that digital performance monitoring registers for a specified time
interval be initialized. This parameter must have one of the values: "15-MIN", "1-DAY", or
"ALL."

15-MIN

This requests that 15-minute PM digital registers be initialized.

1-DAY

This requests that daily PM digital registers be initialized.

ALL

This requests that 15-minute *and* daily PM digital registers be initialized.

OUTPUT FORMAT

If the network element fully complies with the **INIT_REG_ALL** request, the following completion
response is returned.

```
IP ctag

<



    tid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT
PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The example below shows the command, **INIT-REG-ALL**, to initialize all digital registers associated with LINE-2W for the 15-min Bin.

```
INIT-REG-ALL:OLS-400G:LINE-2W:123456::ALL,,,15-MIN;


IP 123456


<


   OLS-400G 98-12-26 13:24:31


M  123456 COMPLD


;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
   tid date time


M  ctag DENY


   IIAC
```

```
    /* Input, Invalid Access Identifier */
```

```
  ;
```

If the network element receives an **INIT-REG-ALL** command with an invalid *tmper* value (that is, anything other than **15-MIN**, **1-DAY** or **ALL**), the following error response is returned:

```
    tid date time
```

```
M  ctag DENY
```

```
    IDNV
```

```
    /* Input, Data Not Valid, invalid TMPER */
```

```
  ;
```

If the network element receives an **INIT-REG-ALL** command with an invalid *cptype* value, the following error response is returned:

```
    tid date time
```

```
M  ctag DENY
```

```
    IDNV
```

```
    /* Input, Data Not Valid, invalid CPTYPE */
```

```
  ;
```

RELATED TL1 COMMANDS/MESSAGES

```
INIT-REG-OTPS
SET-BASELINE-OLINE
SET-BASELINE-SUPR
SET-BASELINE-OCHAN
RTRV-PM-OTPS
RTRV-PM-SUPR
```

INIT-REG-OTPS

INIT-REG-OTPS: Initialize Register OTPS

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

INIT-REG-OTPS:*tid*:*aid*:*ctag*::,,,,*tmper*[,,];

DESCRIPTION

Caution:
> Current day and/or current 15-minute performance monitoring data storage registers for the digital parameters of the addressed aid will be corrupted as a result of this command.

The **INIT-REG-OTPS** command is used to request the network element to initialize all *current* day and/or *current* 15-minute OTU digital performance-monitoring storage registers associated with the specified OTU port(s).

PM registers for previous day and previous 15-minute time periods are not affected.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the OTU port to which the register applies.

Entity: Port (OTU)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4,OUT1,OUT2,OUT3,OUT4,
9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505,
9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420,
9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335,

9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250,
9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025,
9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940,
8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855,
8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770,
8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685,
8680, 8675, 8670, 8665, 8660, 8655, 8650)

Note: User can enter any of the valid "Wavelength" for 10G MUX OCh10G output port. They will all yield the same result as they basically point to the line side output port of the plugged in OTU. It is not necessary that the frequency specified has to match the frequency specified by the pluggedn in MUX OTU.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

tmper

Time period. This requests that digital performance monitoring registers for a specified time interval be initialized. This parameter must have one of the values: "15-MIN", "1-DAY", or "ALL."

    15-MIN
        This requests that 15-minute PM digital registers be initialized.
    1-DAY
        This requests that daily PM digital registers be initialized.
    ALL
        This requests that 15-minute *and* daily PM digital registers be initialized.

OUTPUT FORMAT

If the network element fully complies with the `INIT_REG_OTPS` request, the following completion response is returned.

```
IP ctag

<

    tid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the OUTPUT PARAMETERS section for `RTRV-HDR`.

EXAMPLE INPUT/OUTPUT

The example below shows the command, INIT-REG-OTPS, to initialize all digital registers associated with PORT-12-3-12-IN2 for the 15-min Bin.

```
INIT-REG-OTPS:OLS-400G:PORT-12-3-12-IN2:123456::,,,,15-MIN;



IP 123456

<

    OLS-400G 98-12-26 13:24:31

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the `RTRV-HDR` ERROR RESPONSES section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element receives an `INIT-REG-OTPS` command with an invalid *tmper* value (that is, anything other than `15-MIN`, `1-DAY` or `ALL`), the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
INIT-REG-ALL
SET-BASELINE-OLINE
SET-BASELINE-SUPR
SET-BASELINE-OCHAN
RTRV-PM-OTPS
RTRV-PM-SUPR
```

INIT-SWD

INIT-SWD: Initiate Software Download The User Privilege Code (UPC) for this command is Security Level 4 (S4). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

INIT-SWD:*tid*::*ctag*:::*spec_block*;

DESCRIPTION

The **INIT-SWD** command can be initiated to install the software generic into the memory of the local network element. This command is not intended for customer use. The network element (NE) to which the software is downloaded is the NE with which the CIT directly interfaces. The software download is done via TFTP protocol. In order to download software successfully, a TFTP server must be initiated on the system whose IP address is provided in this command. The software download occurs in the background. Once the background download is initiated, there is no mechanism provided to cancel the operation.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

{End of REQ R6.0-ALL tid}

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

DIRECTORY

Directory name. This is the full path of the CIT's directory where the software program(s) to be installed into the local network element are held. It is a printable string of up to 100 characters, surrounded by quotation marks ("). Quotation marks are not allowed inside of the printable string. If MS-DOS pathnames are used with backslashes ("\"), each backslash must be escaped with a second backslash. This field is not optional. The directory named by this parameter is expected to contain the information file OLS400G_PKG. This file will contain a list of all the required files

for the download.

IP_ADDRESS

Internet Protocol (IP) Address. This is the IP address of the CIT from which the NE, via TFTP, gets the software to be downloaded. The 192.168.0.1. IP address must not be used since it is the IP address of the network element. This field is not optional. The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between 0 and 255 (inclusive). For the initial software installation, the IP address of the CIT must be 192.168.0.2.

OUTPUT FORMAT

If the network element is able to verify through the **INIT-SWD** request that the directory exists, and that the OLS 400G_PKG file is in the directory, then the following normal completion response is returned.

```
IP ctag
<
    tid date time
M   ctag COMPLD
;
```

Since the execution and completion of the **INIT-SWD** command will take approximately 15 minutes for a single download, the download will be executed in the background.

The user will be able to retrieve the active standing condition of software download in progress via the **RTRV-COND-ALL** command.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of **INIT-SWD** command for a WaveStar OLS 1.6T system:

NOTE:

> The below single-line command (**bold** type) is presented in more than one line for ease of reading.

```
INIT-SWD:LT-400G::123456:::DIRECTORY="c:\\setup",
IP_ADDRESS=192.168.0.2;


IP 123456
<
   LT-400G 98-06-06 16:42:11
M  123456 COMPLD
```

```
    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If the *tid* is not the tid of the local network element, the following error response will be returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TID */
;
```

If the *directory* is syntactically incorrect, or if the length of the *directory* printable string is greater than 128 characters surrounded by quotation marks, the following error response will be returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid DIRECTORY */
;
```

If a network element receives this command with an **ip_address** value that is not comprised of four integers between *0* and *255* separated by one period (or IP address is outside the allowable range), the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid IP_ADDRESS */
;
```

If the requested *directory* does not exist, or if the OLS400G_PKG file is missing from the *directory*, the following error response will be returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, unreachable DIRECTORY or
missing file */
;
```

If the *ip_address* is not reachable, the following error response will be returned:

```
    tid date time
M   ctag DENY
```

```
    SROF
    /* Status, Requested Operation Failed, unreachable IP_ADDRESS */
;
```

If the *tid* is being programmed by another download program, the following error response will be returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, a SW download in progress */
;
```

If the *tid* is being programmed by another download program, the following error response will be returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, a CPY-PRGM in progress */
;
```

RELATED TL1 COMMANDS/MESSAGES

CPY-PRGM

INIT-SYS

INIT-SYS: Initialize System The User Privilege Code (UPC) for this command is Security Level 5 (S5).

DESCRIPTION

WARNING:

Execution of this command may affect service. **Caution:** Execution of this command resets the system. APSD is not available until the system reboot is completed.

For system initialization:

The **INIT-SYS** command with the *ph* parameter set to 3 resets the system. Resetting the system resets the software without changing the provisioned parameters values.

The **INIT-SYS** command with the *ph* parameter set to 6 swaps the software in the active and inactive partitions of non-volatile memory and then resets the system.

Caution:

Execution of this command at any network element will also affect the OS communication with that network element and all OS users logged into that network element will be logged out.

Caution:

INIT-SYS will wipe out the history log.

Protection switches will be frozen until the reset is completed.

For bay initialization:

Only the bay specified will reset and the history log will remain intact. The *ph* parameter will be ignored.

For Overhead Controller Initialization:

The Overhead Controller will reset and the history log will remain intact. The *ph* parameter will be ignored.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. *aid* is a required parameter. The allowable values are:

ALL

for system reset in which the system controller in the System Bay will restart.

BAY-[1-12]

for individual bay initialization in which the Bay Controller in the specified bay will restart.

OVHCTL

for restarting the Overhead Controller.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag*are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ph

Phase. This field specifies the level of the system initialization. This parameter is required for system controller resets and is ignored for bay controller resets. The allowable values are:

3

This level of initialization resets the system software without affecting the setting of parameters. It causes the history and performance monitoring data to be lost.

6

This level of initialization swaps the software in the active and inactive partitions of non-volatile memory and then resets the system software. It causes the history and performance monitoring data to be lost.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=*value*** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command. For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value remains unchanged as a result of this command. The use of the term "null" in the descriptions below implies that the parameter does not appear in the command.

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The *APSD_UNAVAIL* parameter is optional.

The only valid value for **APSD_UNAVAIL** is ON.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    tid date time
M   ctag COMPLD
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example resets the system:

```
init-sys:LT-400G:all:123456::3:APSD_UNAVAIL=ON;


IP 123456
<
    LT-400G 99-10-26 16:42:11
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If the network element receives an **INIT-SYS** command without an *aid* or with an *aid* field other a valid *aid* (**all, bay-[1-12]** or **OVHCTL**), the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives an **INIT-SYS** command with a missing or unsupported *ph* value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid or missing PH */
```

```
    ;
```

If the network element receives this command with an invalid *APSD_UNAVAIL* parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid APSD_UNAVAIL */
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=3 or PH=6 while SW download to this NE is in progress, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The system is not able to complete the command because
    a software download is currently in progress.
    Please try again later. */
;
```

If an **INIT-SYS** command with an *aid* of **all** and PH=3 or PH=6 is received while a remote software copy between this NE and another NE is in progress, the command is denied with the following error response.

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The system is not able to complete the command because
    a remote software copy between the network element and
    another network element is currently in progress.
    Please try again later. */
;
```

If an **INIT-SYS** command with an *aid* of **all** and PH=3 or PH=6 is received while a database backup or restore is in progress, the command is denied with the following error response.

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The system is not able to complete the command because
    a database backup or restore is currently in progress.
    Please try again later. */
```

```
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=3 while the software in the active partition of non-volatile memory in the BOS circuit pack is corrupted, the command shall be denied and the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The execution of this command stopped because of corrupted
    software in the system controller (BOS).
    */
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=6 while the software in the inactive partition of non-volatile memory in the BOS circuit pack is corrupted, the command shall be denied and the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The execution of this command stopped because of corrupted
    software in the system controller (BOS).
    */
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=3 while the executable code in the volatile memory and the active partition of non-volatile memory of the BOS are for different network element types, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed
    The execution of this command stopped because the
executable
    code in volatile memory and non-volatile memory of the
system
    controller (BOS) are for different network element types.
    */
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=6 while the executable code in the volatile memory and the inactive partition of non-volatile memory of the BOS are for different network element types, the following error response is returned:

```
     tid date time
M    ctag DENY
     SROF
     /* Status, Requested Operation Failed
     The execution of this command stopped because the
executable
     code in volatile memory and non-volatile memory of the
system
     controller (BOS) are for different network element types.
     */
;
```

If the network element receives an **INIT-SYS** command with an *aid* of **all** and PH=6 while the software in the inactive partition of non-volatile memory of the BOS is not suitable for execution on the local platform, the following error response is returned:

```
     tid date time
M    ctag DENY
     SROF
     /* Status, Requested Operation Failed
     The execution of this command stopped because the active
and
     inactive FMM partitions have incompatible software
versions.
     */
;
```

If the network element receives an **INIT-SYS** command with a valid bay or OVHCTL *aid* for the NETYPE but that the controller is not installed, the following error response is returned:

```
     tid date time
M    ctag DENY
     SROF
     /* Status, Requested Operation Failed
     The execution of this command stopped because the
controller
     specified is unequipped.
     */
;
```

RELATED TL1 COMMANDS/MESSAGES

None

_____

OPR-ACO-ALL

OPR-ACO-ALL: Operate Alarm_Cutoff All

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

OPR-ACO-ALL:*tid*:[*aid*]:*ctag*;

DESCRIPTION

The **OPR-ACO-ALL** command can be initiated to request the network element to operate the alarm cutoff (ACO) to silence the audible office alarms. Alarms remain silent until a new alarm condition arises.

This command is available to maintenance and reports-only users.

If this command is executed while there is an active alarm condition in the system, it will:
- Silence active audible office alarms
- Light the ACO LED on the user panel

This command is equivalent to pushing the ACO button on the user panel.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. Because the ACO function applies to the whole system, the *aid* value must be null.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the operate ACO request, the following normal completion response is returned:

```
   tid date time

M  ctag COMPLD

;
```

If the network element receives a valid **OPR-ACO-ALL** command, but no alarm condition exists or existing alarms have already been ACO'ed, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
OPR-ACO-ALL:OLS-400G:all:123456;



IP 123456

<

   OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **OPR-ACO-ALL** command.

If the network element receives an **OPR-ACO-ALL** command with an invalid *aid* value (that is, anything other than **all** or null), the following error response is returned:

```
    tid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

None

OPR-EXT-CONT

OPR-EXT-CONT: Operate External Control

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

OPR-EXT-CONT:*tid*:*aid*:*ctag*::[dur];

DESCRIPTION

The **OPR-EXT-CONT** command can be initiated by users to operate an external discrete control, such as a relay activation, a fan, a light, or sprinkler.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which a description is being provisioned. The *aid* value cannot be null and cannot be CONT-ALL.

Entity: Single Point (Control)
Legal Values: (CONT)-(1-4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

dur

These systems can operate remote controls either continuously ("CONTS") or momentarily ("MNTRY"). The default value is **MNTRY** when parameter is null. The duration for the momentary operation is 300ms.

If an external discrete control is set to operate continuously and the control is not released, the control will continue to operate continuously even if a command is issued to operate the control momentarily.

OUTPUT FORMAT

If the network element fully complies with the command request, the following normal completion response is returned.

```
    sid date time

M   ctag COMPLD

;
```

If the **OPR-EXT-CONT** command does not alter the existing attributes, that is, the control referenced by the aid is already being operated, the network element will not deny the command. The system will respond with the completion message shown above.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a WaveStar OLS 1.6T system to operate discrete control 1.

```
OPR-EXT-CONT:OLS-400G:CONT-1:123456::conts;



IP 123456

<
```

```
    OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

;
```

The following example shows a command for a Wavestar OLS 1.6T system to operate discrete control 4 using a default value (MNTRY) for *dur*.

OPR-EXT-CONT:OLS-400G:CONT-4:123::;

```
IP 123

<

    OLS-400G 98-06-06 16:42:11

M  123 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an **OPR-EXT-CONT** command is received with an invalid access identifier, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If an **OPR-EXT-CONT** command is received with an invalid duration parameter, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DUR */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT
RLS-EXT-CONT
RTRV-ALM

OPR-NIS-IND

OPR-NIS-IND: Operate Not-In-Service Indicator

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

OPR-NIS-IND:*tid*:*aid*:*ctag*;

DESCRIPTION

The **OPR-NIS-IND** command can be initiated by users to force the ACTIVE LED on the plug-in in any slot to the OFF state to provide a local indication that service has been removed and that it is safe to remove the circuit pack. The slot will remain in this state until a RLS-NIS-IND command is issued. Commands will normally be issued from a remote office which is in control of the traffic placed on the system. During the booting of the software on a circuit pack, there is a short period of time that the ACTIVE LED will be OFF and ON regardless of the state of the slot.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* identifies the slot that contains the circuit pack that is to extinguish its ACTIVE LED. The *aid* value cannot be null and cannot include ALL.

Entity: Slot
Legal Values: (SLOT)-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the command request, the following normal completion response is returned.

```
   sid date time

M  ctag COMPLD

;
```

If the **OPR-NIS-IND** command does not alter the existing attributes, that is, the ACTIVE LED has already been put into the "not-in-service" state, the network element will not deny the command. The system will respond with the completion message shown above.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a WaveStar OLS 1.6T system to operate the not-in-service indicator for the OTU in Bay 2, Shelf 1, Slot 5 of the 2 Fiber Ring Terminal (40 Channels) called OLS-1.6T.

```
OPR-NIS-IND:OLS-1.6T:SLOT-2-1-5:123456;
```

```
IP 123456

<

   OLS-1.6T 98-06-06 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an **OPR-NIS-IND** command is received with an invalid access identifier, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-NIS-IND
RLS-NIS-IND

OPR-PROTNSW-OTPS

OPR-PROTNSW-OTPS: Operate Protection_Switch Optical_Translator_Port_Signal

The User Priveledge Code (UPC) for this command is Maintenance Level 4 (M4).

This command is available starting in WaveStar 1.6T OLS Release 6.0.

INPUT FORMAT

OPR-PROTNSW-OTPS:*tid*:*aid*:*ctag*::*sc*;

DESCRIPTION

The **OPR-PROTNSW-OTPS** command executes a manual or forced switch, or inhibits protection switching on the switch which resides in the addressed ORS circuit pack.

The forced and inhibit protection switching requests shall remain active until released or overridden by a higher-priority protection switching request.

Manual protection switching is treated as a transient event and does not result in any standing condition.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-%#/_

Note that the slash character ('/') is allowed in the tid. However, even though the slash character is allowed, it should not be used if the network element (NE) is interworking with other products or if the NE has an interface to a Telcordia Operations System (OS).

aid

Access identifier. This is the address of the ORS IN port or ports for which the command is intended.

Legal Values: PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(1AIN, 1BIN, 2AIN, 2BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for ctag are identifiers of up to 6 characters or decimal numerals up to 6 characters. An identifier is a letter followed by zero or more letters or digits. A decimal numeral is an optional D' string (letter D with a trailing single quote) followed by zero or more digits followed by an optional decimal point followed by one or more digits. A letter is from the character set [A-Z][a-z]. A digit is from the character set [0-9].

sc

Switch command. This parameter specifies the type of protection switching that is to be executed. The *sc* parameter must have one of the following values: "INH", "FS ", or "MS".

INH

This requests that protection switching be inhibited, freezing the protection switching mechanism so that the current active switch position remains selected (until released) regardless of any subsequent failures or switch requests. A switch inhibit is of higher priority than forced or auto switch requests.
Execution of an INH locks the switch in its current position. Subsequent auto switch of SF switch requests will not be honored, which will affect service.
When this parameter is selected then the AID of any of 1AIN or 1BIN should be allowed and result in freezing of the switch of channel 1. The AID of any of 2AIN or 2BIN should be allowed and result in freezing of the switch of channel 2. The AID of "ALL" is also allowed and freezes the switch for both channels in that ORS.

FS

This request causes the traffic to be switched to the port position specified by the aid, provided there is not already a forced switch request active, and there is not an inhibit switch request active. That switch position remains selected until released. When this parameter is selected then the AID should be 1AIN, 1BIN, 2AIN or 2BIN. Specification of ALL as a port AID will result in an error message.

Forced switches are higher priority than auto switch requests. If the port being switched to is in a signal fail condition, the forced switch will be service affecting.

MS

This requests a manual protection switch to the position specified by the aid, provided the signal status associated with the AID is good (this is, not in signal fail condition), there is not a forced switch request active, and there is not an inhibit switch request active. When this parameter is selected then the AID should be 1AIN, 1BIN, 2AIN or 2BIN. Specification of ALL as a port AID will result in an error message.

For reporting purposes and status retrieval, manual switches are treated and reported as transient conditions (`TC`) and do not result in any standing condition. The manual switch event will appear in history log and there is no need to clear the event since it is a transient condition.

OUTPUT FORMAT

If the system fully complies with the protection switching request, the following output message
is returned:

```
    tid date time
M  ctag COMPLD
;
```

If the valid protection switching request contained within the command does not alter the exist-
ing protection switching state or priority, the network element will not deny the command.
Instead the system will respond with the completion message (shown previously).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the
OUTPUT PARAMETERS section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a manual optical path protection switch command to
ORS port 1AIN of Bay 2, Shelf 3, Slot 1:

---

opr-protnsw-OTPS:NODE-1:PORT-2-3-1-1AIN:123456::MS;

IP 123456
<
```
    NODE-1 1998-05-19 16:42:11
M  123456 COMPLD
;
```

The following example shows an inhibit optical path protection switch command to
ORS port 1BIN of Bay 3, Shelf 3, Slot 1:

---

opr-protnsw-otps:NODE-1:PORT-2-3-1-1BIN:xyz123::INH;IP xyz123
<
```
    NODE-1 1999-05-19 16:48:41
M  xyz123 COMPLD
;
```

ERROR RESPONSES

In addition to the non-message-specific error responses listed in the **RTRV-HDR** error responses description, the following error responses are also provided, as specified.

If this command is received with an invalid access identifier, the following error response is returned:

_____

```
   tid date time
M  ctag DENY
   IIAC
   /* Input, Invalid Access Identifier */
;
```

_____

If this command is received with an unsupported *sc* value, the following error response is returned:

_____

```
   tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid SC */
;
```

_____

If the command cannot be executed because of a hardware problem (such as unhealthy Bay Controller or no ORS in the addressed slot), the following error response is returned:

_____

```
    tid date time
M  ctag DENY
   SROF
   /* Status, Requested Operation Failed */
;
```

_____

If higher priority protection switching request already exists or if an equal priority protection request already exists and the switch request will alter the existing protection switching state and position, the following error response is returned:

_____

```
   tid date time
M  ctag DENY
   SSRD
   /* Status, Switch Request Denied,
Equal or higher-priority switch request exists. */
;
```

_____

If a manual switch command cannot be executed because the "switch to" path is failed, the
following error response is returned:

```
    tid date time
M   ctag DENY
    SSRD
    /* Status, Switch Request Denied,
Loss of Signal condition exists on alternate path */
;
```

RELATED TL1 COMMANDS/MESSAGES

RLS-PROTNSW-OTPS
ENT-ASSOC-OTPS
RTRV-ASSOC-OTPS
DEL-ASSOC-OTPS
RTRV-STATE
REPT-SW

OPR-TRACE-OTU

OPR-TRACE-OTU: Operate Trace OTU

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 4.0.

INPUT FORMAT

OPR-TRACE-OTU:*tid*:*aid*:*ctag*;

DESCRIPTION

This command can be initiated by a user to request the network element to turn on the Trace Signal on a particular OTU output port. This command may be used during pre-service testing of facilities, during fault diagnostics and for fiber connection tracing in conjunction with the companion rtrv-trace-otu and rtrv-trace-oa commands.

The Trace Signal remains active until released by the associated TL1 command (**RLS-TRACE-OTU**) or until overridden by a network element reset or initialization.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* determines the OTU port for which the Trace Signal is being activated or deactivated.

Entity: Single 1550 Band Output Port (OTU)
Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685,

8680, 8675, 8670, 8665, 8660, 8655, 8650)

ALL is not allowed in the *aid* value for **OPR-TRACE** commands.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example requests a Trace Signal activation:

```
opr-trace-otu:WaveStar-OLS-400G-3:port-6-3-5-9450:dog867;
IP DOG867
<
    WAVESTAR-OLS-400G-3 98-07-21 16:26:16
M  DOG867 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **OPR-TRACE** command without an *aid* or with an *aid* other than that supported by the network element, the following error response is returned:

```
    tid date time
M  ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives an **OPR-TRACE** with an otherwise valid *aid* value but the command could not be completed by the network element (for example, the addressed port is not physically present in the system), the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

RLS-TRACE-OTU
RTRV-TRACE-OTU
RTRV-TRACE-OA

OPR-TRACE-SUPVY

OPR-TRACE-SUPVY: OperateTrace SUPVY

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 4.0.

INPUT FORMAT

OPR-TRACE-SUPVY:*tid*:*aid*:*ctag*;

DESCRIPTION

This command can be initiated by a user to request the network elementto turn on the Trace Signal on a particular SUPVY output port. This commandmay be used during pre-service testing of facilities, during fault diagnosticsand for fiber connection tracing in conjunction with the companion rtrv-trace-oacommand.

The Trace Signal remains active until released by the associated TL1 command(**RLS-TRACE-SUPVY**), by the appropriate CMISE action, oruntil overridden by a network element reset or initialization.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which thecommand is addressed. It must be a string of 20 or fewer characters fromthe following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* determines the SUPVY port for which theTrace Signal is being activated.

Entity: Single Output Port (SUPVY)
Legal Values: (PORT)-(1)-(1-2)-(6-9)-(OUT_1,OUT_2)

ALL is not allowed in the *aid* value for **OPR-TRACE**commands.

ctag

Correlation tag. This is included in the command and is repeated back bythe network element in the response to allow association of the commandand response messages. Valid values for *ctag* are strings of up to6 characters comprised of identifiers and/or decimal numerals (a stringof decimal digits with an optional non-trailing "."). Strings containingboth numbers and letters must begin with a letter. A "." is allowed onlyif all other characters are digits.

OUTPUT FORMAT

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section.The output parameters listed there for the normal completion response alsoapply to this command.

EXAMPLE INPUT/OUTPUT

The following example requests a Trace Signal activation:

```
opr-trace-supvy:WaveStar-OLS-400G-3:port-1-2-7-OUT_1:cat371;IP CAT371

<

   WAVESTAR-OLS-400G-3 98-07-22 09:09:52M  CAT371 COMPLD;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. Theerror responses listed there also apply to this command.

If the network element receives an **OPR-TRACE** command withoutan *aid* or with an *aid* other than that supported by the networkelement, the following error response is returned:

```
   sid date timeM  ctag DENY   IIAC   /* Input, Invalid Access Identifier */;
```

If the network element receives an **OPR-TRACE** with an otherwise valid *aid* value but the command could not be completed by the networkelement (for example, the addressed port is not physically present in thesystem), the following error response is returned:

```
   sid date timeM  ctag DENY   SROF   /* Status, Requested Operation Failed */;
```

RELATED TL1 COMMANDS/MESSAGES

RLS-TRACE-SUPVY
RTRV-TRACE-OA

PROV-SYS

PROV-SYS: Provision System The User Privilege Code (UPC) for this command is Security Level 5 (S5). This command is available starting in WaveStar OLS 1.6T Release 3.0.1.

INPUT FORMAT

PROV-SYS:*tid*:*[aid]*:*ctag[*:::*spec_block]*;

DESCRIPTION

When a network element receives an **PROV-SYS** command, it will modify its system level attributes (for example, NETYPE, TID and IP address) with the received attributes if the received attributes are different from the currently effective attributes at the system.

NOTE:

System level attributes remain in effect until modified, for example, by another execution of the TL1 command **PROV-SYS**.

NOTE:

The **PROV-SYS** command allows the user to provision any or all of the parameters that can be provisioned by the **ENT-SYS** and **ENT-OSI** commands. The values of the parameters provisioned by **PROV-SYS** are reported by **RTRV-SYS** and **RTRV-OSI**.

NOTE:

When the **PROV-SYS** command is used to change the value of the *netype* (Network Element Type) parameter it may be necessary to re-provision some slot and port level parameters. The network element software uses logical addresses for slots and ports which can move relative to the physical addresses when the *netype* is changed. This means that provisioned parameter values can move from one physical slot or port to another. The practical effect is that after changing the *netype*, the user should verify the slot and port level technical provisioning and make any necessary corrections. Auto-provisioned parameter values are returned to their original values when the *netype* is changed. OTPS associations may be deleted when the *netype* is changed if they are not supported by the new configuration, for example if the netype is changed from "2F_END_80"to "2F_RPTR".

CAUTION:

Execution of this command to change the value of some parameters (for example, NETYPE and IP address) resets the system automatically. APSD is not available until the system reboot is completed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid*value, if supplied, specifies that system parameters are to be modified. Entity: System
The allowable value is: (SYSTEM)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be changed at the network element. If the current value of the parameter *name1* is already *value1* in the above example, *name1* will not be changed.

For the **PROV-SYS** command, the *spec_block* may contain one or more of the following parameters:

NEW_TID

New Target Identifier. The **NEW_TID** is the new name of the network element to which the command is addressed.

The original value of this parameter is `LT-400G`.

When the **NEW_TID** value is changed, the overhead controller shall automatically reset. For **RPTR** network elements the system comtroller shall automatically reset.

STD

Standard. This parameter has one of two values: "SONET" or "SDH".
`SONET` indicates that the network element is provisioned to operate in a SONET environment.
`SDH` indicates that the network element is provisioned to operate in a SDH environment.

The original value of this parameter is `SONET`.

When the **STD** value is changed, the system shall automatically reset.

NETYPE

Please see the description for **NETYPE** parameter in the **ENT-SYS** command page.

When the **NETYPE** value is changed, the system shall automatically reset.

IP_ADDRESS

The Internet Protocol (IP) Address is the address used by the OS to identify the network element and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). When the **IP_ADDRESS** is changed, the overhead controller shall automatically reset.

DFLTRTR_IPADDRESS

The Default Router (IP) Address is the address of the router for out-going messages from the network element that are targeted outside the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The default router is a part of the local subnetwork and must have an address that is consistent with the other elements in the local subnetwork. When the **DFLTRTR_IPADDRESS** is changed, the overhead controller shall automatically reset.

LOCAL_SUBNETMASK

The Local Subnet Mask Internet Protocol (IP) Address is a mask used by the network element software to route messages within the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point ("."). The numbers have an integer value between *0* and *255* (inclusive).

The original value of this parameter is 0.0.0.0.

When the **LOCAL_SUBNETMASK**is changed, the overhead controller shall automatically reset.

NAT_IPADDRESS

The Internal Network Address Translation IP Address is a Class A non-10.0.0.0 Net IP address used by the network element to map any Class A address of Net 10 (Standard 10.0.0.0) to avoid any internal routing conflicts. Only the first byte of the non-10.0.0.0 Net IP address is provisionable. The acceptable number of the first byte has an integer value between 1 and 1*26* (inclusive) except the value of 10 and the remaining three bytes must have a value of "0". The original value of the NAT IP address is 126.0.0.0.

The NAT IP address shall not be provisioned to have the same network address as in the user's network, otherwise any traffic to/from via that network address will be dropped.

When the Internal NAT IP Address is changed on a non-repeater node, the OVHDCTRL will reboot.

CIT_PORT_IP

The Internet Protocol (IP) Address is the address used by the CIT to identify the network element and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The original value of the CIT port IP address is 192.168.0.1.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_IPADDRESS** is changed, the system controller shall automatically reset.

CIT_PORT_DFLTRTR_IP

The CIT Port Default Router (IP) Address is the address of the router for out-going messages from the CIT port of the network element that are targeted outside the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive). The default router is a part of the local subnetwork and must have an address that is consistent with the other elements in the local subnetwork. The original value of the CIT port default router IP address is 0.0.0.0.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_DFLTRTR_IP** is changed, the system controller shall automatically reset.

CIT_PORT_LOCAL_SUBNETMASK

The Local Subnet Mask Internet Protocol (IP) Address is a mask used by the network element software to route messages within the local subnetwork and consists of four bytes converted into decimal numbers. Each number is separated by a decimal point ("."). The numbers have an integer value between *0* and *255* (inclusive). The original value of the CIT port local subnet mask is 255.255.255.0.

If this parameter is set to equal a value of 255.255.255.255, the command will complete but the parameter will not change its value. The parameter will retain its previous value.

When the **CIT_PORT_LOCAL_SUBNETMASK** is changed, the system controller shall automatically reset.

CIT_PORT_NAT_IP

The internal Network Address Translation IP Address is a Class A non-10.0.0.0 Net IP address used on the CIT port by the network element to map any Class A address of Net 10 (Standard 10.0.0.0) to avoid any internal routing conflicts. Only the first byte of the non-10.0.0.0 Net IP address is provisionable. The acceptable number of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and the remaining three bytes must have a value of "0". The original value of the NAT IP address is 126.0.0.0.

The NAT IP address shall not be provisioned to have the same network address as in the user's network, otherwise any traffic to/from via that network address will be dropped.

When the **CIT_PORT_NAT_IP** is changed, the system controller shall automatically reset.

LOCALADDRESS

Local Area Address. This is used to identify the area to which this node belongs. Areas may be introduced to reduce the mutual exchange of routing information between nodes, so that larger management networks are possible.

The local area address is a variable length string of maximum 13 bytes. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFF. Each byte is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 0D) specifying the length of the address followed by the string representing the address. For example, the local area address entered as 03AB08FA signifies a 3 byte address with first byte of 0xAB, second byte of 0x08 and the third byte of 0xFA.

When the **LOCALADDRESS** is changed, the overhead controller shall automatically reset. For **RPTR** network elements the system comtroller shall automatically reset.

ISISLVL

This parameter is used to identify the ISIS protocol of the network layer (layer-3) of the OSI protocol stack. Level-1 ISIS provides interconnectiviy between nodes in an area. Level-2 ISIS provides connectivity between areas. The ISIS level for LAN and node cannot be different, hence the level is set for both LAN and node.

This parameter must have one of the following values:

LEVEL-1

    ISIS Level-1 for both node and LAN

LEVEL-2

    ISIS Level-2 for both node and LAN

If this parameter is not set, then ISIS Level-2 is assumed. When the **ISISLVL** is changed, the overhead controller shall automatically reset. For **RPTR** network elements the system comtroller shall automatically reset.

DRP

Designated Router Priority. This is used to identify the designated router priority of a node. The value of this parameter is used for selection of the designated routers per area on a LAN. The node with the highest priority will fulfill the designated router function.

A level-2 designated router is selected from one of the level-2 nodes on the LAN. The level-2 node with the highest priority will be selected.

The value is in the range of 0 (lowest priority) to 127 (highest priority). The designated router priority only applies if the LAN or the node IS/IS level is Level-2.

When the **DRP** is changed, the overhead controller shall automatically reset. For **RPTR** network elements the system comtroller shall automatically reset.

QUICK_TRAN

The QUICK_TRAN refers to restoration of transmission quickly after a power-up cycle or power failure. This parameter shall have a value of **ENABLED** or **DISABLED**. The original value shall be **DISABLED**. If the parameter is omitted, the currently effective value will remain in effect. Execution of this command shall not cause rebooting of network element.

APSD_UNAVAIL

This parameter is used to remind the user that executing this command will reset the system and that APSD may be unavailable which could cause a Laser Hazard Level 3B condition to exist.

The **APSD_UNAVAIL** parameter is optional.

The only valid value for **APSD_UNAVAIL** is ON.

If the *spec_block* is null, the currently effective attributes at the network element system prevails.

CAUTION: Execution of this command may affect service. Network element access may be affected. The operation of other nodes in the ring may be affected.

If duplicate TIDs are created, the node will be isolated via the remote access.

OUTPUT FORMAT

If the network element fully complies with the **PROV-SYS** request, the following completion response is returned.

```
    sid date time
M   ctag COMPLD
;
```

If **new_tid** is specified in the *spec_block* of the input command, the *tid* assumes the value of **new_tid**. If the **PROV-SYS** command does not alter the existing system level attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The command in following example modifies the **system** name to 1-BROAD-STREET-CO (may be an old or new TID
depending on the properties of the object). It also modifies the IP Address of the NE OS interface, the IP Address for
the Default Router, and the Local Subnet mask, and NAT IP Address. It also provisions the OSI parameters. Note that
the local area address is a 4 byte string.

```
PROV-SYS:OLS-400G:SYSTEM:123456:::NEW_TID=1-BROAD-STREET-CO,
IP_ADDRESS=10.17.23.11,DFLTRTR_IPADDRESS=10.17.38.108,
LOCAL_SUBNETMASK=255.255.0.0,NAT_IPADDRESS=30.0.0.0,LOCALADDRESS=0439000080,
ISISLVL=LEVEL-2,DRP=64,APSD_UNAVAIL=ON;
IP 123456

    1-BROAD-STREET-CO 00-10-26 16:42:11
M   123456 COMPLD
;
```

The command in following example modifies the **system** name to 1-BROAD-STREET-CO (may be an old or new TID
depending on the properties of the object). It also modifies the IP Address of the NE OS interface, the IP Address for
the Default Router, and the Local Subnet mask, and NAT IP Address. It also provisions the OSI

parameters. Note that
the local area address is a 4 byte string.

```
PROV-SYS:OLS-400G:SYSTEM:123456:::NEW_TID=1-BROAD-STREET-CO,
IP_ADDRESS=10.17.23.11,DFLTRTR_IPADDRESS=10.17.38.108,
LOCAL_SUBNETMASK=255.255.0.0,NAT_IPADDRESS=30.0.0.0,LOCALADDRESS=0439000080,
ISISLVL=LEVEL-2,DRP=64;
IP 123456


    1-BROAD-STREET-CO 00-10-26 16:42:11
M  123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the
PROV-SYS command. If a network element receives an **PROV-SYS** command with a **new_tid** value
that is not valid, the following error response is returned:

```
    sid date time
M  ctag DENY
    IITA
    /* Input, Invalid Target Identifier, invalid NEW_TID */
;
```

If a network element receives an **PROV-SYS** command with a **STD** value other than SONET or SDH, the
following error response is returned:

```
    sid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid STD */
;
```

The following error response is returned if a network element receives an **PROV-SYS** command with an
illegal **NETYPE** value:

```
    sid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid NETYPE */
;
```

If a network element receives this command with an **ip_address** value that is not comprised of four
integers between *0* and *255,* the following error response is returned:

```
    sid date time
M  ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid IP_ADDRESS */
;
```

If a network element receives this command with an **CIT_PORT_IP** value that is not comprised of four
integers between *0* and *255*, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid CIT_PORT_IP */
;
```

If a network element receives this command with a **dfltrtr_ipaddress** value that is not comprised of four integers between *0* and *255*, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid DFTRTR_IPADDRESS */
;
```

If a network element receives this command with a **CIT_PORT_DFLTRTR_IP** value that is not comprised of four integers between *0* and *255*, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid CIT_PORT_DFLTRTR_IP */
;
```

If a network element receives this command with an **nat_ipaddress** value that is not comprised of four integers with a value of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and/or the remaining three integers are not all zero, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid Network Address Translation IP
ADDRESS */
;
```

If a network element receives this command with an **CIT_PORT_NAT_IP** value that is not comprised of four integers with a value of the first byte has an integer value between 1 and 126 (inclusive) except the value of 10 and/or the remaining three integers are not all zero, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid CIT_PORT_NAT_IP */
;
```

If a network element receives this command with a **local_subnetmask** value that is not comprised of integers between *0* and *255*, the following error response is returned:

```
     sid date time
M  ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid LOCAL_SUBNETMASK */
;
```

If a network element receives this command with a **CIT_PORT_LOCAL_SUBNETMASK** value that is not comprised of integers between *0* and *255*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid CIT_PORT_LOCAL_SUBNETMASK */
;
```

If an **PROV-SYS** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an invalid *localaddress* value, or one that is out of the supported range, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LOCALADDRESS */
;
```

If the network element receives this command with a *isislvl* value that is not supported by the network element, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid ISISLVL */
;
```

If the network element receives this command with a *drp* value that is out of the supported range, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid DRP */
;
```

If the local NE has been locked by some other command so that the NE cannot reboot, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, the execution of this command
failed because
      another operation is in progress that prevents the system from
being rebooted.*/
;
```

If a network element receives this command with **quick_tran** value other than "ENABLED" or "DISABLED", the following error response will be returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input Data Not Valid, Invalid quick_tran.*/
;
```

If the network element receives this command with an invalid **APSD_UNAVAIL** parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid APSD_UNAVAIL */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OSI
ENT-SYS
RTRV-OSI
RTRV-SYS

REPT DBCHG

REPT DBCHG: Report Database Change

This message is available starting in WaveStar OLS 1.6T release 6.0.

DESCRIPTION

This message reports any change in the system database or certain change in the system state, so that the OS has a current view of the NE database and internal state. Changes can be caused by a TL1 user or by an internally-generated state change.

Changes in user provisionable attributes are reported in the message as the equivalent TL1 command that would cause that change. Changes in non-user provisionable attributes are reported according to the table of events that will trigger a **REPT DBCHG** message.

If the *msg_format* parameter in ACT-USER is set to the value of **fixed**, the Database Change Report will not be sent to the remainder of that log-in session.

Commands which change a user password (for example, **ED-PID** and **ENT-USER-SECU**) shall be reported without the *pid* parameter.

The successful completion of commands from the network element which change the provisioning database or change the value of a CIT-provisionable or OS-provisionable parameter shall generate a **REPT DBCHG** message with the changed values listed in the output. If a provisionable value of a parameter was entered, and other optional parameter values were not entered, only the value of the parameter that was entered when the command was issued will appear in the **REPT DBCHG** output.

If an optional parameter was not entered, but the requirements state it defaults to a certain static value, then that parameter value will be considered "entered". The value will be displayed in the output. An example is the parameter named *tmper* in the **SET-TH-OTPS** command. If the parameter is not specified then it defaults to 15-MIN and needs to be reflected in the **REPT DBCHG** message

The successful completion of a system event which changes the value of certain non-provisionable parameter or certain system state shall generate a **REPT DBCHG** message with the changed values listed in the output. If a set of combined parameters or states has to be presented together to provide complete and correct information, all the values of the parameters or states of the set shall appear in the same **REPT DBCHG** output. An example is the **RTRV-EQPT** parameters when a new circuit pack is inserted.

Requirement Begin REPT_DBCHG-045 When an old parameter value is set to a new value, it is considered changed and a **REPT DBCHG** message shall be generated even if the new value is the same as the old one in the database.

Requirement End REPT_DBCHG-045

The following TL1 commands shall trigger a **REPT DBCHG** autonomous message:

TL1 Command	Special Notes
ALW-MSG-EQPT	
CPY-PRGM	
DLT-ASAP-PROF	
DLT-ASSOC-OTPS	
DLT-USER-SECU	Executing this command may cause a user session to be dropped - the report database change message should be generated before the session is terminated
ED-ASAP-PROF	
ED-DAT	
ED-PID	*pid* must not be reported. Executing this command may cause a user session to be dropped - the report database change message should be generated before the session is terminated
ED-USER-SECU	Executing this command may cause a user session to be dropped - the report database change message should be generated before the session is terminated
ENT-ASAP-PROF	
ENT-ASSOC-OTPS	"Line" parameter shall be included/reported by REPT_DBCHG so that an EMS's database can stay in sync once it has retrieved this (line) information.
ENT-CID-SECU	Executing this command may cause a user session to be dropped - the report database change message should be generated before the session is terminated
ENT-NE-SECU	Executing this command may cause a user session to be dropped - the report database change message should be generated before the session is terminated

ENT-OCHTRC	
ENT-OLPP	
ENT-OSI	
ENT-OTPS	
ENT-PROF-ASGNMT	
ENT-RMA	
ENT-SECTRC	
ENT-SUPR	Executing this command may cause the system to restart and drop the user session - the report database change message should be generated before the session is terminated.
ENT-SYS	
ENT-TMGSRC-SUPR	
ENT-USER-SECU	*pid* must not be reported
INH-MSG-EQPT	
INIT-SWD	
INIT-SYS	
OPR-EXT-CONT	
OPR-TRACE-OTU	
OPR-TRACE-SUPVY	
PROV-SYS	
RLS-EXT-CONT	
RLS-TRACE-OTU	
RLS-TRACE-SUPVY	
SET-ATTR-ALM	
SET-ATTR-CONT	
SET-ATTR-ENV	
SET-BASELINE-OCHAN	No actual baseline/threshold value is reported
SET-BASELINE-OLINE	No actual baseline/threshold value is reported

SET-BASELINE-SUPR	No actual baseline/threshold value is reported
SET-PM-STIME	
SET-TH-OCHAN	
SET-TH-OLINE	
SET-TH-OTPS	
SET-TH-SUPR	
UPD-SYS	

Discussion Begin REPT_DBCHG-030

The system shall make the best effort to emit all required `REPT DBCHG` messages before the system reboots or the user logs out; however there is no guarantee that the user will always get the `REPT DBCHG` messages before the communication link goes down.

Discussion End REPT_DBCHG-030

Besides provisioning commands from the CIT user or the OS user, some TL1 commands or user/system actions will trigger a `REPT DBCHG` message due to the autonomonous system state changes to the parameter listed. Details about the parameters are described in the corresponding TL1 manual pages.

Event	ccb block*	Parameter	Related TL1 Command
Change Port State	ENT-OTPS	PORT_STATE_IN	RTRV-STATE UPD-SYS
Operation Protection Switching Orderwire	OPR-PROTNSW-OW	SW_STATE, ACTSWPRTY	RTRV-STATE
Insert Circuit Pack	ENT-EQPT	TYPE, APP,SSN, CLEI, ECI, SLN	RTRV-EQPT
Remove Circuit Pack	DLT-EQPT	------	RTRV-EQPT
Download Software	DWNLD-SW	ACTSWINSTTIME, ACTSWVERSION, ACTSWSTATUS, INACTSWINSTTIME, INACTSWVERSION, INACTSWSTATUS	RTRV-SWDB-ATTR
Restore Database	RESTORE-DB	DBRESTTIME [1]	RTRV-SWDB-ATTR
Backup Database	BACKUP-DB	DBBACKUPTIME	RTRV-SWDB-ATTR
Create Protection Group	ENT-PROTN-GRP	ACTIVE_PORT, SWITCH_STATUS [2]	RTRV-PROTN-GROUP
Delete Protection Group	DLT-PROTN-GRP	------	------

It should be noted that not all REPT DBCHG are triggered by commands.
All commands can be categorized into three cases:
1. Those that change the provisioning database (see the table in Requirement REPT_DBCHG-050);
2. Those that change the state of the system (but not the database);
3. Those that check the database or state of the system.

The commands that change the provisioning database (Case 1) will report a REPT DBCHG. The security commands, although not actually changing the provisioning database, should change the security information stored in the system and will also report a REPT DBCHG. Certain system events that change the internal state of the NE (Case 2) will generate a REPT DBCHG too as listed in the table of events that will trigger a REPT DBCHG message.

The following TL1 commands, will not report a database change:
- `most of RTRV-xxx`
- `TEST-xxx`
- `OPR-ACO-ALL`
- `ACT-/CANC-USER`

OUTPUT FORMAT

```
    tid date time

A   atag REPT DBCHG

    "umb:ccb:aid::[spec_block]"


;
```

Trailing commas after the last non-null parameter value within a parameter block are *not* included in the output message. Also, trailing colons after the last non-null parameter block are *not* included in the output message.

OUTPUT PARAMETERS

tid

   Target identifier. This is the system name.

date

   Date output message is generated. This can have the formats YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

time

   Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

`A`

   This indicates the message is sent autonomously.

atag

   Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element. The network element uses only whole numbers from 000 through 999. After 999 is reached, the next number will be 000.

umb

   Update Mangement Block. This parameter is a position-defined field. It is used for returning the time and date of the database change, and the source ID of the command that caused the change (when applicable). Parameters within the update mangement block are positionally independent

and are specified using a name defined construct of: `PARAMETER=`*`value`* in a comma separated list. The parameters are listed and explained below.

TIME

  This reflects the time that the database change occurred and is in the form: HH-MM-SS. The time is the same as the time that is in the history log for the database change record.

DATE

  This reflects the date that the database change occurred. This can have the formats YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment. The date is the same as the date that is recorded in the history log for the database change record.

SOURCE

  If the database change occurs as a result of a TL1 command with a non-null *ctag*, the SOURCE field contains this non-null `ctag` value. Otherwise this parameter is not included in the message.

ccb

  Command Code Block. This is a position-defined parameter block which indicates the command that triggered the REPT DBCHG message, if applicable. The command code parameter is specified in the form *verb-modifier[-modifier]*.

  If a button push caused the database change, the Command Code Block contains the equivalent TL1 command which would have been entered to make the change.

  For R5.0, the "RESTART" button on the EI cuicuit pack is equivalent to the `init-sys` command.

aid

  Access identifier. This is the address of the object entity which the database update or state change has affected.

  For `upd-sys,init-sys,ent-assoc-otps and dlt-assoc-otps`, the aid field shall be null.

  For the security commands, the UID field shall be shown in place of AID.

  Requirement End REPT_DBCHG-252

spec_block

Specific Block. This is a name-defined field which reports the changed parameter or system state.

If the database change is the result of a TL1 command which contains parameters in this block, the parameter names and values are included in this block. Parameters within the specific block are positionally independent and are specified using a name defined construct of: `PARAME-TER=value` in a comma separated list. The parameter names are the same as those for the corresponding TL1 command.

All the database changes and the state change are reported in the *spec_block* as name-defined parameters (`PARAMETER=value`) whether or not the data was originally input as a posi-tion-defined parameter or name-defined parameter in the input command. The parameter names are the same as those for the corresponding TL1 command.

This field is null if the value in the *ccb* is one of the following: `UPD-SYS`.

`pst`

Primary State is also reported in `REPT DBCHG` as part of the specific block for user commands and/or autonomous state changes.

EXAMPLE OUTPUT

The following shows an `ENT-SUPR` message:

```
ent-supr:OLS-400G:LINE-1E:123456:::OW1TYPE=LOCAL,OW2TYPE=EXPRESS,PROVDLTYPE=EXPRESS,
FIXDLTYPE=LOCAL-NETWORK;
```

The following message is sent when the `ENT-SUPR` message has been completed:

```
   OLS-400G 00-06-01 08:00:00

A  888 REPT DBCHG

   "TIME=07-59-59,DATE=00-06-01,SOURCE=123456:ENT-SUPR:LINE-1E::

OW1TYPE=LOCAL,OW2TYPE=EXPRESS,PROVDLTYPE=EXPRESS,FIXDLTYPE=LOCAL-NETWORK"

;
```

The following shows a `SET-TH-OCHAN` message for the Optical Channel 1 in Optical Line 1W:

```
   set-th-ochan:OLS-400G:OCHAN-1W-9190:123456::SPT-C,+3,-5,,,ON;
```

The following message is sent when the `SET-TH-OCHAN` message has been completed for the Optical Channel 1 in Optical Line 1W:

```
    OLS-400G 00-07-01 10:00:00

A   21 REPT DBCHG

    "TIME=09-59-59,DATE=00-07-01,SOURCE=123456:SET-TH-OCHAN:OCHAN-1W-9190::

MONTYPE=SPT-C,HITHLEV=+3,LOTHLEV=-5,NOTIFY=ON"

    ;
```

The following shows a `SET-ATTR-CONT` message:

```
    set-attr-cont:OLS-400G:CONT-3:123456::\"STARTGENERATOR\";
```

The following message is sent when the `SET-ATTR-CONT` message has been completed for the control point 3:

```
    OLS-400G 00-07-20 11:50:00

A   97 REPT DBCHG

    "TIME=11-49-59,DATE=00-07-20,SOURCE=123456:SET-ATTR-CONT:CONT-3::

CONTTYPE=\"STARTGENERATOR\""

    ;
```

The following message is sent when an internal port state has been changed to IS (In-Service) because of a system change (signal showing up at a port) and not due to a command:

```
    OLS-400G 00-01-11 02:00:00

A   123 REPT DBCHG

    "TIME=01-59-59,DATE=00-01-11,:ENT-OTPS:PORT-1-3-1-IN2::PST=IS"

    ;
```

Discussion End REPT_DBCHG-1005

The following message is sent when a protection group is created as indicated by the presence of the three required associations for the protection group established for client_output_port PORT-3-1-1-C1OUT's switching group:

```
    OLS-400G 00-04-15 06:30:00

A   123 REPT DBCHG

    "TIME=05-29-59,DATE=00-04-15,:ENT-PROTN-GRP:PORT-3-1-1-C1OUT::

ACTIVE_PORT=PORT-3-1-1-1AIN,SWITCH_STATUS=INH"

    ;
```
_____

Note: Any extra line breaks in the example are shown for readability, are not a part of the actual TL1 commands.

Discussion End REPT_DBCHG-1010

RELATED TL1 COMMANDS/MESSAGES

None

REPT EVT

`REPT EVT`: Report Event

This autonomous message is available starting in WaveStar OLS 1.6T Release 2.1.

DESCRIPTION

Requirement Begin REPT_EVT-1006

The `REPT EVT` messages are generated autonomously by the network element to report events (nonalarmed conditions).

Requirement End REPT_EVT-1006

Requirement Begin REPT_EVT-30

If an event with a user-provisionable alarm level defaults to or is provisioned as a not alarmed (NA) level, the occurrence of that event is reported in a `REPT EVT` message. `REPT EVT` messages also occur when any such standing conditions clear, and are used to report transient conditions.

Requirement End REPT_EVT-30

Requirement Begin REPT_EVT-1002

Autonomous performance monitoring (PM) threshold crossing alert (TCA) messages are provided to the OS using this TL1 message.

Requirement End REPT_EVT-1002

The following table indicates what TL1 command will result in what `REPT EVT` messages.

TL1 Command	REPT EVT conddesc
TEST-ALM	Test-Alm:*slot( )-cmptcode*
TEST-AUTO-LOCAL	Test-Auto-Local:*slot( )-cmptcode*
TEST-LED	Test-LED-*cmptcode*
ABORT-DB-BACKUP	Abort-Database-Backup-*cmptcode*
ACT-USER	Activate-User-*cmptcode*
ALW-FMM-RMVL	Allow-Flash Memory Module-Rmvl-*cmptcode*
ALW-MSG-EQPT	Allow-Message-Eqpt-*cmptcode*
BACKUP-DB	Backup-Database:*cmptcode*
CANC-USER	Cancel-User-*cmptcode*

CPY-PRGM	Copy-Program-*cmptcode*
DLT-ASAP-PROF	Delete-ASAP-Profile-*cmptcode*
DLT-ASSOC-OTPS	Delete-Association-OTPS:*port(otps)-cmptcode*
DLT-USER-SECU	Delete-User-Security-*cmptcode*
DWNLD-SW	Download-Software-*cmptcode*
ED-ASAP-PROF	Edit-ASAP-Profile-*cmptcode*
ED-DAT	Edit-Date-*cmptcode*
ED-PID	Edit-Password-ID-*cmptcode*
ED-USER-SECU	Edit-User-SECU-*cmptcode*
ENT-ASAP-PROF	Enter-ASAP-Profile-*cmptcode*
ENT-ASSOC-OTPS	Enter-Association-OTPS:*port(otps)-cmptcode*
ENT-CID-SECU	Enter-Channel-ID-SECU:*port(com)-cmptcode*
ENT-NE-SECU	Enter-Network Element-SECU-*cmptcode*
ENT-OCHTRC	Enter-OCHTRC:*port(otps)-cmptcode*
ENT-OLPP	Enter-OLPP-*cmptcode*
ENT-OSI	Enter-OSI-*cmptcode*
ENT-OTPS	Enter-OTPS:*port(otps)-cmptcode*
ENT-PROF-ASGNMT	Enter-Profile-Assignment-*cmptcode*
ENT-RMA	Enter-Registration Manager-Attribs-*cmptcode*
ENT-SECTRC	Enter-Section-Trace:*port(otps)-cmptcode*
ENT-SUPR	Enter-SUPR:supr-*cmptcode*
ENT-SYS	Enter-System-*cmptcode*
ENT-TMGSRC-SUPR	Enter-SUPVY-Timing-Src:*supr-cmptcode*
ENT-TSB	Enter-Transport-Service-Bridge-*cmptcode*
ENT-USER-SECU	Enter-User-SECU-*cmptcode*
INH-FMM-RMVL	Inhibit-Flash Memory Module-Rmvl-*cmptcode*
INH-MSG-EQPT	Inhibit-Message-Eqpt-*cmptcode*
INIT-PM-FTAM	Initiate-PM-FTAM-*cmptcode*

INIT-REG-ALL	Initialize-Register-All-*cmptcode*
INIT-REG-OTPS	Initialize-Register-OTPS:*port(otps)-cmptcode*
INIT-SWD	Initiate-Software-Download-*cmptcode*
INIT-SYS (3)	Initiate-System-*cmptcode*
OPR-ACO-ALL	Operate-Alarm-Cutoff-All-*cmptcode*
OPR-EXT-CONT	Operate-External-Control:*misc disc(ctl)-cmptcode*
OPR-NIS-IND	OPR-NIS-IND:*slot( )-cmptcode*
OPR-PROTNSW-OTPS	Operate-Protection-Switch-OTPS-*cmptcode*
OPR-PROTNSW-OW	Operate-Protection-Switch-OW-*cmptcode*
OPR-TRACE-OTU	Operate-Trace-OTU:*port(otps)-cmptcode*
OPR-TRACE-SUPVY	Operate-Trace-SUPVY:*supr-cmptcode*
PROV-SYS	Provision-System-*cmptcode*
RESTORE-DB	Restore-Database-*cmptcode*
RLS-EXT-CONT	Release-External-Control:*misc disc(ctl)-cmptcode*
RLS-NIS-IND	RLS-NIS-IND:*slot( )-cmptcode*
RLS-PROTNSW-OTPS	Release-Protection-Switch-OTPS-*cmptcode*
RLS-PROTNSW-OW	Release-Protection-Switch-OW-*cmptcode*
RLS-TRACE-OTU	Release-Trace-OTU:*port(otps)-cmptcode*
RLS-TRACE-SUPVY	Release-Trace-SUPVY:*supr-cmptcode*
SET-ATTR-ALM	Set-Attr-Alarm-*cmptcode*
SET-ATTR-CONT	Set-Attr-Control:*point(cont)-cmptcode*
SET-ATTR-ENV	Set-Attr-Environment:*point(env)-cmptcode*
SET-BASELINE-OCHAN	Set-Baseline-Ochan:*ochan-cmptcode*
SET-BASELINE-OLINE	Set-Baseline-Oline:*oline-cmptcode*
SET-BASELINE-SUPR	Set-Baseline-Supr:*supr-cmptcode*
SET-PM-STIME	Set-PM-Start-Time-*cmptcode*
SET-TH-OCHAN	Set-TH-OCHAN:*ochan-cmptcode*
SET-TH-OLINE	Set-TH-OLINE:*oline-cmptcode*

SET-TH-OTPS	Set-TH-OTPS:*port(otps)-cmptcode*
SET-TH-SUPR	Set-TH-SUPR:*supr-cmptcode*
UPD-SYS	Update-System-*cmptcode*

One and only one `REPT EVT` message is generated for each command.

No RTRV command shall be reported in the history log.

Requirement Begin REPT_EVT-1008

The completion code *cmptcode* that appears at the end of the conditions corresponding to the craft/OS initiated commands shall have one of the following values:
- COMPLD if the command has been completed successfully.
- DENY if the command has been denied.

Commands denied for syntax errors shall not be included.

Requirement End REPT_EVT-1008

OUTPUT FORMAT

```
   sid date time

A  atag REPT EVT modifier

   "aid:condtype,condeff,ocrdat,ocrtm,[locn],[dirn],[monval],[thlev][,tmper]:

\"conddescr\",:alarm_id[,tblislt]"

;
```

OUTPUT PARAMETERS

Requirement Begin OUTPUT-10

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

Requirement End OUTPUT-10

The value of the *conddescr* and *aid* **OUTPUT PARAMETERS** will have requirements different from those in this TL1 command page if the *msg_format* parameter in ACT-USER is set to the value of **fixed**. See ACT-USER for more details.

sid
Requirement Begin REPT_MSG-01

Source identifier. This is the system name.

Requirement End REPT_MSG-01
date
Requirement Begin REPT_MSG-02

Date output message is generated. This has the format YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY
(day-month-year) for an SDH environment.

Requirement End REPT_MSG-02
time
Requirement Begin REPT_MSG-03

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

Requirement End REPT_MSG-03
A
Requirement Begin REPT_MSG-04

This indicates the nonalarmed message was sent autonomously.

Requirement End REPT_MSG-04
atag
Requirement Begin REPT_MSG-05

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent. Whole numbers from 000 through 999 are used.

Requirement End REPT_MSG-05
modifier

This is a message modifier to the REPT EVT command. It has one of the following values:

   COM
       Common. This reports an event that is not an equipment or facility condition but
       applies to the whole network element system.
   OCHAN
       Channel. This reports a facility-related event at the channel level.
   EQPT
       This reports an equipment-related event.
   OLINE
       This reports a facility-related event on the optical line.
   SUPR
       This reports a facility-related event on the supervisory channel in the optical line.
   OTPS
       This reports a signal-related event at the OTU/OTPM level.

aid
Requirement Begin REPT_EVT-290

Access identifier. This is the address of the equipment component, facility, repeater bay site, or user ID for which an event is being reported.

Requirement End REPT_EVT-290

Discussion Begin REPT_EVT-295

Definition of the *aid* is being expanded to include *uid* for the purpose of **REPT-EVT** command only. For all other commands, please refer to the *aid* definition in TL1 command page specific to the command.

Discussion End REPT_EVT-295

condtype
Requirement Begin REPT_ALM-270

Condition type. This is the type of the condition. There are several types of conditions.

Requirement End REPT_ALM-270
condeff
Requirement Begin REPT_EVT-1005

Condition effect. This indicates the effect of the reported event on the condition of the network element and has one of the following values:

Requirement End REPT_EVT-1005

    SC
    Requirement Begin REPT_EVT-340

    Standing Condition Raised. This is a condition that is active for an extended period of time.

    Requirement End REPT_EVT-340
    TC
    Requirement Begin REPT_EVT-350

    Transient Condition. This is a condition that does not change the basic condition of the network element for an extended period of time.

    Requirement End REPT_EVT-350
    CL
    Requirement Begin REPT_EVT-360

    Standing Condition Cleared. This is a used to report when a standing condition no longer exists.

    Requirement End REPT_EVT-360
ocrdat
Requirement Begin REPT_EVT-370

Occurrence date. This indicates the date of the event being reported. The format used is YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

Requirement End REPT_EVT-370
 ocrtm
Requirement Begin REPT_EVT-380

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

Requirement End REPT_EVT-380
 locn
Requirement Begin REPT_EVT-390

Location. This indicates whether the event being reported pertains to the near end or far end relative to the entity identified by the *aid*.

The *locn* may be null or have one of the following values:

> **NEND**
>> Near end event or TCA report.
> **FEND**
>> Far end event or TCA report.

Requirement End REPT_EVT-390

> The system will output a null value for the *locn* parameter **except** in cases where a TCA message is being generated. A null value is to be interpreted as meaning NEND.

 dirn
Requirement Begin REPT_EVT-400

Direction. This indicates the direction of the event being reported relative to the entity identified by the *aid*. The system will always provide a null entry for the *dirn* parameter.

Requirement End REPT_EVT-400
 monval
Requirement Begin REPT_EVT-410

Monitored value. For performance monitoring TCAs, this is the measured value of the parameter specified in *condtype* (=T-*montype*) at the time the REPT EVT TCA is reported. Otherwise this parameter is not reported.

Requirement End REPT_EVT-410
 thlev
Requirement Begin REPT_EVT-1010

Threshold Level. This is the threshold level for the monitored parameter specified in *condtype* if *condtype* is of the form T-x for a threshold violation on *montype* x. This value should be provided if this event has resulted from a degradation in the monitored parameter causing it to exceed the specified threshold level.

Requirement End REPT_EVT-1010
 tmper
Requirement Begin REPT_EVT-440

Time period. For performance monitoring TCAs, this is the performance monitored time interval in which the reported threshold crossing event was observed. The values for this parameter are as follows:

> **15-MIN**
>> 15-minute interval
>
> **1-DAY**
>> daily interval
>
> Otherwise this parameter is not reported.

Requirement End REPT_EVT-440

 conddescr
Requirement Begin REPT_EVT-1007

Condition description. This is the text description of the reported condition. It is a text string of no more than 64 characters enclosed within a pair of escaped quotes. The descriptions of PM TCAs are self explanatory and follow the parameter naming format specified in ANSI Draft Standard T1M1.3/92-005 (June 1992).

Requirement End REPT_EVT-1007

Requirement Begin AID_ERROR-30

The system places a "?" in the aid field in the history log and the REPT EVT message if the aid provided was not a valid aid for the command.

Requirement End AID_ERROR-30

alarm_id

Alarm identifier. This is the unique identifier of the reported condition or event. The clearing of a condition shall have the same *alarm_id* as that of the onset of the condition. It is an alphanumeric string of no more than 23 characters. The list of possible alarm identifiers that can be output can be found in Appendix A of the PRD.

 tblislt
Requirement Begin REPT_EVT-460

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is ISLTD to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

Requirement End REPT_EVT-460

EXAMPLE OUTPUT

```
    OLS-400G 96-06-07 16:28:41

A   7 REPT EVT OCHAN

    "OCHAN-1E-9585:T-OCHAN(SPR-C),TC,96-06-07,16-28-41,NEND,,-7,-6,15-MIN:\"TCA

OPTICS: OCHAN (SPR-C)\",:SPROCHAN"

    ;
```

The following example is for a **SET-TH-OLINE** command that has been denied.

```
    OLS-400G 96-10-26 16:28:41

A   7 REPT EVT OLINE

    "LINE-1E:IO-ACTY,TC,96-10-26,16-28-41,,,,:\"SET-TH-OLINE:LINE-1E-DENY\",:

SETTHOLINE"

    ;
```

The following example is for a INIT-PM-FTAM command that has been failed.

```
    OLS-400G 96-10-26 16:28:41

A   7 REPT EVT COM

    "SYSTEM:FLT-UPLOAD-PM,TC,99-01-12,8:18:31,NEND,,,,15-MIN:\"PM UPLOAD:COMM.FAIL:124\",

:PMUPLDCOMMF"

    ;
```

RELATED TL1 COMMANDS/MESSAGES

None

REPT SW

REPT SW: Report Switch

This autonomous message is available starting in WaveStar OLS 1.6T Release 6.0.

DESCRIPTION

REPT SW messages are generated autonomously every time whenever there is a change in the SW_STATE and/or ACTSWPRTY output parameters.   The report conatains port aid, occurence date and time, switch state and active switch priority.
Note:Two messages may occur when each command is executed.

OUTPUT FORMAT

```
    tid date time

A  atag REPT SW

   "aid:spec_block"



;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

tid

Target identifier. This is the system name.

date

Date output message is generated. This can have the formats YY-MM-DD or YYYY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY or DD-MM-YYYY (day-month-year) for an SDH environment. The 4 digit or 2 digit year format is dependent on the year format provisioned with the **ACT-USER** command.

time

Time output message is generated. This has the format HH:MM:SS (hour:minute:second).

A

This indicates the message is sent autonomously.

atag

Automatic tag. The *atag* is used for message sequencing. The number is incremented by one for each autonomous message sent by the network element, on a per-OS-type basis.

The network element uses only whole numbers from 000 through 999.

aid

Access identifier. This specifies the address of the ORS port.

Entity: Port (ORS)
Legal Values: PORT-(1-12)-(1-3)-(1-12)-(1AIN, 1BIN, 2AIN, 2BIN)

ocrdat

Occurrence date. This indicates the date of the event being reported. The format used is YY-MM-DD (year-month-day) for a SONET
environment and DD-MM-YY (day-month-year) for an SDH environment.

ocrtm

Occurrence time. This indicates the time of the event being reported and has the format HH-MM-SS (hours-minutes-seconds).

SW_STATE

Switch State. This is the switch state of the addressed entity. This parameter will have one of the following values:

ACT   Active. This specifies that the addressed entity is in the active state.

STBY   Standby. This specifies that the addressed entity is in the standby state.

RDNA   Requested data not available. If the requested SW_STATE data for the addressed entity is corrupted, this value is reported.

ACTSWPRTY

Active Switch Priority. This field is reported for addressed entities and specifies the current active protection switching request. If non-null, the *actswprty* parameter has one of the following values (for clarity, the values applicable to a given entity are grouped together and listed in

the order of priority of request):

INH   Inhibit. This specifies that an inhibit protection switching request is active.

FS   Forced. This specifies that a forced switching request is active.

SF   Signal Fail. This specifies that an automatic protection switching request is active.

MAN   Manual. This specifies that a manual swich occurs.

NR   No Request. There is no automatic switch request.
          RDNA   Requested data not available. If the requested *actswprty* data for the addressed
          entity is corrupted, this value is reported.

EXAMPLE OUTPUT

The following example shows that failure had cleared and the report is generated as ORS port 1AIN
of bay 2, shelf 3, slot 1 is in active state
and there is no automatic switch request.
───

```
    OLS-400G 2000-05-26 16:42:11

A  127 REPT SW

    "PORT-2-3-1-1AIN:OCRDAT=2000-05-26,OCRTM=16-42-11,SWSTATE=ACT,ACTSWPRTY=NR"
;
```
───

The following example shows that at the initial stage both ORS ports 1AIN and 1BIN of bay 3, shelf
3, slot 1 were in good condition and ORS port
1AIN of bay 3, shelf 3, slot 1 was active. Then failure had occurred in ORS port 1AIN of bay 3,
shelf 3, slot 1 and automatic switching happened.
The report is generated as given below with the ORS port 1BIN of bay 3, shelf 3, slot 1 is now in
active state and Signal Fail (SF) is currently active.
───

```
    OLS-400G 2000-07-14 08:52:21
A   123 REPT SW

    "PORT-3-3-1-1BIN:OCRDAT=2000-07-14,OCRTM=08:52:21,SWSTATE=ACT,ACTSWPRTY=SF"

;
```

RELATED TL1 COMMANDS/MESSAGES

```
RTRV-STATE
OPR-PROTNSW-OTPS
RLS-PROTNSW-OTPS
REPT COND
REPT EVT
RTRV-AO
RTRV-COND
```

RESTORE-DB

RESTORE-DB: Restore Database

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

INPUT FORMAT

RESTORE-DB:*tid*::*ctag*:::*spec_block;*

DESCRIPTION

The RESTORE-DB command can be initiated by users to copy a database from a remote system to the backup partition of the Flash Memory Module (FMM), have the database checked and have the local NE restart using the restored database, assuming the database is OK. The copy from the remote system will be made using the OSI standard FTAM protocol. The remote system must be reachable in the local NE's OSI IS-IS routing domain or via a RFC 1006 Transport Service Bridge (TSB) in the local NE's OSI IS-IS routing domain.

Database restoration occurs in the background. Once the background restore is initiated, there is no mechanism provided to cancel the operation. The local NE will automatically restart if the restore operation is successful.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=value** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore,

each parameter listed below may appear at most once within the specific block for a single command.

PSEL

Remote System Presentation Selector. This is the OSI Presentation Layer context to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *psel* is a variable length string of minimum 1 and maximum 4 octets. The *psel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *psel* starts with two digits (ranging from 01 to 04) specifying the length of the *psel* followed by the string representing the address. For example, the string entered as 0104 signifies a 1 octet *psel* with first octet of 0x04.

SSEL

Remote System Session Selector. This is the OSI Session Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *ssel* is a variable length string of minimum 1 and maximum 4 octets. The *ssel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *ssel* starts with two digits (ranging from 01 to 04) specifying the length of the *ssel* followed by the string representing the address. For example, the string entered as 025353 signifies a 2 octet *ssel* with first octet of 0x53 and second octet of 0x53.

TSEL

Remote System Transport Selector. This is the OSI Transport Layer conext to use to initiate the FTAM association with the remote system. This parameter is not optional.

The *tsel* is a variable length string of minimum 1 and maximum 4 octets. The *tsel* value ranges between the hexadecimal numbers 00 to FFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid *tsel* starts with two digits (ranging from 01 to 04) specifying the length of the *tsel* followed by the string representing the address. For example, the string entered as 025454 signifies a 2 octet *tsel* with first octet of 0x54 and second octet of 0x54.

NSAP

Network Service Access Point. This is used to identify the OSI network address of the remote system or RFC 1006 TSB for establishing the FTAM association for database restore. This parameter is not optional.

The *nsap* is a variable length string of maximum 19 octets. The address is a string whose value ranges between the hexadecimal numbers 00 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF. Each octet is represented by two (2) characters in the hexadecimal range of 00 to FF. A valid address starts with two digits (ranging from 01 to 13) specifying the length of the address followed by the string representing the address.

For example, the *nsap* entered as 03AB08FA signifies a 3 octet address with first octet of 0xAB, second octet of 0x08 and the third octet of 0xFA.

If the OSI stack is used end-to-end, then the *nsap* is the address of the remote system itself. If instead a RFC 1006 TSB is used, the *nsap* is the address of the TSB. The TSB will provide for address translation between the OSI and TCP/IP domains.

PATHNAME

Absolute path on the remote system where the database to be restored is located. This is the full path of the directory where the database file(s) to be restored are located. It is a printable string of up to 128 characters, surrounded by quotation marks ("). Quotation marks are not allowed inside of the printable string. If MS-DOS pathnames are used with backslashes ("\"), each back-slash must be escaped with a second backslash.This parameter is not optional.

The directory named by this parameter is expected to contain the information file OLS400G_DB. This file will contain a list of all the required files for the restore.

IP_ADDRESS

The Internet Protocol (IP) Address consists of four bytes converted into decimal numbers. Each number is separated by a decimal point (".") and has an integer value between *0* and *255* (inclusive).

If supplied, then the user intends to use a RFC 1006 TSB between the local NE and the remote system. The ip_address is the address of the remote system on the other side of the TSB.

OUTPUT FORMAT

If the network element fully complies with the RESTORE_DB request, the following normal completion response is returned:

```
IP ctag

<



    tid date time

M  ctag COMPLD

;
```

Once the command execution starts in the background, the system will be free to accept and execute other commands.

Since the restore operation occurs in the background and takes several minutes or more, the user will be allowed to log-off during this time if the user decides to do so.

The user will be able to retrieve the active standing condition of database restoration in progress via the **RTRV-COND-ALL** command. If the restoration does not succeed, the outcome of the restoration can be retrieved with the RTRV-LOG command once the database restoration in progress condition clears. If the restoration does succeed, the local NE will automatically restart.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows an input and output of a RESTORE-DB command for a WaveStar OLS 1.6T system to copy software from a remote system using an OSI stack end-to-end:

```
RESTORE_DB:OLS-400G::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=13390840800000000000000000000013a7ba060181,

PATHNAME="/dwdm/lucent/db/HLMDNJ01XXA2101.3/mon";



IP 123456

<


   OLS-400G 99-02-25 10:35:32

M  123456 COMPLD

;
```

The following example shows an input and output of a RESTORE-DB command for a WaveStar OLS 1.6T system to copy software from a remote system using a RFC1006 TSB:

```
RESTORE_DB:OLS-400G::123456:::PSEL=0102,SSEL=025353,TSEL=025454,

NSAP=13390840800000000000000000000008006a060181,

PATHNAME="/home/net/dwdm/lucent/RDBKNJ02DWZ3206.1/backup/22FEB99",

IP_ADDRESS=207.34.52.6;
```

```
    IP 123456

    <


       OLS-400G 99-02-25 10:37:08

    M  123456 COMPLD

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a network element receives this command with a missing or invalid *psel* value, the following error response is returned:

```
    tid date time

    M  ctag DENY

       IDNV

       /* Input, Data Not Valid, invalid or missing PSEL */

    ;
```

If a network element receives this command with a missing or invalid *ssel* value, the following error response is returned:

```
    tid date time

    M  ctag DENY

       IDNV

       /* Input, Data Not Valid, invalid or missing SSEL */

    ;
```

If a network element receives this command with a missing or invalid *tsel* value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing TSEL */

;
```

If a network element receives this command with a missing or invalid *nsap* value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing NSAP */

;
```

If a network element receives this command with a missing or invalid *pathname*value, the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid or missing PATHNAME */

;
```

If a network element receives this command with an invalid *ip_address* value, that is, a non-null value that is not four decimal numbers from 0 to 255 seprated by periods ("."), the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid IP_ADDRESS */

;
```

If the local NE is already has a database restoration, database backup or software copy (CPY-PGM, INIT-SWD or DWNLD-SW command) in progress, the following error response will be returned:

```
    tid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, a RESTORE_DB, BACKUP_DB, CPY-PGM,

       INIT-SWD or DWNLD-SW command is already in progress on the local Network Element */

    ;
```

RELATED TL1 COMMANDS/MESSAGES

BACKUP-DB

RLS-EXT-CONT

RLS-EXT-CONT: Release External Control

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RLS-EXT-CONT:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RLS-EXT-CONT** command can be initiated by users to release an external miscellaneous discrete control, such as a generator, a fan, a light, or a sprinkler. Miscellaneous discrete controls are operated by the **OPR-EXT-CONT** command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which a description is being provisioned.

Entity: Single Point (Control)
Legal Values: (CONT)-(1-4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the command request, the following normal completion
response is returned.

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for
the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a WaveStar OLS 1.6T system to release miscellaneous
discrete control 4.

```
RLS-EXT-CONT:OLS-400G:CONT-4:123456::;



IP 123456

>

   OLS-400G 93-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply
to this command.

If a **RLS-EXT-CONT** command is received with an invalid access identifier, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT
OPR-EXT-CONT
RTRV-ALM

RLS-NIS-IND

RLS-NIS-IND: Release Not-In-Service Indicator

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

RLS-NIS-IND:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RLS-NIS-IND** command can be initiated by users to release the ACTIVE LED on any or all
circuit packs from the forced OFF condition which is used as a "Not-In-Service" indicator for the
circuit pack(s). The ACTIVE LED is put into the forced OFF condition by issuing the
OPR-NIS-IND command.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It
must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The aid identifies the slot that contains the circuit pack that is to release its
ACTIVE LED to the normal control of the network element software. All circuit packs in the
"Not-In-Service" state will be released if the ALL value is used for the *aid*.

Entity: Slot(All)
Legal Values: (SLOT)-(ALL), (SLOT)-(1-12)-(ALL), (SLOT)-(1-12)-(1-3)-(ALL),
(SLOT)-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the
response to allow association of the command and response messages. Valid values for *ctag* are
strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal
digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with
a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the command request, the following normal completion response is returned.

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command for a WaveStar OLS 1.6T system to release the ACTIVE LED on the circuit pack in Bay 2, Shelf 1, Slot 5 from the "Not-In-Service" indication.

RLS-NIS-IND:OLS-400G:SLOT-2-1-5:123456;

```
IP 123456

>

   OLS-400G 93-10-26 16:42:11

M  123456 COMPLD

;
```

The following example shows a command for a WaveStar OLS 1.6T system to release the ACTIVE LED on all the circuit packs in Bay 2 of the 2 Fiber Ring Terminal (40 Channels) called OLS-1.6T from the "Not-In-Service" indication.

```
RLS-NIS-IND:OLS-1.6T:SLOT-2-ALL:123456;
```

```
IP 123456

>

    OLS-1.6T 93-10-26 16:42:11

M  123456 COMPLD

;
```

The following example shows a command for a WaveStar OLS 1.6T system to release the ACTIVE LED on all the circuit packs in the network element called OLS-1.6T from the "Not-In-Service" indication.

```
RLS-NIS-IND:OLS-1.6T:SLOT-ALL:123456;
```

```
IP 123456

>

    OLS-1.6T 93-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RLS-NIS-IND** command is received with an invalid access identifier, the following error response is returned:

```
   sid date time

M  ctag DENY

   IIAC

   /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-NIS-IND
OPR-NIS-IND

RLS-PROTNSW-OTPS

RLS-PROTNSW-OTPS: Release Protection_Switch Optical_Translator_Port_Signal

The User Privilege Code (UPC) for this command is Maintenance Level 4 (M4).

This command is available starting in WaveStar 1.6T OLS Release 6.0.

INPUT FORMAT

RLS-PROTNSW-OTPS:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RLS-PROTNSW-OTPS** command releases (*clears*) any standing forced or inhibit protection switching on the switch which resides in the addressed ORS.

The network element provides queuing of auto protection switch requests. However, there can only be one external request active at a given time. The **RLS-PROTNSW-OTPS** commands clears the active external request and thereby enables the highest priority auto request from the queue (if any) to be executed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-%#/_

Note that the slash character ('/') is allowed in the tid. However, even though the slash character is allowed, it should not be used if the network element (NE) is interworking with other products or if the NE has an interface to a Telcordia Operations System (OS).

aid

Access identifier. This is the address of the ORS IN port or ports for which the command is intended.

Legal Values: PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(1AIN, 1BIN, 2AIN, 2BIN)

The AID of any of 1AIN or 1BIN should be allowed and result in releasing of the switch of channel 1. The AID of any of 2AIN or 2BIN should be allowed and result in releasing of the switch of channel 2. The AID of "ALL" is also allowed and releases the switch for both channels in that ORS.

ctag

> Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for ctag are identifiers of up to 6 characters or decimal numerals up to 6 characters. An identifier is a letter followed by zero or more letters or digits. A decimal numeral is an optional D' string (letter D with a trailing single quote) followed by zero or more digits followed by an optional decimal point followed by one or more digits. A letter is from the character set [A-Z][a-z]. A digit is from the character set [0-9].

OUTPUT FORMAT

If the system fully complies with release of the protection switch request, the following output message is returned:

```
   tid date time
M  ctag COMPLD
;
```

If the command does not alter the existing protection switching state or priority, the network element will not deny the command. Instead the system will respond with the completion message (shown previously).

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

rls-protnsw-otps:NODE-1:SLOT-10-3-11-1AIN:xyz123;

```
IP xyz123

<

   NODE-1 1999-11-23 04:56:00
M  xyz123 COMPLD
;
```

ERROR RESPONSES

In addition to the non-message-specific error responses listed in the **RTRV-HDR** error responses description, the following error responses are also provided, as specified.

If this command is received with an invalid access identifier, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the command cannot be executed because of a hardware problem, the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

OPR-PROTNSW-OTPS
ENT-ASSOC-OTPS
RTRV-ASSOC-OTPS
DEL-ASSOC-OTPS
RTRV-STATE
REPT-SW

RLS-TRACE-OTU

RLS-TRACE-OTU: Release Trace OTU

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 4.0.

INPUT FORMAT

RLS-TRACE-OTU:*tid*:*aid*:*ctag***;**

DESCRIPTION

This command can be initiated by a user to request the network element to turn off the Trace Signal on a particular OTU output port. This command may be used during pre-service testing of facilities, during fault diagnostics and for fiber connection tracing in conjunction with the companion rtrv-trace-otu and rtrv-trace-oa commands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* determines the OTU port for which the Trace Signal is being activated or deactivated.

Entity: Single 1550 Band Output Port (OTU)
Legal Values: (PORT)-(ALL),(PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example requests a Trace Signal deactivation:

```
rls-trace-otu:WaveStar-OLS-400G-3:port-6-3-5-9450:pig926;
IP PIG926
<
    WAVESTAR-OLS-400G-3 98-07-22 13:22:31
M  PIG926 COMPLD
;
```

ERROR RESPONSES

If the network element receives an **RLS-TRACE** command without an *aid* or with an *aid* other than that supported by the network element, the following error response is returned:

```
    tid date time
M  ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives an **RLS-TRACE** with an otherwise valid *aid* value but the command could not be completed by the network element (for example, the addressed port is not physically present in the system), the following error response is returned:

```
    tid date time
M  ctag DENY
    SROF
    /* Status, Requested Operation Failed */
;
```

_____

RELATED TL1 COMMANDS/MESSAGES

```
OPR-TRACE-OTU
RTRV-TRACE-OTU
RTRV-TRACE-OA
```

RLS-TRACE-SUPVY

RLS-TRACE-SUPVY: ReleaseTrace SUPVY

This command is available starting in WaveStar OLS 1.6T Release 4.0.

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

INPUT FORMAT

RLS-TRACE-SUPVY:*tid*:*aid*:*ctag*;

DESCRIPTION

This command can be initiated by a user to request the network elementto turn off the Trace Signal on a particular SUPVY output port. This commandmay be used during pre-service testing of facilities, during fault diagnosticsand for fiber connection tracing in conjunction with the companion rtrv-trace-oacommands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which thecommand is addressed. It must be a string of 20 or fewer characters fromthe following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* determines the SUPVY port for which theTrace Signal is being activated or deactivated.

Entity: Single Output Port (SUPVY)
Legal Values: (PORT)-(1)-(1-2)-(6-9)-(OUT_1,OUT_2)

ctag

Correlation tag. This is included in the command and is repeated back bythe network element in the response to allow association of the commandand response messages. Valid values for *ctag* are strings of up to6 characters comprised of identifiers and/or decimal numerals (a stringof decimal digits with an optional non-trailing "."). Strings containingboth numbers and letters must begin with a letter. A "." is allowed onlyif all other characters are digits.

OUTPUT FORMAT

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section.The output parameters listed there for the normal completion response alsoapply to this command.

EXAMPLE INPUT/OUTPUT

The following example requests a Trace Signal deactivation:

```
rls-trace-supvy:WaveStar-OLS-400G-3:port-1-2-7-OUT_2:cow482;

IP COW482

<

    WAVESTAR-OLS-400G-3 98-07-22 13:51:12
M   COW482 COMPLD
;
```

ERROR RESPONSES

If the network element receives an **RLS-TRACE** command withoutan *aid* or with an *aid* other than that supported by the networkelement, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives an **RLS-TRACE** with an otherwisevalid *aid* value but the command could not be completed by the networkelement (for example, the addressed port is not physically present in thesystem), the following error response is returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed */
;
```

RELATED TL1 COMMANDS/MESSAGES

`OPR-TRACE-SUPVY`
`RTRV-TRACE-OA`

RTRV-AID-ASGNMT

RTRV-AID-ASGNMT: Retrieve Access Identifier Assignment

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 5.0.

INPUT FORMAT

RTRV-AID-ASGNMT:_tid_**:**_pftype_**,**_pfname_**:**_ctag_**;**

DESCRIPTION

The **RTRV-AID-ASGNMT** command retrieves the Access Identifiers (AIDs) to which the specified Alarm Severity Assignment Profile (ASAP) profile type and profile name is assigned.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for _ctag_ are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)
> **SHELF** (Shelf)
> **SUPVY** (Supervisory Signal)

        SW (Software Management)
        SYSTEM (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

OUTPUT FORMAT

The output lines are sorted by *aid* in alphabetical order. If no AID's are assigned, the report will still say COMPLD but no data will be displayed.

```
    tid date time

M   ctag COMPLD

    "AID=aid"

    "AID=aid"

    . . .

    "AID=aid"

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

aid

Access Identifier.

EXAMPLE INPUT/OUTPUT

```
RTRV-AID-ASGNMT:LT-400G:OLINE,Default:123456;
```

```
IP 123456

<
```

```
    LT-400G 01-04-26 16:42:11

M  123456 COMPLD

    "AID=LINE-1E"

    "AID=LINE-1W"

    "AID=LINE-2E"

    "AID=LINE-2W"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an invalid *pftype* is specified, then the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pftype */

;
```

If an invalid *pfname* is specified, then the following error response is returned:

```
    tid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid pfname */

;
```

If the specified *pfname* does not exist for the specified *pftype*, then the following error response is returned:

```
    tid date time

M   ctag DENY

    SDNC

    /* Input, Data Not Consistent, pfname does not exist for pftype */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-ASAP-PROF
ED-ASAP-PROF
ENT-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-ASAP-PROF
RTRV-PROF-ASGNMT
```

RTRV-ALM-ALL

RTRV-ALM-ALL: Retrieve Alarm All

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-ALM-ALL:*tid*:*aid*:*ctag*::*[ntfcncde]*;

DESCRIPTION

The **RTRV-ALM-ALL** command can be initiated by a user to retrieve all active alarms from a network element terminal. This command retrieves all active alarms pertaining to the addressed network element terminal and upstream repeater bays, reported one line per alarm. Active alarms are those reportable conditions having an alarm level of "CR", "MJ", "MN", "PROMPT", or "DEFERRED".

If the *msg_format* parameter in ACT-USER is set to the value of **fixed**, all the retrieved active alarms for the remainder of that login session will be formatted according to the requirements for autonomous messages with the *msg_format* set to **fixed**. See ACT-USER for more details.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the current conditions are requested.

The *aid* for this command must be "ALL". Any value provided, including a null value (no value provided) will be accepted and interpreted as "ALL", and will not be cause for denying the command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it shall have one of the values: "CR", "MJ", "MN", "PROMPT", "DEFERRED"

CR
   Critical Alarm(SONET)
MJ
   Major Alarm(SONET)
MN
   Minor Alarm(SONET)
PROMPT
   Prompt(SDH) Alarm
DEFERRED
   Deferred(SDH) Alarm

If the ntfcncde is valid, the network element response to the user is limited to the specified notification code. If no notification code is provided or if the notification code is not valid, the network element response includes all alarm conditions.

OUTPUT FORMAT

If there are no alarm conditions to report, the following message is returned to the OS:

```
    tid date time

M   ctag COMPLD

 ;
```

If there are alarm conditions to report, the following output report is returned to the OS:

```
    tid date time

M   ctag COMPLD

    "aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,,:\"conddescr\",,:alarm_id

[,tblislt]"

      .        .        .        .        .        .        .

      .        .        .        .        .        .        .

      .        .        .        .        .        .        .
```

```
   "aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,,:\"conddescr\",,:alarm_id

[,tblislt]"

;
```

Applicable output lines are ordered as follows:
1. By alarm severity level.
   For SONET: CR, then MJ, followed by MN.
   For SDH: PROMPT, followed by DEFERRED.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:
aid

Access identifier. This is the address of the equipment component, facility, or repeater bay site ID for which an alarm condition is being reported.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it shall have one of the values:"CR", "MJ", "MN", "PROMPT", "DEFERRED"
>**CR**
>>Critical Alarm(SONET)
>**MJ**
>>Major Alarm(SONET)
>**MN**
>>Minor Alarm(SONET)
>**PROMPT**
>>Prompt(SDH) Alarm
>**DEFERRED**
>>Deferred(SDH) Alarm

condtype

Condition Type. This is all of the active Alarm Conditions in the Network Element.

srveff

Service effect (or condition effect). This indicates the effect of the reported alarm on service or the effect of an alarm on the condition of the network element. This parameter has one of the following values:

SA

Service-affecting alarm condition.

NSA

Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the alarm being reported began. The format used is YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

ocrtm

Occurrence time. This indicates the time that the alarm being reported began and has the format HH-MM-SS (hour-minute-second).

conddescr

Condition description (or Alarm message). This is the text description of the reported condition.

alarm_id

Alarm identifier. This is the unique identifier of the reported condition. It is an alphanumeric string of no more than 23 characters. The list of possible alarm identifiers that can be output can be found in Appendix A of the PRD.

tblislt

Trouble isolated. If a reported condition is isolated to the reported *aid*, the *tblislt* parameter value is ISLTD to indicate that the *aid* identifies the circuit pack that should be replaced by craft to correct the reported condition. Otherwise, this parameter is not reported.

EXAMPLE INPUT/OUTPUT

```
rtrv-alm-all:OLS-400G:all:123456;
```

```
IP 123456
```

```
<
```

```
    LT-400G 99-10-26 16:42:11

M   123456 COMPLD

    "LINE-1E:MJ,LOS,NSA,99-06-07,18-26-14,,:\"incoming optical line LOS\",,:

OLINELOS"

    "PORT-1-1-3-SUP_RX:MJ,EXT,NSA,99-06-07,18-26-14,,:\"SUPVY drop output

LOS\",,:SUPVYDROPLOS"

    "SLOT-1-2-1:MN,CONTR,NSA,99-06-07,18-26-14,,:\"OTU failure\",,:OTUCPF,ISLTD"

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to **RTRV-ALM-ALL**.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-AO

RTRV-AO: Retrieve Autonomous Output

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 5.0.

INPUT FORMAT

RTRV-AO:*tid*:[*aid*]:*ctag*[:::*spec_block*];

DESCRIPTION

The **RTRV-AO** command can be initiated by users to retrieve copies of recent autonomous TL1 messages emitted by the NE. The report contains up to 4000 of the most recent autonomous messages. Autonomous messages include include all of the following TL1 messages: REPT ALM, REPT ALM ENV, REPT EVT, REPT DBCHG and REPT SW.

The autonomous messages are reported chronological order with the "oldest" message first, that is, the order in which the autonomous messages were or would have been originally emitted.

Subsets of the most recent autonomous messages can be retrieved by specifying values in the *spec_block* field. In particular, output can be filitered by specific message types (ALM, EVT, DBCHG and SW), date and time and ATAG sequence number.

If the *msg_format* parameter in ACT-USER is set to the value of **fixed**, the retrieved autonomous TL1 messages for the remainder of that login session will be formatted according to the requirements for autonomous messages with the *msg_format* set to **fixed**. See ACT-USER for more details. No DBCHG entries will be retrieved for the login session with the *msg_format* parameter set to **fixed**.

The copies of autonomous TL1 messages available for retrieval include those actually emitted to an OS or other user as well as those that may not have been emitted due to data link failures, internal processing failures or there not being an active TL1 login session.

The ATAG sequence of autonomous TL1 messages shall be continued when autonomous message reporting or any subset thereof is inhibited or unavailable.

Whenever the ATAG sequence of autonomous TL1 messages is reset (for example, due to system initialization or processor reset), the **rtrv-ao** log shall be cleared.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. RTRV-AO output is not filtered by *aid*, so the *aid* value must be **ALL** or omitted. If this parameter is omitted, the value **ALL** is assumed.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. Parameters set within the specific block are positionally independent and are set using a construct such as: **PARAMETER=value** in a comma-separated list. The specific block may have zero or more of the following parameters set within it. Furthermore, each parameter listed below may appear at most once within the specific block for a single command.

For each of the following parameters there is listed one or more parameter values. If a particular parameter does not appear in the *spec_block*, its value is not used in selecting the autonomous messages to be reported. The use of the term "null" in the descriptions below implies that the parameter does not appear or appears with no value (for example, **ATAGSEQ**=)in the command.

ATAGSEQ

Automatic tag sequence. This is the three-digit *atag* value of the autonomous TL1 message(s) requested. For example, "**ATAGSEQ=010**" specifies the single *atag* value "010".

Since the NE can store up to 4,000 autonomous messages but the *atag* can only be three (3) digits, there may be multiple autonomous messages with the same *atag* value. The set of autonomous messages to output is governed by the rules presented in subsequent requirements.

If the user supplies a single *atag* value, only the most recent autonomous message with that *atag* value, if any, is reported.

Two *atag* values may be specified by using an "**&**" (ampersand), for example, "**ATAGSEQ=010&020**" specifies the *atag* values "010" and "020".

If the user supplies two *atag* values, only the most recent autonomous messages with either of those *atag* values, if any, are reported.

The NE needs to support at most one ampersand in each command, although the Telcordia specifications allow for multiple ampersands.

A range of *atag* values may be specified by using "**&&**" (double ampersand), for example, "**ATAGSEQ=010&&020**" specifies the *atag* values "010, 011, 012, ..., 020".

If the user supplies upper and lower *atag* values in a range, only the most recent autonomous messages within the specified range of *atag* values, if any, is reported.

The NE must support at most one double ampersand in each command, although the Telcordia specifications allow for multiple double ampersands.

The NE does not need to support a mix of single and double ampersands in a single command invocation.

A wrap-around range of *atag* values may be specified by using "**&&**" (double ampersand), for example, "**ATAGSEQ=999&&001**" specifies the *atag* values "999, 000, 001". This imples that the order of input *atag* values in ranges is significant.

A open-ended range of *atag* values may also be specified by using "**&&**" (double ampersand) without a second *atag* limit, for example, "**ATAGSEQ=867&&**". This construct specifies the *atag* values "867, 868, 869, ..." up until the most recent autonomous message log entry.

If the user supplies an open-ended *atag* value range, all autonomous messages from the oldest (least recent) message with an *atag* value matching the first range limit vale, if any, are reported.

If multiple or a range of *atag* values are specified but only some of the specified values are stored in the NE's AO log, the NE responds with the *atag* values that are available.

If no **ATAGSEQ** is specified (null), the NE's response is not limited based on *atag* value.

MSGTYPE

Message type. This is the type of autonomous messages requested. This parameter may be null or have one of the following values: "ALM", "EVT", "DBCHG" or "SW".

ALM   Report Alarm messages (including Report Alarm Environment)

EVENT   Report Event messages

DBCHG   Report Database Change messages

SW   Report Switch messages

If no **MSGTYPE** is specified (null), the NE's response is not limited based on message type.

DATE

Date. This is the event date stamp of the autonomous message requested by the user. It must always be used in conjunction with the **TIME***spec_block* parameter. If specified, the NE will filter its output response to include only those autonomous messages with event date stamp values equal to the specified **DATE** values.

The event date stamp of an autonomous message is the **ocrdat** parameter of the origianl autonomous message, **not** the date stamp in the TL1 message header.

For NEs provisioned to operate in a SONET environment, **DATE** has the format YY-MM-DD (two digit year, month and day). For NEs provisioned to operate in a SDH environment, **DATE** has the format DD-MM-YY (two digit day, month and year).

A open-ended range of *date* values may be specified by using "**&&**" (double amper-sand), for example, "**DATE=00-07-28&&**". This construct specifies all *date* values from 28 July 2000 (SONET mode) going forward in time until the most recent autonomous message log entry.

The NE shall filter its response to a **rtrv-ao** command with valid open-eneded **DATE** and **TIME** range parameters as follows. Starting with the most recent autonomous message, the NE shall include in its response all autonomous messages in its log that have an event date and time stamp more recent than the input **DATE** and **TIME** up to but not including the first autonomous message that is not more recent than the input **DATE** and **TIME**.

The expected use of the rtrv-ao command is for re-synchronizing an OS with and NE after a (relatively) short period of communication failure (data links down). It is entirely possible that a user at a local CIT could change the NE's date and time during a communication failure. This could result in some messages in the NE's log with a date and time stamp more recent than the input **DATE** and **TIME** parameters **not** being included in the output according to the preceding rule. This is considered a "double failure" case ([1] data link failure + [2] change in local date and time) and is ignored to simplify development.

TIME

> Time. This is the event time stamp of the autonomous message(s) requested by the user. It must always be used in conjunction with the **DATE***spec_block* parameter. If specified, the NE will filter its output response to include only those autonomous messages with an event time stamp equal to the specified **TIME**.
>
> The event time stamp of an autonomous message is the **ocrtm** parameter of the origianl autonomous message, **not** the time stamp in the TL1 message header.
>
> **TIME** has the format HH-MM-SS (two digit hour [00-23], minute [00-59] and second [00-59]).
>
> A open-ended range of *time* values may be specified by using "**&&**" (double amper-sand), for example, "**TIME=21-52-00&&**". This construct specifies all *time* values from 9:52 PM going forward in time until the most recent autonomous message log entry.
>
> If either of the **DATE** or **TIME** parameters is specified with an open-ended range, then both parameters must be specified with an open-ended range.
>
> If neither **DATE** nor **TIME** is specified (null), the NE's response is not limited based on time stamp.

When a combination of *atag, date* and *time* parameters are specified with the **rtrv-ao** command, the NE shall respond as following: if an EXACT match for this sequence DOES NOT exist, the NE shall return DENY message; if an EXACT match for this sequence DOES exist and there are NO other records besides the matched record, the NE shall return completed status and NO records; if an EXACT match for this sequence DOES exist and there are other records besides the matched record, the NE shall return completed status and other records (minus the matched record).

The NE's response to a **rtrv-ao** command shall be the intersection of the sets of autonomous messages defined by the specified *spec_block* parameters.

OUTPUT FORMAT

If there are no autonomous messages to report (for example, the combination of **ATAGSEQ**, **MSGTYPE**, **DATE** and **TIME** parameters filters out all messages in the AO log), the following output message is returned:

```
    sid date time
M  ctag COMPLD
    /*
no autonomous messages match input criteria
    */

 ;
```

_____

If there are autonomous messages to report, the following output message is returned:
_____

```
   sid date time
M  ctag COMPLD
   /*
complete autonomous messages except without the termination indicator (";")
   */


;
```

_____

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

The following example shows a **rtrv-ao** command and response.
_____

```
rtrv-ao:OLS-400G::123456:::ATAGSEQ=27;IP 123456
<
   OLS-400G 00-07-12 09:29:11
M  123456 COMPLD
   /*
  OLS-400G 00-07-12 00:45:32
A  27 REPT EVT COM
   "SYSTEM:IP-BACKUP-NULL-NULL,SC,00-07-12,00-45-32,,,,:\"BACKUP:IP",:BKUPIP"
   */
;
```

_____

The following example shows a **rtrv-ao** command and response.
_____

```
rtrv-ao:OLS-400G::123456:::ATAGSEQ=34&&36;IP 123456
<
   OLS-400G 00-07-12 09:44:33
M  123456 COMPLD
   /*

   OLS-400G 00-07-12 06:51:19
*  34 REPT ALM COM
   "BAY-3-1:MN,INT,NSA,00-07-12,06-51-19,,,,:\"CLOGGED DUST FILTER 1",
:CLOGFILTER1,"
   OLS-400G 00-07-12 06:52:53
*C 35 REPT ALM EQPT
```

```
   "SLOT-3-1-11:CR,CONTR,NSA,00-07-12,06-52-53,,,,:\"OTU FAILURE\",
:OTUCPF,ISTLD"
   OLS-400G 00-07-12 06:53:17
A  36 REPT ALM COM
   "BAY-3-1:CL,CONTR,NSA,00-07-12,06-53-17,,,,:\"OTU FAILURE-CLEARED",
:OTUCPF,"
   */
;
```

The following example shows a **rtrv-ao** command and response.

```
rtrv-ao:OLS-400G::123456:::MSGTYPE=DBCHG,DATE=00-07-12,TIME=09-00-00;IP 123456
<
   OLS-400G 00-07-12 10:04:25
M  123456 COMPLD
   /*
   OLS-400G 00-07-12 09:32:41
A  48 REPT DBCHG
   "TIME=09-32-41,DATE=00-07-12,SOURCE=DOG13:ENT-SUPR:LINE-1W:
:OW1TYPE=EXPRESS"
   */
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a NE receives a **rtrv-ao** command with an invalid *aid* value (that is, anything other than **all** or null), the following error response is returned:

```
   tid date time
M  ctag DENY
   IIAC
   /* Input, Invalid Access Identifier */
;
```

If a NE receives a **rtrv-ao** command with the same parameter specified more than once, the following error response is returned:

```
    tid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation, parameter(s)
       multiply defined */
;
```

If a NE receives a **rtrv-ao** command with an invalid **ATAGSEQ** parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid ATAGSEQ */
;
```

If a NE receives a **rtrv-ao** command with an invalid **MSGTYPE** parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid MSGTYPE */
;
```

If a NE receives a **rtrv-ao** command with an invalid **DATE** parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid DATE */
;
```

If a NE receives a **rtrv-ao** command with an invalid **TIME** parameter, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TIME */
;
```

If a NE receives a **rtrv-ao** command with only one of the **TIME** and **DATE** parameters, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, TIME and DATE
       must always be specified together */
;
```

If a NE receives a **rtrv-ao** command with only one of the **TIME** and **DATE** parameters specified with an open-ended range, the following error response is returned:

```
    tid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, TIME and DATE
       must both be either single values or
       open-ended ranges */
;
```

When a combination of *atag, date* and *time* parameters are specified with the **rtrv-ao** command, and if an EXACT match for this sequence DOES NOT exist, the NE shall return the following DENY message:

```
    tid date time
M   ctag DENY
    NMRF
    /* No matching records found for the
       given atag:date:time combination */
;
```

RELATED TL1 COMMANDS/MESSAGES

```
rept alm
rept alm env
rept evt
rept dbchg
```

RTRV-ASAP-PROF

RTRV-ASAP-PROF: Retrieve ASAP (Alarm Severity Assignment Profile) Profile The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1). This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

DESCRIPTION

The **RTRV-ASAP-PROF** command retrieves information about one or more alarm severity assignment profiles.

A profile type (*pftype*) must be specified. If a profile name (*pfname*) is not specified, a list of all *pfname*'s of the specified *pftype* is returned with the status (active or inactive) of each profile. The Default profile of the specified *pftype* is always reported as active. If a *pfname* is specified, the parameter values for the specified *pftype-pfname* are returned.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)
> **SHELF** (Shelf)
> **SUPVY** (Supervisory Signal)
> **SW** (Software Management)
> **SYSTEM** (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

OUTPUT FORMAT

If a *pfname* is not included in the command, the following completion response is returned:

```
    tid date time
M   ctag COMPLD
    "PFTYPE=pftype,PFNAME=Default,STATUS=active"
    "PFTYPE=pftype,PFNAME=pfname,STATUS=status"
    . . .
    "PFTYPE=pftype,PFNAME=pfname,STATUS=status"
;
```

If a *pfname* is included in the command, the following completion response is returned. For each reported **alarm_id** only the applicable severity parameters shall be reported. The remaining severity fields shall be empty.

```
    tid date time
M   ctag COMPLD
    "pftype,pfname,alarm_id,\"conddescr\":si,sd_sa,sd_nsa"
    "pftype,pfname,alarm_id,\"conddescr\":si,sd_sa,sd_nsa"
    "pftype,pfname,alarm_id,\"conddescr\":si,sd_sa,sd_nsa"
    .   .   .   .   .   .   .   .   .   .   .
    "pftype,pfname,alarm_id,\"conddescr\":si,sd_sa,sd_nsa"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)
> **OLINE** (Optical Line)
> **PACK** (Circuit Pack)
> **SLOT** (Slot)
> **SHELF** (Shelf)
> **SUPVY** (Supervisory Signal)
> **SW** (Software Management)
> **SYSTEM** (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

status

Status. This parameter reports whether or not the indicated *pfname* is assigned to any AID(s). The allowable values for this parameter are "active" and "inactive".

alarm_id

Alarm Identifier. This is the alarm or status condition for which the alarm severity value is provisioned. The allowable values of the alarm_id parameter are listed in the ASAP profile tables attached to Appendix A of the PRD.

Note: Click on the underlined hyperlink above to open Appendix A. Then click on the worksheet tab(s) at the bottom of the screen for the profile type(s) of interest. These tables list the *Alarm ID's* associated with each profile type, and indicating the alarm severities for each *Alarm ID* in the profile of that type named "Default".

conddescr

> Condition Description. This is the same text that appears in the **conddescr** field of the RTRV-COND-ALL and RTRV-ALM-ALL reports. The allowable values of the **conddescr** parameter are listed in Appendix A of the PRD. *si*

> > Service-Independent Alarm Severity for the specified a*larm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and NI_No_Indication.

> > NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

> *sd_sa*

> > Service-Dependent Service-Affecting Alarm Severity for the specified *alarm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and NI_No_Indication.

> > NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

> *sd_nsa*

> > Service-Dependent Non-Service-Affecting Alarm Severity for the specified *alarm_id*. The allowable values for this parameter are CR_Prompt, MJ_Prompt, MN_Deferred, NA_No_Alarm, NR_No_Report and NI_No_Indication.

> > NI alarm severity shall be used to suppress the reporting of any specified condition for any specified AID(s). This would suppress ALL indications of the condition.

EXAMPLE INPUT/OUTPUT

> The following example shows a command to retrieve the names of the profiles having the **pftype** "oline". In addition to the profile named "Default", there are two others named "customer" and "northern". The profiles named "Default" and "northern" are active. The profile named "customer" is inactive.

```
RTRV-ASAP-PROF:LT-400G::123456::oline;


IP 123456
<

    LT-400G 00-04-26 16:42:11
M   123456 COMPLD
    "PFTYPE=OLINE,PFNAME=Default,STATUS=ACTIVE"
    "PFTYPE=OLINE,PFNAME=CUSTOMER,STATUS=INACTIVE"
```

```
      "PFTYPE=OLINE,PFNAME=NORTHERN,STATUS=ACTIVE"
   ;
```

The following example shows a command to retrieve the parameter values for the profile having the *pftype* "oline" and the *pfname* "northern".

RTRV-ASAP-PROF:LT-400G::123456::oline,northern;

```
IP 123456
<

   LT-400G 00-04-26 16:42:11
M  123456 COMPLD
   "OLINE,NORTHERN,WADDROPLOS,\"WAD drop output LOS\":,,MN_DEFERRED"
   "OLINE,NORTHERN,ISPANLOSS,\"Insufficient span loss (<10dB)\":,,MJ_PROMPT"
   "OLINE,NORTHERN,OLINELOS,\"incoming optical line LOS\":,,MJ_PROMPT"
   "OLINE,NORTHERN,ODU1LOS,\"OMS (ODU1) LOS\":,,MJ_PROMPT"
   "OLINE,NORTHERN,OMSLOS,\"OMS (OA) LOS\\":,,MJ_PROMPT"
   "OLINE,NORTHERN,WADLINELOS,\"WAD incoming optical line LOS\":,,MJ_PROMPT"
   ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If an invalid *pftype* is specified, then the following error response is returned:

```
   tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid pftype */
;
```

If an invalid *pfname* is specified, then the following error response is returned:

```
   tid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid pfname */
;
```

If the specified *pfname* does not exist for the specified *pftype*, then the following error response is returned:

```
   tid date time
M  ctag DENY
   SDNC
   /* Status, Data Not Consistent, pfname does not exist for pftype */
;
```

RELATED TL1 COMMANDS/MESSAGES

DLT-ASAP-PROF
ED-ASAP-PROF
ENT-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-AID-ASGNMT
RTRV-PROF-ASGNMT

RTRV-ASSOC-OTPS

RTRV-ASSOC-OTPS: Retrieve Association OT_Port_Signal

The User Privilege Code (UPC) for this command is Provisioning Level (P1).

This command is available starting in WaveStar OLS 400G Release 1.0.

INPUT FORMAT

RTRV-ASSOC-OTPS:*tid:[aid]:ctag;*

DESCRIPTION

The **RTRV-ASSOC-OTPS** command message can be initiated by a user to request optical translator port associations.

When the network element receives this command, it will retrieve all applicable associations according to the parameter settings in the command.

Provided that the input command is syntactically correct and uses input parameter values that are consistent with those supported by OLS 400G, this command is never DENY-ed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the ODU, OMU, OTU, ORS, WAD, WDU, or WMU port for which the command is intended.

Entity: Port (ODU, OMU, OTU, ORS, WAD, WDU, WMU)
Legal Values: (PORT)-(ALL), (PORT)-(1-12)-(ALL), (PORT)-(1-12)-(1-3)-(ALL),
(PORT)-(1-12)-(1-3)-(1-12)-(ALL),
(PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535,
9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455,
9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375,
9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295,
9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215,
9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995,
8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915,

8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650, 0001, 0002, IN, IN1, IN2, IN3, IN4, OUT1, OUT2, OUT3, OUT4, 1AOUT, 1BOUT, 2AOUT, 2BOUT, C1OUT, C2OUT, 1AIN, 1BIN, 2AIN, 2BIN, C1IN, C2IN)

For WMU and WDU, only even channels are available for adding and dropping.

OLS 400G retrieves association information for all associations in which the *aid*(s) provided is (are) involved; whether as a source, a destination, or both.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the association retrieval request, the following output message is returned:

```
    sid date time
M   ctag COMPLD
    "src_aid,dest_aid:line,assoc,chnlpwr,prtlctn"
    "src_aid,dest_aid:line,assoc,chnlpwr,prtlctn"
      .     .       .         .         .         .           .
      .     .       .         .         .         .           .
      .     .       .         .         .         .           .
    "src_aid,dest_aid:line,assoc,chnlpwr,prtlctn"
;
```

If multiple lines are reported the output is sorted as follows:
1. All OTU ports by *src_aid* in ascending order of the "slot" portion (bay, shelf, slot) of the port AID.
2. All ODU ports by *src_aid* in ascending order of the "slot" portion (bay, shelf, slot) of the port AID.
3. All ORS ports by *src_aid* in ascending order of the "slot" portion (bay, shelf, slot) of the port AID.
4. All WAD ports by *src_aid* in ascending order of the "slot" portion (bay, shelf, slot) of the port AID.
5. All WDU ports by *src_aid* in ascending order of the "slot" portion (bay, shelf, slot) of the port AID.

6. All External Add, Terminal Add, Protection External Add, and Protection Terminal Add associations, beginning with "EXTEQUIP" as the *src_aid*, in ascending order of the "slot" of the ***dest_aid*** portion (bay, shelf, slot) of the port AID.

Ignored AIDs are displayed by "EXTEQUIP".

Number 1 covers the Add (OTU-OMU, OTU-OTU, OTU-WAD, and OTU-WMU), the Terminal Drop (OTU-"EXTEQUIP"), and the Protection Drop (OTU-ORS) type associations.

Number 2 covers the Drop (ODU-OTU) and External Drop (ODU-"EXTEQUIP") concerning ODUs.

Number 3 covers the Protection Add (ORS-OTU), the Protection External Drop (ORS-"EXTE-QUIP"), and the Protection Terminal Drop (ORS-"EXTEQUIP") type associations.

Number 4 covers the Drop (WAD-OTU) and External Drop (WAD-"EXTEQUIP") associations concerning WADs.

Number 5 covers the Drop (WDU-OTU) and External Drop (WDU-"EXTEQUIP") associations concerning WDUs.

Number 6 covers all External Add ("EXTEQUIP" to OMU, and "EXTEQUIP" to WMU), Terminal Add ("EXTEQUIP" to OTU), Protection Terminal Add ("EXTEQUIP"-ORS), and Protection External Add ("EXTEQUIP"-ORS) type associations.

OTU port signals for which there is no association are not listed.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

src_aid

Source access identifier. This is the address of the OTU, ODU, ORS, or WAD that is associated with the *dest_aid*.

For the External Add, Terminal Add, Protection External Add, and Protection Terminal Add type associations, this value is reported as external terminal equipment: "EXTEQUIP".

dest_aid

Destination access identifier. This is the address of the OMU, OTU, ORS, or WAD port that is associated with the *src_aid*.

For the External Drop, Terminal Drop, Protection External Drop, and Protection Terminal Drop type associations, this value is reported as external terminal equipment: "EXTEQUIP".

line

Optical Line. This parameter specifies the optical line associated with the ADD, DROP, XADD and XDROP association types. It may have one of the following values: 1E, 1W, 2E, or 2W. An exception is the case of ADD association between two OTUs for which the line parameter is reported as a dash: "-".

For TDROP, TADD, ADD, DROP, PADD, PXADD, PDROP, PXDROP, PTADD, and PTDROP type associations, the line parameter is reported as a dash: "-".

assoc

Association type. This parameter specifies the type of association being requested. It may have one of the following values:

ADD

Add. This requests an association FROM an OTU port TO an OMU, OTU, WAD, or WMU port.

XADD

External Add. This requests an association FROM an external transmission terminal TO an OMU, WAD, or WMU port.

DROP

Drop. This requests an association FROM an ODU, WAD or WDU port TO an OTU port.

XDROP

External Drop. This requests an association FROM an ODU, WAD, or WDU port TO an external transmission terminal.

TADD

Terminal Add. This requests an association FROM an external transmission terminal TO an OTU port.

TDROP

Terminal Drop. This requests an association FROM an OTU port TO an external transmission terminal.

PADD

Protection Add. This requests an association FROM an ORS line output port TO an OTU input port.

PXADD

Protection External Add. This requests an association FROM an external equipment (such as another OLS terminal) TO an ORS line input port.

PDROP

Protection Drop. This requests an association FROM an OTU output port TO an ORS line input port.

PXDROP

Protection External Drop. This requests an association FROM an ORS line output port TO an external equipment (such as another OLS terminal).

PTADD

Protection Terminal Add. This requests an association FROM an external equipment TO an ORS client input port.

PTDROP

Protection Terminal Drop. This requests an association FROM an ORS client output port TO an external equipment.

Port Location. The allowable values for *prtlctn* are 1, "2", and "OUT".

For a regular OTU, this parameter identifies the physical output port location, and is needed when the physical output port location for the output port frequency is not the standard port location if *assoc* (Association Type) is ADD, TDROP, or PDROP. Output port location 1 is related to input Port IN1. Output port location 2 is related to input Port IN2. If *assoc* is TADD, XADD, DROP, XDROP, PADD, PXADD, PXDROP, PTADD, or PTDROP, the *prtlctn* is reported as a dash ("-").

This parameter is required and is set to "OUT" for the provisioning of the high-speed output port of a MUX OTU (defined as an OTU which multiplexes multiple low-speed inputs into one high-speed output and demultiplexes one high-speed input into multiple low-speed outputs) in the source direction for *assoc* (Association Type) of ADD. For all other *assoc* type or input/output port type of a MUX OTU, the *prtlctn* is reported as a dash ("-").

Port Location. This parameter identifies the physical output port location. This parameter is needed only when the physical output port location for the output port frequency is not the standard port location. The allowable values for *prtlctn* are 1, "2", and "OUT" if *assoc* (Association Type) is ADD, TDROP, or PDROP. Output port location 1 is related to input Port IN1. Output port location 2 is related to input Port IN2. Port location "OUT" identifies the physical output port location of an OTU with multiple input ports and one output port (such as a 10G MUX OTU).

This parameter with the value set to "OUT" is always required for the provisioning of the multiplexing output port (MUX OCh10G) for assoc (Association Type) of ADD, TDROP, or PDROP with the 10G MUX OTU used as the Source, and must precede the provisioning of any of the OC-48/STM-16 input ports.

If *assoc* is TADD, XADD, DROP, XDROP, PADD, PXADD, PXDROP, PTADD, or PTDROP, the *prtlctn* is reported as a dash ("-").

EXAMPLE INPUT/OUTPUT

The following example retrieves all of the associations for the OTU or ODU installed in slot-3-2-3.

```
RTRV-ASSOC-OTPS:WAVESTAR-OLS-400G-3:PORT-3-2-3-ALL:cat867;

IP cat867
<
```

```
    WAVESTAR-OLS-400G-3 98-19-26 18:37:29
M   cat867 COMPLD
    "PORT-3-2-3-0001,EXTEQUIP:-,TDROP,-,1"
    "PORT-3-2-3-9400,PORT-1-3-11-9400:1W,ADD,-,1"
    "PORT-3-2-3-9420,PORT-1-3-11-9420:1W,ADD,-,2"
    "PORT-3-2-1-9250,PORT-3-2-3-IN1:2E,DROP,-,-"
    "PORT-3-2-1-9370,PORT-3-2-3-IN2:2E,DROP,-,-"
    "PORT-3-2-3-9255,EXTEQUIP:1W,XDROP,-,-"
    "EXTEQUIP,PORT-1-3-11-9425:1W,XADD,LOW,-"
    "EXTEQUIP,PORT-3-2-3-IN2:-,TADD,-,-"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply
to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

DLT-ASSOC-OTPS
ENT-ASSOC-OTPS

RTRV-ATTR-ALM

`RTRV-ATTR-ALM`: Retrieve Attribute Alarm

The User Privilege Code (UPC) for this command is Maintenance Level (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

`RTRV-ATTR-ALM`:*tid*::*ctag*;

DESCRIPTION

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the `RTRV-ATTR-ALM` request, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

   "ALMDEL=AlarmDelay,CLRDEL=ClearDelay,REPORT=Report"

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

almdel

The value of the AlarmDelay (incoming signal alarm delay) parameter in seconds. It represents the time that the network element will wait, after it finds an incoming signal condition, before reporting it.

clrdel

The value of the ClearDelay (alarm clear delay) parameter in seconds. It represents the time the network element will wait after a condition clears before reporting the changed condition.

report

The value of the Report parameter is either "alert" or "alarm". This parameter is describes the reporting behavior of the Threshold Crossing Alert/quality of service (QOS) autonomous message notification for the OTU Digital performance parameters. The value "alert" will report the OTU Digital TCA's as an event (transient condition) and **alarm** will report the OTU Digital TCA's as a condition (standing condition).

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-ALM** command for a WaveStar OLS 1.6T system where the AlarmDelay parameter has been provisioned to 11 seconds, the ClearDelay parameter has been provisioned to 9 seconds and the Report parameter has been provisioned to "alarm".

```
RTRV-ATTR-ALM:OLS-400G::123456;



IP 123456

<

    OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

    "ALMDEL=11,CLRDEL=9,REPORT=alarm"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-ALM

RTRV-ATTR-CONT

RTRV-ATTR-CONT: Retrieve Attribute Control

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-ATTR-CONT:*tid*:*aid*:*ctag*[:[:[:]]];

DESCRIPTION

The **RTRV-ATTR-CONT** command can be executed to retrieve the provisioned description(s) associated with an external control device or devices. These descriptions are used for information purposes when a user seeks to operate or release external miscellaneous discrete controls. For example, the user may want to verify that aid=CONT-1 is associated with a fan (and not a sprinkler) before operating it.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which attributes are being retrieved. An *aid* value must be provided.

Entity: Point (Control)
Legal Values: (CONT)-(ALL,1-4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-ATTR-CONT** request, the following normal completion response is returned.

```
    sid date time

M   ctag COMPLD

    "aid:\"conttype\",constate,dur"

    .    .    .    .

    .    .    .    .

    .    .    .    .

    "aid:\"conttype\",constate,dur"

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Parameters that specifically apply to this command response are defined as follows:

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. The aid identifies the external control for which the provisioned names are being retrieved. When the input *aid* is equal to CONT-ALL, the output is sorted by *aid*, with CONT-1 and its description printed first and CONT-2 second, etc.

conttype

Control Type. The control type is the user provisioned description for the control identified by the aid. The description is enclosed with a pair of escaped quotes (\").

constate

Control State. This is the operation state of the control point. It may have one of the following values:

 OPER
  Operate. The control point is currently in operation.
 RLS
  Release. The control point is currently released.

dur

Duration. This is the duration mode that the control point is currently operating in. It may have one of the following values:

 CONTS
  Continuously. The control point is operating in the continuous mode.
 MNTRY
  Momentarily. The control point is operating in the momentary mode.

If the control point is in the release state, "dur" (duration) will be returned with the **MNTRY** value.

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-CONT** command to retrieve the description of the first miscellaneous discrete control for a WaveStar OLS 1.6T system:

```
RTRV-ATTR-CONT:OLS-400G:CONT-1:123456::;



IP 123456

<


   OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

   "CONT-1:\"startpump\",OPER,CONTS"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-CONT

RTRV-ATTR-ENV

RTRV-ATTR-ENV: Retrieve Attribute Environment

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-ATTR-ENV:*tid*:*aid*:*ctag*[::,];

DESCRIPTION

The **RTRV-ATTR-ENV** command can be initiated to retrieve the alarm level and description parameters for each selected miscellaneous discrete environmental input point.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the environmental points for which attributes are requested. A value is required for this parameter.

Entity: Point (Environmental)

Legal Values: (ENV)-(ALL,1-16)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the retrieve attribute environment request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

    "aid:,\"almmsg\""

    .       .           .

    .       .           .

    .       .           .

    "aid:,\"almmsg\""

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. The remainder of the output parameters are described as follows:

aid

Access identifier. This is the address of the environmental point for which the attributes are reported.

almmsg

Alarm message. This is the condition description associated with the addressed environmental point. The description is an alphanumeric string, upper-case and lower-case characters (spaces are allowed), up to 26 characters. The description is enclosed within a pair of escaped quotes (**_dblslash_"**).

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-ATTR-ENV** command to retrieve the tenth miscellaneous discrete environment parameter:

```
RTRV-ATTR-ENV:OLS-400G:env-10:123456;
```

```
IP 123456

<


    OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

    "ENV-10:,\"environment 10\""

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **RTRV-ATTR-ENV** command.

If the network element receives a **RTRV-ATTR-ENV** command with an invalid or missing *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-ENV

RTRV-BASELINE-OCHAN

RTRV-BASELINE-OCHAN: Retrieve Baseline Optical Channel

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-BASELINE-OCHAN:*tid:[aid]:ctag::[montype]*;

DESCRIPTION

The **RTRV-BASELINE-OCHAN** command is initiated by a user to request the network element to send the time and the reason for the last baseline of the optical parameters of optical channels through a **SET-BASELINE-OCHAN** command.

The baseline data reported will contain information for all optical channels.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

aid

Access identifier. This identifies the optical channel for which the command is intended. Default is OCHAN-ALL if not specified.

Entity: Optical Channel (OCHAN)
Legal Values: (OCHAN)-(ALL),
(OCHAN)-(1E,1W,2E,2W)-(ALL, 9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300,

9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

montype

Monitored parameter type. This is the PM parameter type for which the baseline information is to be retrieved.

This parameter must be specified for one of the following values:

"SPR-C" (Analog - Signal Power Received - Optical Channel), or
"SPT-C" (Analog - Signal Power Transmited - Optical Channel), or
"ALL" (All applicable montype values).

If no value is provided for this parameter, the value of **ALL** is assumed.

OUTPUT FORMAT

After receiving a valid **RTRV-BASELINE-OCHAN** command, the following output message is returned:

```
    sid date time

 M   ctag COMPLD

    "aid:montype:time:reason"

      .          .

      .          .

      .          .

    "aid:montype:time:reason"

 ;
```

Applicable output lines are alphabetically ordered by *aid*.

If there is no data to return for the given valid command, the following message is returned:

```
    sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Entity: Optical Channel (OCHAN)
Legal Values:
<small>(OCHAN)-{x}-{W,2E,2W}-(9985,9980,9975,9970,9965,9960,9355,9550,9545,9540,9535,9530,9525,9520,9515,9510,9505,9500,9495,9490,9485,9480,9475,9470,9465,9460,9455,9450,9445,9440,9435,9430,9425,9420,9415,9410,9405,9400,9395,9390,9385,9380,9375,9370,9365,9360,9355,9350,9345,9340,9335,9330,9325,9320,9315,9310,9305,9300,9295,9290,9285,9280,9275,9270,9265,9260,9255,9250,9245,9240,9235,9230,9225,9220,9215,9210,9205,9200,9195,9190)</small>

time

Time of Baseline. This is the time when baselining occurs in response to a valid **SET-BASE-LINE-OCHAN** command. The format is "YY-MM-DD HH-MM" (SONET). If the NE is provisioned to operate in an SDH environment, the format is "DD-MM-YY HH-MM."

montype

Monitored parameter for which the baseline information is being retrieved.

reason

Reason of baseline. The Reason of baseline includes the provisioned string from **SET-BASE-LINE-OCHAN** command concatenated with the address of the entity which caused it.

EXAMPLE INPUT/OUTPUT

In the following example, the command returns baseline report for optical channels 1E, 1W, 2E, 2W.

```
rtrv-baseline-ochan:OLS-400G::314152::SPR-C;
```

```
   IP 314152

   <


      OLS-400G 99-01-03 17:12:31

   M  314152 COMPLD

      "OCHAN-1E-9190:SPR-C:99-01-03 00-17:OMON_REPLACED"

      "OCHAN-1E-9195:SPR-C:99-01-03 00-17:OMON_REPLACED"

      :

      :

      :

      "OCHAN-2W-9580:SPR-C:99-01-03 00-17:OMON_REPLACED"

      "OCHAN-2W-9585:SPR-C:99-01-03 00-17:OMON_REPLACED"

   ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
      sid date time

   M  ctag DENY

      IIAC

      /* Input, Invalid Access Identifier */

   ;
```

If the network element is configured as part of a C-Band system, and it receives this command with an *aid* value for an L-Band system; or if the network element is configured as part of an L-Band system, and it receives this command with an *aid* value for a C-Band system, the following error response will be returned:

```
    tid date time


M  ctag DENY


    IIAC


    /* Input, Invalid Access Identifier,


  AID invalid for the provisioned NE type */


;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-BASELINE-OLINE
RTRV-BASELINE-OLINE
SET-BASELINE-SUPR
RTRV-BASELINE-SUPR
SET-BASELINE-OCHAN

RTRV-BASELINE-OLINE

`RTRV-BASELINE-OLINE`: Retrieve Baseline OLINE

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available beginning in Wavestar 1.6T Release 1.0.

INPUT FORMAT

`RTRV-BASELINE-OLINE`:*tid:[aid]:ctag::[montype]*;

DESCRIPTION

The **`RTRV-BASELINE-OLINE`** command is initiated by a user to request the network element to send the time and the reason for the last baseline of the optical parameters of optical lines through a **`SET-BASELINE-OLINE`** command.

The baseline data reported will contain information for all optical lines.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the optical line for which the command is intended. Default is LINE-ALL if not specified.

Entity: Line
Legal Values: LINE-(ALL), LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

> Monitored parameter type. This is the PM parameter type for which the baseline infomation is to be retrieved.
>
> This parameter carries one of the following values (if not specified, default is "ALL"):
>
> "TOPR-OL" (Analog - Total Optical Power Received - Optical Line), or
> "TOPT-OL" (Analog - Total Optical Power Transmitted - Optical Line), or
> "ALL".

OUTPUT FORMAT

After receiving a valid **RTRV-BASELINE-OLINE** command, the following output message is returned:

```
    sid date time

M  ctag COMPLD

    "aid:montype:time:reason"

    .         .

    .         .

    .         .

    "aid:montype:time:reason"

 ;
```

Applicable output lines are ordered by *aid* in following order of optical line: (1E, 1W, 2E, 2W).

If there is no data to return for the given valid command, the following message is returned:

```
    sid date time

M  ctag COMPLD

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the IS optical line for which the BASELINE data is being reported.

time

Time of Baseline. This is the time when baselining occurs in response to a valid **SET-BASE-LINE-OLINE** command. The format is "YY-MM-DD HH-MM" (SONET). If the NE is provisioned to operate in an SDH environment, the format is "DD-MM-YY HH-MM."

montype

Monitored parameter for which baseline information is being retrieved.

reason

Reason of baseline. The Reason of baseline includes the provisioned string from **SET-BASE-LINE-OLINE** command concatenated with the address of the entity which caused it.

EXAMPLE INPUT/OUTPUT

In the following example, the command returns baseline report for optical line 1E.

```
rtrv-baseline-oline:LT-400G:LINE-1E:314152::TOPR-OL;



IP 314152

<



   LT-400G 98-10-26 17:12:31

M  314152 COMPLD

   "LINE-1E:TOPR-OL:98-01-01 00-17:OA_REPLACED"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

 ;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

SET-BASELINE-OLINE
SET-BASELINE-SUPR
RTRV-BASELINE-SUPR

RTRV-BASELINE-SUPR

`RTRV-BASELINE-SUPR`: Retrieve Baseline SUPR

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available beginning in Wavestar 1.6T Release 1.0.

INPUT FORMAT

`RTRV-BASELINE-SUPR`:*tid:[aid]:ctag::[montype]*;

DESCRIPTION

The **`RTRV-BASELINE-SUPR`** command is initiated by a user to request the network element to send the time and the reason for the last baseline of the performance parameters of the supervisory channels through a **`SET-BASELINE-SUPR`** command.

The baseline data reported will contain information for all supervisory channels.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the optical line for which the command is intended. Default is LINE-ALL if not specified.

Entity: Line
Legal Values: LINE-(ALL), LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which the baseline infomation is to be retrieved.

This parameter carries one of the following values (if not specified, default is "ALL"):

"SPR-SU" (Analog - Signal Receive Power - Supervisory, for C Band only), or
"SPT-SU" (Analog - Signal Transmit Power - Supervisory), or
"ALL".

OUTPUT FORMAT

After receiving a valid **RTRV-BASELINE-SUPR** command, the following output message is returned:

```
    sid date time

 M  ctag COMPLD

    "aid:montype:time:reason"

    .         .

    .         .

    .         .

    "aid:montype:time:reason"

 ;
```

Applicable output lines are ordered by *aid* in following order of optical line: (1E, 1W, 2E, 2W).

If there is no data to return for the given valid command, the following message is returned:

```
    sid date time

 M  ctag COMPLD

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the optical line for which the BASELINE data is being reported.

time

Time of Baseline. This is the time when baselining occurs in response to a valid **SET-BASE-LINE-SUPR** command. The format is "YY-MM-DD HH-MM" (SONET). If the NE is provisioned to operate in an SDH environment, the format is "DD-MM-YY HH-MM."

montype

Monitored parameter for which baseline information is being retrieved.

reason

Reason of baseline. The Reason of baseline includes the provisioned string from **SET-BASE-LINE-SUPR** command concatenated with the address of the entity which caused it.

EXAMPLE INPUT/OUTPUT

In the following example, the command returns baseline report for optical line 1E.

```
rtrv-baseline-supr:LT-400G:LINE-1E:314152::SPR-SU;



IP 314152

<



   LT-400G 98-10-26 17:12:31

M  314152 COMPLD

   "LINE-1E:SPR-SU:98-01-01 00-17:SUPVY_REPLACED"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-BASELINE-SUPR
SET-BASELINE-OLINE
RTRV-BASELINE-OLINE

RTRV-CID-SECU

RTRV-CID-SECU: Retrieve Channel_IDentifier Security

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-CID-SECU:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-CID-SECU** command can be initiated by users to retrieve the users currently logged on the network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This parameter specifies the port address for which the user wants to retrieve information.

Entity: Port (COM)
Legal Values: (ALL,CIT, OS-TCPIP, OS-OSI, DCN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-CID-SECU** request, the following normal completion response is returned:

```
    sid date time
 M  ctag COMPLD
    "aid:spec_block"


    .      .      .


    .      .      .


    .      .      .


    "aid:spec_block"
 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined below.

aid

The *aid* is a port address.

spec_block

Specific block. Parameters within the specific block are positionally independent and are using a construct such as: PARAMETER=*value* in a comma-separated list. The specific block may have zero or more of the following parameters set within it. A parameter will not be displayed if it has no value. Furthermore, each parameter listed below may appear at most once within the specific block.

TMOUT

This parameter sets the time out interval for the CIT, OS-TCP/IP and OS-OSI ports. It has an integer value in the range 0-999 minutes. A value of 0 disables the time out mechanism. TMOUT value is not provisionable for the DCN channels and they all have a null value.

CHAN

This parameter lists the logical channels (CIT(1-5), OS-TCPIP {1-16}, OS-OSI {1-8}, DCN{1-16}) associated with each of
the CIT, OS-TCP/IP, OS-OSI and DCN port addresses respectively.

UID

This parameter gives the user ID of the user currently logged in the system.

If no user is currently logged in at the time of the report, this parameter is reported as a 'blank'.

> UAP
> The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.
>
> Multiple FCALs are specified by using single ampersands **(&)**.
>
> Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).
>
> For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.
>
> The following are possible FCAL values:
>> **S[1-5]**
>>> For **S**ecurity Administration Authorization Level 1 through 5.
>> **P[0-5]**
>>> For **P**rovisioning Authorization Level 0 through 5.
>> **PM[0-5]**
>>> For **P**erformance **M**onitoring Authorization Level 0 through 5.
>> **M[0-5]**
>>> For **M**aintenance Authorization Level 0 through 5.
>> **T[0-5]**
>>> For **T**est Access Authorization Level 0 through 5.

The following example shows a **RTRV-CID-SECU** command for {ALL}:

```
RTRV-CID-SECU:LT-400G:ALL:123456;

IP 123456
<

   LT-400G 98-10-26 16:42:11
M  123456 COMPLD
   "CIT:TMOUT=30,CIT1,UID=PAT123,UAP=S3&P5&PM4&M5&T4"
   "CIT:TMOUT=30,CIT2"
   "CIT:TMOUT=30,CIT3"
   "CIT:TMOUT=30,CIT4"
   "CIT:TMOUT=30,CIT5"
   "OS-TCPIP:TMOUT=30,OS-TCPIP1,UID=LUC01,UAP=S5&P5&PM5&M5&T5"
   "OS-TCPIP:TMOUT=30,OS-TCPIP2,UID=LUC01,UAP=S5&P5&PM5&M5&T5"
   "OS-TCPIP:TMOUT=30,OS-TCPIP3,UID=LUC02,UAP=S5&P5&PM5&M5&T5"
   "OS-TCPIP:TMOUT=30,OS-TCPIP4,UID=TET123,UAP=S2&P5&PM4&M5&T4"
   "OS-TCPIP:TMOUT=30,OS-TCPIP5,UID=RAT123,UAP=S3&P4&PM3&M5&T1"
   "OS-TCPIP:TMOUT=30,OS-TCPIP6"
```

```
    "OS-TCPIP:TMOUT=30,OS-TCPIP7"
    "OS-TCPIP:TMOUT=30,OS-TCPIP8"
    "OS-TCPIP:TMOUT=30,OS-TCPIP9"
    "OS-TCPIP:TMOUT=30,OS-TCPIP10"
    "OS-TCPIP:TMOUT=30,OS-TCPIP11"
    "OS-TCPIP:TMOUT=30,OS-TCPIP12"
    "OS-TCPIP:TMOUT=30,OS-TCPIP13"
    "OS-TCPIP:TMOUT=30,OS-TCPIP14"
    "OS-TCPIP:TMOUT=30,OS-TCPIP15"
    "OS-TCPIP:TMOUT=30,OS-TCPIP16"
    "OS-OSI:TMOUT=30,OS-OSI1,UID=LUC01,UAP=S5&P5&PM5&M5&T5"
    "OS-OSI:TMOUT=30,OS-OSI2,UID=LUC02,UAP=S5&P5&PM5&M5&T5"
    "OS-OSI:TMOUT=30,OS-OSI3"
    "OS-OSI:TMOUT=30,OS-OSI4"
    "OS-OSI:TMOUT=30,OS-OSI5"
    "OS-OSI:TMOUT=30,OS-OSI6"
    "OS-OSI:TMOUT=30,OS-OSI7"
    "OS-OSI:TMOUT=30,OS-OSI8"
    "DCN:DCN1,UID=PET123,UAP=S3&P5&PM4&M5&T4"
    "DCN:DCN2,UID=add423,UAP=S2&P5&PM1&M5&T4"
    "DCN:DCN3,UID=xyz123,UAP=S3&P3&PM4&M5&T1"
    "DCN:DCN4,UID=cdf123,UAP=S1&P1&PM1&M1&T1"
    "DCN:DCN5"
    "DCN:DCN6"
    "DCN:DCN7"
    "DCN:DCN8"
    "DCN:DCN9"
    "DCN:DCN10"
    "DCN:DCN11"
    "DCN:DCN12"
    "DCN:DCN13"
    "DCN:DCN14"
    "DCN:DCN15"
    "DCN:DCN16"
  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the command is received with an invalid aid, the following error response is returned:

```
    sid date time
 M  ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
  ;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-COND-ALL

RTRV-COND-ALL: Retrieve Condition All

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-COND-ALL:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-COND-ALL** command can be initiated by an OS or OS users to retrieve the current state of the network element circuit pack slots and facilities. This command retrieves all active alarms and status ("non-alarmed" and "non-reported") conditions pertaining to the addressed network element, reported one line per condition, similar to the autonomous messages used to report alarm and non-alarmed conditions when they occur.

Conditions provisioned with an alarm level of NR (not reported) are included in the report.

If the *msg_format* parameter in ACT-USER is set to the value of **fixed**, all the retrieved active conditions for the remainder of that login session will be formatted according to the requirements for autonomous messages with the *msg_format* set to **fixed**. See ACT-USER for more details.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* for this command must be "ALL". Any value provided, including a null value (no value provided) will be accepted and interpreted as "ALL", and will not be cause for denying the command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there are no status conditions to report, the following message is returned to the OS:

```
    tid date time

M   ctag COMPLD

;
```

If there are alarm conditions to report, the following output report is returned to the OS:

```
    tid date time

M ctag COMPLD

"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper:\"conddescr\",,:

alarm_id"

  .         .         .         .         .         .         .

  .         .         .         .         .         .         .

  .         .         .         .         .         .         .

"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm,locn,dirn,tmper:\"conddescr\",,:

alarm_id"

;
```

Applicable output lines are ordered as follows:
1. By alarm severity level.
   For SONET: CR, MJ, followed by MN, NA, and NR.
   For SDH: PROMPT, followed by DEFERRED, NO_ALARM, and NO_REPORT.
2. For conditions with the same alarm severity, by the value of occurrence date (*ocrdat*), and occurrence time (*ocrtm*), with the most recent listed first.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the equipment component or facility for which a status condition is being reported.

ntfcncde

Notification code. This is the alarm level for which the current alarms are requested, and it shall have one of the values: "CR", "MJ", "MN", "NA", "NR", "PROMPT", "DEFERRED", "NO_ALARM", "NO_REPORT"

> **CR**
> > Critical Alarm(SONET)
>
> **MJ**
> > Major Alarm(SONET)
>
> **MN**
> > Minor Alarm(SONET)
>
> **NA**
> > Not Alarmed(SONET) - An autonomous/notification and an on-demand report shall be generated.
>
> **NR**
> > Not Reported(SONET) - An on-demand report shall be generated but no autonomous report shall be generated.
>
> **PROMPT**
> > Prompt(SDH) Alarm
>
> **DEFERRED**
> > Deferred(SDH) Alarm
>
> **NO_ALARM**
> > No Alarm(SDH) - An autonomous/notification and an on-demand report shall be generated.
>
> **NO_REPORT**
> > No Report(SDH) - An on-demand report shall be generated but no autonomous report shall be generated.

condtype

Condition Type. These are all of the active Alarm and Status Conditions in the Network Element. Clearing of these conditions is addressed in the Operation & Maintenance section of the User/Service Manual.

srveff

Service effect (or Condition effect). This indicates the effect of the reported condition on service. This parameter has one of the following values:

> **SA**
>> Service-affecting alarm condition.
>
> **NSA**
>> Non-service-affecting alarm or status condition.

ocrdat

Occurrence date. This indicates the date of the event being reported began. The format used is YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

ocrtm

Occurrence time. This indicates the time of the event being reported began and has the format HH-MM-SS (hours-minutes-seconds).

locn

Location. The location field will always be empty for the network element **RTRV-COND** responses.

dirn

Direction. The direction field will always be empty for the network element **RTRV-COND** responses.

tmper

Time period. The time period field will always be null for the network element **RTRV-COND** responses.

conddescr

alarm_id

Alarm identifier. This is the unique identifier of the reported condition. It is an alphanumeric string of no more than 23 characters. The list of possible alarm identifiers that can be output can be found in Appendix A of the PRD.

EXAMPLE INPUT/OUTPUT

```
rtrv-cond-all:OLS-400G:all:123456;
```

```
IP 123456

<


M  123456 COMPLD

   "LINE-1W:MJ,LOS,NSA,99-06-07,18-26-14,,:\"incoming optical line LOS\",,:

OLINELOS"

   "PORT-1-3-5:MJ,CTNEQPT,NSA,99-06-07,18-26-14,,:\"SUPVY drop output LOS\",,:

SUPVYDROPLOS"

   "PORT-1-1-3-IN1:MJ,CONTR,NSA,99-06-07,18-26-14,,:\"OTU failure\",,:

OTUCPF"

;
```

ERROR RESPONSES

Refer to the non-message-specific error responses listed in the **RTRV-HDRERROR RESPONSES** section.

RTRV-COND messages and a valid *ctag* is recognized, the network element responds with **all** active status conditions.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
   tid date time

M  ctag DENY

   IISP

   /* Input, Invalid Syntax or Punctuation */

;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-DAT

RTRV-DAT: Retrieve Date

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-DAT:*tid*::*ctag*;

DESCRIPTION

The **RTRV-DAT** command can be initiated by all users to retrieve the date and daylight savings time provisioning information.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When reporting the provisioning information report, the following output message is returned:

```
   sid date time
M  ctag COMPLD
   ":OPDDB:ONDDB"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

OPDDB

    `date`

Date. `date` reports the current day in YY-MM-DD (SONET) format. If the NE is provisioned to operate in an SDH environment, `date` reports the current day in DD-MM-YY format.

    `time`

Time. `time` reports the current time in HH-MM-SS format.

ONDDB

The *ONDDB* is a name defined block to report various attributes. The format will be *keyword1=value1,keyword2=value2*..... All applicable attributes to be reported are as follows:

    `tz`

Standard Time Zone. `tz` reports the time zone designation during standard time. For example, EST.

    `strtdst`

Start Daylight Savings Time. `strtdst` is the date on which the one hour increment in the system time is to occur.

    `stopdst`

Stop Daylight Savings Time. `stopdst` is the date on which one hour decrement in system time is to occur.

    `dstz`

Daylight Savings Time Zone. `dstz` reports the time zone designation during daylight savings time. For example, EDT.

EXAMPLE OUTPUT

The following example shows a command **RTRV-DAT** for a network element.

```
rtrv-dat:OLS-400G::CTAG;IP 123456
<

   OLS-400G 98-06-06 16:42:11
   M  CTAG COMPLD
   ":98-06-06,16-42-11:TZ=EST,STRTDST=04-29,STOPDST=10-27,DSTZ=EDT"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ED-DAT

RTRV-EQPT

RTRV-EQPT: Retrieve Equipment

The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-EQPT:tid:aid:ctag;

DESCRIPTION

The **RTRV-EQPT** command is issued to the network element to retrieve the circuit pack and version number information for one or more slots.

When the network element receives a **RTRV-EQPT** command from the user, the network element will display the circuit pack and version number information for the requested slot(s).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Entity: Slot
Legal Values: SLOT-(ALL), SLOT-(1-12)-(ALL), SLOT-(1-12)-(1-3)-(ALL),
SLOT-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-EQPT** command, the following output report is returned to the user.

```
    sid date time

M   ctag COMPLD

    "aid::spec_block"

    .         .         .

    .         .         .

    "aid::spec_block"

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This is the address of the bay, shelf and slot for which equipage is being reported.

spec_block

Specific block. This parameter field is used for returning the current equipage information for the slot. Parameters within the specific block are positionally independent and are specified using a name defined construct of: PARAMETER=*value* in a comma-separated list. The parameters are listed and explained in the following paragraphs.

If a parameter does not contain any information, the parameter and its field indicator (a comma) will not appear in the spec_block.

It should be noted, however, that the network elements will return the parameter within the *spec_block* in the following order:

TYPE, APP, SSN, CLEI, ECI, SLN, and BRV.

TYPE

Circuit pack type. This is the mnemonic name that identifies the general type function provided by the circuit pack. For example, Optical Translator Unit 1 circuit packs are all named OTU1.

APP

Apparatus code. This parameter uniquely identifies the specific function provided by the circuit pack. Circuit packs with different APP are not interchangeable, even if they have the same name.

SSN

Series number. This parameter is used to indicate interchangeability among the circuit packs with the same circuit pack type and apparatus code, but different manufacturing versions. In general, a circuit pack can be replaced by another pack that has the same apparatus code and the same or later series number.

Note that the series number normally includes a colon (:). Since the colon is used as a TL1 field separator, a dash (-) is used instead.

CLEI

Common Language Equipment Identifier. [* *COMMON LANGUAGE is a registered trademark and CLEI, CLLI, and CLFI are trademarks of Bell Communication Research, Inc.*] This parameter is a 10-character code identifying each circuit pack.

ECI

Equipment catalog item. This parameter is a 6-character code identifying each circuit pack. This code corresponds to the bar-code label on the faceplate of the circuit pack, and is uniquely equivalent to CLEI.

SLN

Serial number. This parameter is a 12-character code uniquely identifying each circuit pack and indicating the date and place of manufacture.

BRV

Boot ROM version. This parameter is a 5-character code that identifies the Boot ROM version for the BOS circuit packs and the transmission circuit packs (OA, OMON, OTU, SUPVY, WAD, OMU, ODU, WDU, WMU). The first three characters identify if the Boot ROM is for the BOS or the transmission circuit pack and the last two characters identify the version number. For example, **BOS20** would indicate BOS Boot ROM version 2.0 and **BDC10** would indicate transmission Boot ROM version 1.0. For circuit packs without a Boot ROM, the 5-character code **NOROM** shall be displayed.

Boot ROM version. This parameter is a 5-character code that identifies the Boot ROM version for the BOS circuit packs and the transmission circuit packs (OA, OMON, OTU, SUPVY, WAD, OMU, ODU). The first three characters identify if the Boot ROM is for the BOS or the transmission circuit pack and the last two characters identify the version number. For example, **BOS20** would indicate BOS Boot ROM version 2.0 and **BDC10** would indicate transmission Boot ROM version 1.0. For circuit packs without a Boot ROM, the 5-character code **NOROM**

shall be displayed.

The network element will report slots specified in the **RTRV-EQPT** command if they contain circuit packs. Slots that do not contain circuit packs will not be reported.

The network element will successfully complete the **RTRV-EQPT** command and return a COMPLD even if none of the slots pointed to by the *aid* is reported.

The program version information is reported whenever the report includes information on the BOS1 circuit pack serving as the system controller. This information appears in three separate lines in the report, immediately below the line showing the BOS1 circuit pack serving as the system controller. Each line begins with two colons as shown in the example. The first line shows the version in volatile memory (volatile_sw_vrsn). The second line shows the version in the active partition of non-volatile memory (active_non-volatile_sw_vrsn). The third line shows the version in the inactive partition of non-volatile memory (inactive_non-volatile_sw_vrsn).

If the circuit pack in a reported slot is of an unknown type the TYPE field will not appear and the CLEI field for that slot is set to installed_CP_unknown_*(info)*, where *info* field contains any information available on the installed CP in the order of CP type, apparatus code, series number and serial number respectively separated by commas. If any one of these pieces of information is unavailable a dash is reported in its place.

EXAMPLE INPUT/OUTPUT

The following WaveStar OLS 1.6T example requests the equipage information for all of the slots in Shelf 2 of Bay 1 of a Network Element configured as a 2 Fiber Ring Terminal (Full Add/Drop).

```
RTRV-EQPT:LT-400G:SLOT-1-2-ALL:123456;


IP 123456

<


   LT-400G 98-10-26 16:42:11

M  123456 COMPLD

   "SLOT-1-2-1::TYPE=OTU1,APP=WSNB11,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BDC

   "SLOT-1-2-2::TYPE=OTU1,APP=WSNB12,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BDC

   "SLOT-1-2-3::TYPE=OTU1,APP=WSNB14,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BDC

   "SLOT-1-2-4::TYPE=OTU1,APP=WSNB15,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BDC

   "SLOT-1-2-5::TYPE=OMON1,APP=WSA020,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BD
```

```
    "SLOT-1-2-7::TYPE=SUPVY1,APP=WSA010,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=B

    "SLOT-1-2-8::TYPE=BOS1,APP=WSA001,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BOS

    "SLOT-1-2-10::TYPE=BOS1,APP=WSA001,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=BO

    "::VOLATILE_SW_VRSN=1.6T_RELEASE_x.y.z-1600"

    "::ACTIVE_NON-VOLATILE_SW_VRSN=1.6T_RELEASE_x.y.z-1600"

    "::INACTIVE_NON-VOLATILE_SW_VRSN=1.6T_RELEASE_x.y.z-1600"

    "SLOT-1-2-12::TYPE=EI1,APP=WSM001,SSN=12345,CLEI=1234567890,ECI=123456,SLN=123456789012,BRV=NOR
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The requirements listed there also apply to
the **RTRV-EQPT** command.

If the network element receives a **RTRV-EQPT** command without an *aid* or with an invalid *aid* the
following error response is returned to the user:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element receives a **RTRV-EQPT** command while a system controller reset is in
progress, then the following error response is returned to the user:

```
    sid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, controller reset in progress */

;
```

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-HDR

RTRV-HDR: Retrieve Header

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-HDR:*tid*::*ctag*;

DESCRIPTION

RTRV-HDR commands can be initiated to request that the network element return a normal completion response.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

All position defined parameters (for example, tid and ctag) may be specified by a name=value format, or, as a value only. Therefore, **RTRV-HDR:LT-PF-2000::123;** and
RTRV-HDR:TID=LT-PF-2000::CTAG=123; and
RTRV-HDR:TID=LT-PF-2000::123; and
RTRV-HDR:LT-PF-2000::CTAG=123; are equivalent.

OUTPUT FORMAT

After receiving this command, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

sid

Source identifier (or Target identifier, *tid*). This is the system name.

date

Date output message is generated. This has the format YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment.

time

Time output message is generated. This has the format HH:MM:SS (hours:minutes:seconds).

`M`

This indicates the output message is generated in response to a manual command.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

`COMPLD`

This indicates that the command has been completed.

EXAMPLE INPUT/OUTPUT

```
RTRV-HDR:LT-400G::123456;
```

```
   LT-400G 99-10-26 16:42:11
```

```
M  123456 COMPLD

;
```

ERROR RESPONSES

The following error conditions are not unique to the **RTRV-HDR** command but may apply to any TL1 command received by the network element.

If network element receives a command, but cannot parse the command for at least 3 colons (`:`) before the TL1 end-of-message semicolon (`;`), instead of returning an in-progress (`IP`) acknowledgement, the following error response is returned, using the *sid* value of the Gateway Network Element:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If network element receives a command, but can parse the command for more than the maximum number of colons (`:`) allowed for any supported TL1 command before the TL1 end-of-message semi-colon (`;`), instead of returning an in-progress (`IP`) acknowledgement, the following error response is returned, using the *sid* value of the addressed network element:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If a GNE receives a command for which a *tid* value (non-null) is *required* but no *tid* value is included, instead of returning an in-progress (`IP`) acknowledgement, the following error response is returned, using the *sid* value of the GNE:

```
        sid date time

M   ctag DENY

    ICNV

    /* Input, Command Not Valid, TID must be specified */

;
```

If a GNE receives a command with a syntactically incorrect *tid* value, instead of returning an in-progress (IP) acknowledgement, the following error response is returned, using the *sid* value of the GNE:

```
        sid date time

M   ctag DENY

    IITA

    /* Invalid TID, unallowed characters or too long */

;
```

If the network element with the indicated *tid* is not reachable, the following error message is returned with the *tid* value of the addressed network element:

```
        sid date time

M   ctag DENY

    IITA

    /* Input, Invalid Target identifier, destination TID not reachable */

;
```

If the network element receives a command but cannot recognize a valid *ctag* value, instead of returning an in-progress (IP) acknowledgement, the following error response is returned, using the *sid* value of the addressed network element:

```
    sid date time

M  0 DENY

    IICT

    /* Input, Invalid Correlation Tag (CTAG) */

;
```

If a network element receives a TL1 command other than those supported, the following error response is returned, using the *sid* value of the addressed network element:

```
    sid date time

M  ctag DENY

    ICNV

    /* Input, Command Not Valid, Network Element does not support

        Command = xxxxxxxxxxxxxxxx */

;
```

where *xxxxxxxxxxxxxxxx* is the first 16 characters of the command received (up to, but excluding, the first colon [**:**], semicolon [**;**], or null [end of message indicator]).

When the TL1 security feature is enabled, if the network element receives a command requiring a privilege higher than that of the user issuing the command, the following error response is returned, using the *sid* value of the addressed network element:

```
    sid date time

M  ctag DENY

    PICC

    /* Privilege, Illegal Command Code */

;
```

If the network element receives any TL1 command for which it is unable to complete the request due to internal system processing problems, the following error response is returned, using the *sid* value of the addressed network element:

```
    sid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed */

;
```

If the network element receives a command with more than 256 characters, the following error response is returned:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If the network element strips out white space characters from all input commands before beginning to parse that command, it is acceptable if it applies the limit of 256 characters in a command after stripping out the white space characters.

With the exception of extra "trailing" punctuation (discussed below), if a network element receives a command with any extra characters not specified in the command-specific input format, or if a command with a name-defined parameter block includes an invalid or repeated parameter *name* label, the following error response is returned:

```
    sid date time

M   ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

In a position defined parameter block, trailing punctuation is one or more consecutive comma (,) characters placed after the last active parameter in the block. These comma characters are not required to establish the position of the last active parameter and are optional. The network element shall therefore not require these comma characters even if their presence is implied as "required" by the input format syntax for the command (i.e. - the commas are not shown as optional enclosed in brackets).

The network element shall ignore extra commas in a position defined parameter block beyond those shown in the input format syntax for the command.

Extra parameter blocks in the network element input that are not specified in the command-specific input format shall be interpreted as position defined parameter blocks. Strings of one or more consecutive comma (,) characters, if they exist in these blocks, are subject to the requirements above. Any characters other than the comma (,) character in these extra parameter blocks shall be deemed an error condition.

The position defined parameter block may be terminated by either a colon (:) character to denote the start of another parameter block or by the semicolon command terminator (;) to denote the end of the command.

In a name defined parameter block, extra comma (,) characters are not permitted. If a comma character is used in the block, it must be followed by the name= or name=value structure of a name defined parameter. The network element shall not require extra comma characters within the block even if their presence is implied as "required" by the input format syntax for the command (i.e. - the commas are not shown as optional enclosed in brackets).

The name defined parameter block may be terminated by either a colon (:) character to denote the start of another parameter block or by a semicolon (;) command terminator to denote the end of the command. Note that this means that the name defined parameter block must be terminated with a colon character before "extra" trailing commas are permitted - and ignored by the network element.

Trailing punctuation also includes one or more colon (:) characters immediately preceding the semicolon command terminator (;). The network element shall not require the colon (:) characters after the last active parameter in the input received even if their presence is implied as "required" by the input format syntax for the command (i.e. - the colons are not shown as optional enclosed in brackets).

Trailing punctuation is the only character string that may be inputted beyond the command specific input format without yielding the error response above. By TL1 custom, extra "trailing" punctuation prior to the termination character is optional and shall not cause the command to be denied.

When the network element receives a command with a name-defined parameter block and the value of the name-defined parameter is a string that is to be delimited by a pair of delimiters \" [that is, backslash followed by a quote] , and if one of the delimiters is missing, the following error response is returned:

```
    sid date time

M   ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

NOTE: For example the following name-defined paramter block is acceptable: EXPSEC-TRC=\"ExptSectTrc1234\". The following name-defined parameter blocks will result in the error response above: EXPSECTRC=\"ExptSectTrc1234 or EXPSECTRC=ExptSectTrc1234\".

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-LOG

RTRV-LOG: Retrieve Log The User Privilege Code (UPC) for this command is Security Level 1 (S1). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-LOG:*tid*::*ctag*;

DESCRIPTION

The **RTRV-LOG** command can be initiated by users to download the contents of a history log for the NE. This report contains up to 500 of the most recent events. Events include the start and end of alarm and status conditions, and all input activities that affect or would affect the state of the network element, successfully completed or denied.

The history log displays the events in last in-first out order, and each event is time stamped. If the *msg_format* parameter in ACT-USER is set to the value of **fixed**, all the retrieved events for the remainder of that login session will be formatted according to the requirements for autonomous messages with the *msg_format* set to **fixed**. See ACT-USER for more details.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the command is accepted, the following output message is returned:

```
   sid date time
M  ctag COMPLD
   "aid:opdpb"
   "aid:opdpb"
   .       .
   .       .
   .       .
   "aid:opdpb"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

aid

The *aid* is a source identifier. For user initiated commands the value is UID and for all other conditions the value is the source address of the event.

opdpb

The *OPDPB* is a position defined parameter block to report various attributes. The format will be *value1,value2.....* All applicable attributes are reported.

The actual attributes reported are:

date

This is the date on which the event occurred. The format used is YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment. Normally the events are displayed in order of date/time-stamp with the most recent event being displayed first and the oldest being displayed last. If the system clock is reset, however the date and time stamps may be displayed in monotonically decreasing order.

time

This is the time at which the event occurred. The format used is HH-MM-SS.

almlvl

This is the alarm level of the system immediately after the event. It takes one of the following values: "CR", "MJ", "MN", "NA", "NR", "PROMPT", "DEFERRED", "NO_ALARM", "NO_REPORT".

CR

Critical alarm (SONET)

MJ

Major alarm (SONET)

MN

Minor alarm (SONET)

NA

Not alarmed (SONET)

NR

Not reported (SONET)

PROMPT

Prompt alarm (SDH)

DEFERRED

Deferred alarm (SDH)

NO_ALARM

No alarm (SDH)

NO_REPORT

No report (SDH)

The alarm level reported is not necessarily related to the event or condition described in the report entry. The alarm level reported is the highest alarm level active in the system when the condition is reported. The intention of the information in the history log is to give a system level record of events.

However, the alarm level reported for each condition listed in the Retrieve-Alarm output report is the alarm level associated with that particular condition. The intention of the information in the Retrieve-Alarm output report is to report the severity of EACH active condition so that intelligent priority calls can be made in those circumstances when multiple conditions are active.

evt_desc

This is a brief event description. The description must be enclosed using delimiters. The delimiter to be used is **_dblslash_"** (that is, backslash followed by double-quotes).

alarm_id

Alarm identifier. This is the unique identifier of the reported condition or event. The clearing of a condition shall have the same alarm_id as that of the onset of the condition. It is an alphanumeric string of no more than 23 characters. The list of possible alarm identifiers that can be output can be found in Appendix A of the PRD.

EXAMPLE OUTPUT

The following example shows a command **RTRV-LOG** for a WaveStar network element.

```
rtrv-log:OLS-400G::123456;


IP 123456
<

    OLS-400G 93-10-26 16:42:11
M   123456 COMPLD
    "SYSTEM:93-01-01,00-06-20,MJ,\"INITSWD:IP (In Progress)\",INITSWDIP"
    "SYSTEM:93-01-01,00-05-40,MJ,\"INITSWD:IP-cleared\",INITSWDIP"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

None

RTRV-MAP-NEIGHBOR

RTRV-MAP-NEIGHBOR: Retrieve Map Neighbor

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 5.0.

INPUT FORMAT

RTRV-MAP-NEIGHBOR:tid::ctag;

DESCRIPTION

The **RTRV-MAP-NEIGHBOR** command generates a report listing all network elements that are connected to the local network element by direct Fixed Supervisory Data Links.

This command is provided to allow network topology auto-discovery by an Operations System in those cases where the ring map is not available (incomplete ring, topology hasn't finished, etc.).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-MAP-NEIGHBOR** command, the following output report is returned to the user.

```
    sid date time

 M  ctag COMPLD

    "spec_block"

    .       .       .       .       .       .       .

    .       .       .       .       .       .       .

    "spec_block"

 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

spec_block

Specific block. This parameter field is used for returning the neighbor information of the local network element. Parameters within the specific block are positionally independent and are specified using a name defined construct of: PARAMETER=*value* in a comma separated list. The parameters are listed and explained below.

It should be noted, however, that the network element will return the parameters within the *spec_block* in the following order: **TID, NETYPE, FBRCONN, RINGID, NSAP**.

TID

This is the target identifier of the neighboring network element. Refer to the **RTRV-HDR INPUT PARAMETERS** section. The character set requirements for *tid* listed there apply to the **TID** also. The **TID** is provisioned by the TL1 command **ENT-SYS**.

NETYPE

Please see the description for NETYPE parameter in ENT_SYS command page.

FBRCONN

Fiber Connection. This field can have the following values: 1E_1E, 1E_1W, 1W_1E, 1W_1W, or -.

FBRCONN indicates how each line of the local network element is connected to the neighbor indicated by TID. The first two characters indicate which line of the local network element connects to the neighbor. The last two characters indicate to which line of the neighbor is connected to the local network element.

RINGID

Ring Identification. This field can have the values of A or B in 4 fiber systems and has the value A in 2 fiber systems. **RINGID** indicates which logical ring the entry in the report belongs to. It is used to distinguish between the logical ring involving one line and the logical ring involving the other line in 4 fiber systems. Usually, these two logical rings have the same topology differing only in the line numbers associated with each **RINGID**.

NSAP

This is the OSI network address of the neighboring network element.

> The **RTRV-MAP-NEIGHBOR** report lists the neighbor data for each Fixed Supervisory Data Link as a single entry in the report. For 2 fiber systems, the report lists one line for End Terminals and two lines for other network element types. For 4 fiber systems, the report lists two lines for End Terminals and four lines for other network element types.
>
> Neighbor information must always be displayed if it was known at some time (that is, since the last reset of the local network element). The most recent neighbor information should be displayed if there is a failure on the Fixed Supervisory Data Link to a particular neighbor. Spec Bock fields should be reported with a value of "-" ("dash") if the local netowrk element hasn't been able to determine its neighbor information (for example, SUPVY circuit packs haven't compeled a booting after a reset).
>
> The output report is ordered by optical line and direction in the order: 1E, 1W, 2E, 2W where a given line is omitted if it's not present in the local network element.

EXAMPLE OUTPUT

The following example requests the neighbor information for a **2 fiber repeater** network element.

```
rtrv-map-neighbor:barney::123456;
```

```
IP 123456

<


   BARNEY 00-05-24 12:34:25

M  123456 COMPLD

   "TID=FRED,NETYPE=2F_END_80_800G,FBRCONN=1E_1E,RINGID=A,
```

```
NSAP=1339084080000000000000000000000008006a7c5988"

    "TID=THELMA,NETYPE=2F_RPTR,FBRCONN=1W_1E,RINGID=A,

NSAP=1339084080000000000000000000000008006a4352bb"

 ;
```

The following example requests the neighbor information for a **2 fiber end terminal** network element.

```
rtrv-map-neighbor:barney::123456;
```

```
IP 123456

<


    BARNEY 00-05-24 12:34:25

M  123456 COMPLD

    "TID=FRED,NETYPE=2F_RPTR,FBRCONN=1E_1W,RINGID=A,

NSAP=1339084080000000000000000000000008006a654312"

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-MAP-NEIGHBOR** with an otherwise valid set of input parameter values but the command could not be completed by the network element, the following error response is returned to the user:

```
    sid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-MAP-RING

RTRV-NE-SECU

RTRV-NE-SECU: Retrieve Network_Element Security

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-NE-SECU:*tid*::*ctag*;

DESCRIPTION

The **RTRV-NE-SECU** command can be initiated by users to retrieve network element global security parameters. The user can determine whether non-Super user logins are allowed, whether the login aging interval is set and its value, user ID lockout threshold (that is, the maximum number of unsuccessful login attempts that is allowed before the user ID is being lockout for the duration specified in the user ID lockout period and the intrusion alert is generated for each of its occurence) and user ID lockout period.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is provisioned security information to report, the following output message is returned:

```
    sid date time

M  ctag COMPLD

    ":,:ONDPB"

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

ONDPB

The *ONDPB* is a name defined parameter block to report various attributes. The format will be *keyword1=value1,keyword2=value2.....* All applicable attributes are reported.

alw_uid
Allow user ID. This parameter shows whether or not non-Super logins are allowed to login or not. Super user logins are always allowed. This parameter can take one of the values: "YES", or "NO".

uout
User ID aging interval. This parameter shows the period in days during which each non-Super user should login at least once to retain the login. It can take a value between 1 and 999 days, or 0. The value 0 indicates that the login aging mechanism is disabled.

mxinv
> User Id Lockout Threshold - This parameter sets the number of sequential attempts the user is allowed before being locked out for the period set by the DURAL parameter. The range is 2 to 99.

dural
> User Id Lockout Period. This parameter sets the number of minutes a user will be locked out after exceeding the allowed number of invalid sequential attempts. The range for this parameter is 0 to 99 minutes. Setting this parameter to 0 eliminates the lockout period.

EXAMPLE OUTPUT

```
rtrv-ne-secu:LT-400G::123456;
```

```
IP 123456

<


   LT-400G 1999-03-22 16:12:12

M  123456 COMPLD

   ":,:ALW_UID=Yes,UOUT=90,MXINV=3,DURAL=15"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-NE-SECU

RTRV-NIS-IND

RTRV-NIS-IND: Retrieve Not In Service Indication

The User Privilege Code (UPC) for this command is Maintenance Level (M1).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

RTRV-NIS-IND:*tid*::*ctag*;

DESCRIPTION

The **RTRV-NIS-IND** command can be initiated by users to retrieve the aids for the slots that hold the circuit packs whose ACTIVE LED has been forced to the OFF condition to indicate that the circuit pack is not in service and that it may be removed without causing traffic interruptions.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with the **RTRV-NIS-IND** request, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

    "aid"
```

```
   "aid"

     .

     .

     .

   "aid"

;
```

where the aids are listed in order of the slots.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

EXAMPLE INPUT/OUTPUT

The following example shows a **RTRV-NIS-IND** command for a WaveStar OLS 1.6T system where the ACTIVE LED on an OTU in Bay 1, Shelf 2, Slot 3 of a 2 Fiber End Terminal known as OLS-400G has been placed in the OFF condition to indicate there is no traffic being carried through that OTU:

```
RTRV-NIS-IND:OLS-400G::123456;



IP 123456

<

   OLS-400G 98-06-06 16:42:11

M  123456 COMPLD

   "SLOT-1-2-3"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply
to this command.

RELATED TL1 COMMANDS/MESSAGES

OPR-NIS-IND
RLS-NIS-IND

RTRV-OCHTRC

RTRV-OCHTRC Retrieve Optical Channel Trace

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

RTRV-OCHTRC:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-OCHTRC**command retrieves the transmitted, incoming and expected optical channel path trace. The incoming optical channel path trace is composed of the OJ3 bytes from the WaveWrapper overhead.

The transmitted optical channel path trace is utilized only by an OTU operating in OCh Source Mode (defined below). The expected received optical channel path trace is utilized only at an OTU operating in either OCh Repeater Mode or OCh Sink Mode (defined below). The operating mode of an OTU is controlled by the ENT-OTPS command. When a trace is addressed to an OTU that cannot currently utilize it, it may be stored for later use if and when the operating mode of that OTU is changed to a mode where it can utilize that trace.

OCh Source Mode: In this mode the client signal is wrapped in the OCh-OH creating a WaveWrapper formatted signal for transport between OLS 1.6T network elements. At this point the transmitted OCh Trace is inserted.

OCh Repeater Mode: In this mode the WaveWrapper is regenerated without altering the client signal. Non Intrusive Monitoring is performed. Here the OCh Trace is monitored and, if stable, compared with the provisioned expected value. A WaveWrapper Path Trace Mismatch is alarmed and reported if they do not match, but no consequent action occurs.

OCh Sink Mode: In this mode the WaveWrapper wrapper is removed and the client signal is output. Here the OCh Trace is monitored and, if stable, compared with the provisioned expected value. A WaveWrapper Path Trace Mismatch is alarmed and reported if they do not match. If consequent action is enabled, then the OTU's laser will be turned off upon detection of this alarm condition.

Stability of the incoming OCh Trace is defined in "Data Format and Generic Processing for OCh Basic Requirements" (420.200.10).

This command retrieves optical channel path trace information pertaining to the addressed path terminating entity in a line-by-line format.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Port (OTU IN and OUT)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is optical channel path trace information to report, the following output message is returned:

```
    sid date time
M   ctag COMPLD

"aid:::STATUS=x,XMPOH=\"xxxxxxxxxxxxxx\",INCPOH=\"xxxxxxxxxxxxxx\",
EXPPOH=\"xxxxxxxxxxxxxx\""
     .      .       .        .        .        .       .        .
     .      .       .        .        .        .       .        .
     .      .       .        .        .        .       .        .

"aid:::STATUS=x,XMPOH=\"xxxxxxxxxxxxxx\",INCPOH=\"xxxxxxxxxxxxxx\",
EXPPOH=\"xxxxxxxxxxxxxx\""
 ;
```

Line brakes are not part of TL1 message

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the signal for which the optical channel path trace is to be retrieved.

status

Optical Channel Path Trace Status. This is a status report of the incoming optical channel path trace. The status of **RTRV_OCHTRC** messages can take one of the following values:

GOOD
> Good. This indicates that INCPOH is stable and that the INCPOH and the EXPPOH match.

MISMATCH
> Mismatch. This indicates that INCPOH is stable but that the INCPOH and the EXPPOH do not match.

UNAVAILABLE
> Unavailable. This indicates that there is no INCPOH because there has been either control system failures or loss of signal (LOS), incoming OCh LOF, loss of clock (LOC), the addressed slot is empty, INCPOH is not stable, or device problems at the OTU.

NOTSUPPORTED
> Not Supported. This indicates that the INCPOH and the EXPPOH are not supported by the addressed entity. This could be caused by the command being addressed to an entity that does not support WaveWrapper, or the entity does not support optical channel path trace, or the input AID is not supported for the OTU of the addressed slot, (e.g. AID IN1 is valid but not supported for 10G MUX OTU), or if the command is addressed to an OTU operating in OCh Source mode.

8:1 GbE MUX OTU does not support optical channel path trace. Thus, the **NOTSUP-PORTED** status shall be returned for an addressed slot containing 8:1 GbE MUX OTU.

The *status* will be calculated over the full 15 characters in INCPOH and EXPPOH, prior to truncation of any trailing 0x00 bytes or substitution of question marks for non-trailing 0x00 bytes, as described below.

xmpoh

Transmitted optical channel path trace message. This indicates the transmitted optical channel path trace content. The XMPOH is a string of 15 ASCII characters transmitted in the optical channel path trace bytes (OJ3) of the WaveWrapper signal.

Any trailing 0x00 bytes in value of XMPOH will be truncated from the reported value returned by **RTRV_OCHTRC**. Such trailing 0x00 bytes occur as a result of padding to 15 characters a transmitted optical channel path trace entered by **ENT_OCHTRC** that was less than 15 characters .

If the addressed OTU currently is operating in OCh Repeater or OCh Sink Mode, the value of XMPOH returned will be the stored value that would be used if the OTU operating mode is changed to OCh Source via the **ENT-OTPS** command. If no value has been stored, the original value is reported.

incpoh

Incoming optical channel path trace message. This indicates the incoming optical channel path trace content. The INCPOH is a string of 15 ASCII characters received in the optical channel path trace bytes (OJ3) of the WaveWrapper signal.

If the STATUS is UNAVAILABLE or NOTSUPPORTED, 15 question marks ("?") are reported for the INCPOH.

The optical channel path trace is unavailable when there has been a path interruption.

Any trailing 0x00 bytes in value of INCPOH will be truncated from the reported value returned by **RTRV_OCHTRC**. Such trailing 0x00 bytes occur as a result of padding to 15 characters a transmitted optical channel path trace entered by **ENT_OCHTRC** that was less than 15 characters .

Any non-trailing 0x00 bytes within INCPOH will be reported as a question mark ("?"), one question mark per 0x00 byte, in the reported value returned by **RTRV_OCHTRC**. Such non-trailing 0x00 bytes may occur as a result of transmission errors between the OCh Source and the addressed entity.

If the INCPOH contains non-printable characters, the non-printable characters will be reported as question marks ("?"). The original value of the optical channel path trace is the 15-byte text string "RESET-OCH-TRACE".

exppoh

Expected incoming optical channel path trace message. This indicates the expected optical channel path trace content. The EXPPOH is a string of the first 15 ASCII characters expected to be received in the optical channel path trace bytes (OJ3) of the WaveWrapper signal.

The EXPPOH is a string of the first 15 ASCII characters expected to be received in the optical channel path trace bytes (OJ3) of the WaveWrapper signal.

If there are invalid characters in EXPPOH, the status will be set to MISMATCH.

Any trailing 0x00 bytes in value of EXPPOH will be truncated from the reported value returned by **RTRV_OCHTRC**. Such trailing 0x00 bytes occur as a result of padding to 15 characters an expected optical channel path trace entered by **ENT_OCHTRC** that was less than 15 characters .

If the addressed OTU currently is operating in OCh Source Mode, the value of EXPPOH returned will be the stored value that would be used if the OTU operating mode is changed to OCh Repeater or OCh Sink via the **ENT-OTPS** command. If no value has been stored, the original value is reported.

The ASCII characters allowed for the optical channel path trace are letters:

Graphic Symbol	Name	Coded Representation
0-9	Digits	3/0 - 3/9
A-Z	Latin capital letters	4/1 - 5/10
a-z	Latin small letters	6/1 - 7/10
!	Exclamation mark	2/1
"	Quotation mark	2/2
#	Number sign	2/3
$	Dollar sign	2/4
%	Percent sign	2/5
&	Ampersand	2/6
'	Apostrophe	2/7
(	Left parenthesis	2/8
)	Right parenthesis	2/9
*	Asterik	2/10
+	Plus sign	2/11
,	Comma	2/12
-	Hyphen, minus sign	2/13
.	Full stop	2/14
/	Solidus	2/15
:	Colon	3/10
;	Semicolon	3/11
<	Less-than-sign	3/12
=	Equals sign	3/13
>	Greater-than-sign	3/14
?	Question mark	3/15
@	Commercial at	4/0
[	Left square bracket	5/11
\	Reverse solidus	5/12
]	Right square bracket	5/13

^	Circumflex accent	5/14
_	Low line, underline	5/15
'	Grave accent	6/0
{	Left curly bracket	7/11
|	vertical line	7/12
}	Right curly bracket	7/13
~	Tilde	7/14
	<SPACE>	2/0

These are the valid characters. The coded representation is the 7 bit hex representation as specified by the CCITT Recommendation T.50 (09/92) International Reference Alphabet.

Each one of the 15 characters of the optical channel path trace has a 7 bit representation. It is the same as the format for the J0 section trace described by the ITU Recommendation T.50 standard. Any character whose 7 bit representation does not correspond to one of the allowed characters in the trace messages will be mapped to question mark ("?") in the output.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query addressed to all OTU IN ports in Bay 1, shelf 2 ("PORT-1-2-ALL") of a network element configured as a 2-Fiber Ring Terminal (Full Add/Drop), configured for 80 channels. The shelf has four slots for OTU circuit packs. Note that in this example:

- The OTU in slot 1-2-3 does not support WaveWrapper.
- The OTU in slot 1-2-4 is operating in OCh Source mode, and **EXPPOH** has not been changed from its original value.
- The OTU in slot 1-2-5 is *not* operating in OCh Source mode. **XMPOH** for the IN1 port has not been changed from its original value, but **XMPOH** for the IN2 port has been changed.
- The trace on Port PORT-1-2-5-IN2 contained trailing 0x00 pad bytes, which are suppressed in the response.
- The trace on Port PORT-1-2-6-IN1 also should have contained trailing 0x00 pad bytes, but a transmission error between the OCh source and the addressed entity caused the last byte to be received as "q" instead of 0x00. The remaining 0x00 bytes in INCPOH are now non-trailing and are displayed as "?".
- The input to Port PORT-1-2-6-IN2 is experiencing a section interruption.

```
rtrv-ochtrc:LT-400G:PORT-1-2-ALL:789012;
IP 789012
<
   LT-400G 99-10-26 16:42:11
M  789012 COMPLD
   "PORT-1-2-3-IN1:::STATUS=NOTSUPPORTED,XMPOH=\"?????????????\",
```

```
    INCPOH=\"??????????????\",EXPPOH=\"??????????????\"
        "PORT-1-2-3-IN2:::STATUS=NOTSUPPORTED,XMPOH=\"??????????????\",
    INCPOH=\"??????????????\",EXPPOH=\"??????????????\"
        "PORT-1-2-3-IN:::STATUS=NOTSUPPORTED,XMPOH=\"??????????????\",
    INCPOH=\"??????????????\",EXPPOH=\"??????????????\"
        "PORT-1-2-4-IN1:::STATUS=NOTSUPPORTED,XMPOH=\"TRACE0123456789\",
    INCPOH=\"??????????????\",EXPPOH=\"RESET-OCH-TRACE\"
        "PORT-1-2-4-IN2:::STATUS=NOTSUPPORTED,XMPOH=\"TRACE1234567890\",
    INCPOH=\"??????????????\",EXPPOH=\"RESET-OCH-TRACE\"
      "PORT-1-2-4-IN:::STATUS=NOTSUPPORTED,XMPOH=\"TRACE1234567890\",
    INCPOH=\"??????????????\",EXPPOH=\"RESET-OCH-TRACE\"
        "PORT-1-2-5-IN1:::STATUS=GOOD,XMPOH=\"RESET-OCH-TRACE\",
    INCPOH=\"TRACE2345678901\",EXPPOH=\"TRACE2345678901\"
        "PORT-1-2-5-IN2:::STATUS=GOOD,XMPOH=\"SHORT-XM-TRACE\",
    INCPOH=\"SHORT-TRACE\",EXPPOH=\"SHORT-TRACE\"
        "PORT-1-2-5-IN:::STATUS=GOOD,XMPOH=\"SHORT-XM-TRACE\",
    INCPOH=\"SHORT-TRACE\",EXPPOH=\"SHORT-TRACE\"
        "PORT-1-2-6-IN1:::STATUS=MISMATCH,XMPOH=\"RESET-OCH-TRACE\",
    INCPOH=\"SHORT-TRACE???q\",EXPPOH=\"SHORT-TRACE\"
        "PORT-1-2-6-IN2:::STATUS=UNAVAILABLE,XMPOH=\"RESET-OCH-TRACE\",
    INCPOH=\"??????????????\",EXPPOH=\"TRACE3456789012\"
        "PORT-1-2-6-IN:::STATUS=UNAVAILABLE,XMPOH=\"RESET-OCH-TRACE\",
    INCPOH=\"??????????????\",EXPPOH=\"TRACE3456789012\"
    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-OCHTRC** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid ACcess Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OCHTRC

RTRV-OLPP

RTRV-OLPP: Retrieve Optical_Line Provisioned_Parameters The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-OLPP:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-OLPP** command is used to retrieve the following parameters for an addressed OA:

- Output optical power per channel (OPPC)
- Low / High Power Delta (LHPD)
- Pre-tilt value for the transmit OA. The pre-tilt value is composed of the four parameters *ftype*, *lbo*, *tfilter* and *tfact* as defined below.
- Span loss in dB of the addressed optical line. This parameter is used to support the Long Single Span feature by the software in the OA at the transmit end of the addressed entity.
- Tilt error. This parameter indicates how far off the current tilt value is from the target value.
- Clamping the OA output to 0-channel power. This parameter is used to support span loss measurement at installation time.
- Dispersion Compensation Module (DCM) loss in dB at the addressed OA DCM port. This parameter is used to support the reporting of the DCM loss..
- OA input signal power and OA output signal power.

INPUT PARAMETERS

tid

> Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:
>
> [A-Z][a-z][0-9].+-/%#_

aid

> Access identifier. This is the address of the OA output port for which this command is intended. Entity: OA Output Port
> Legal Values: PORT-(ALL), PORT-(1-4)-(ALL),
> PORT-(1-4)-(1-3)-(ALL), PORT-(1-4)-(1-3)-(1-12)-(OUT)

ctag

> Correlation tag. This is included in the command and is repeated

back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-OLPP** command, the following output report is returned, sorted alphabetically by the *line_aid* value.

```
    sid date time
M   ctag COMPLD


"port_aid:::oppc,lhpd,ftype,lbo,tfact,tfilter,sploss,tilt_error,
      clamping,dcm_loss,oainpwr,oaoutpwr"

      .         .         .         .         .         .         .
      .         .         .         .         .         .         .
      .         .         .         .         .         .         .


"port_aid:::oppc,lhpd,ftype,lbo,tfact,tfilter,sploss,tilt_error,
      clamping,dcm_loss,oainpwr,oaoutpwr"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

OA output port access identifier. This is the address for which output is being reported.

oppc

Optical power per channel. This parameter is the optical power per channel (OPPC) for the OA. The *oppc* parameter is reported in $xx.x$ format, where $xx.x$ represents a numerical value.

lhpd

Low / High Power Delta. This parameter is the nominal difference in per-channel optical power between "low" power channels (typically OC-48/STM-16/OCh2.5G bit rates and lower) and "high" power channels (typicall OC-192/STM-64 bit rate and higher). The *lhpd* parameter is reported in $x.x$ format, where $x.x$ represents a numerical value.

ftype

> Fiber Type. This parameter is a string denoting the optical fiber type in the span the addressed OA output port is connected to.

lbo

> LBO Value. This parameter is a string of 4 or fewer characters denoting the Line Build Out (LBO) value in dB for the addressed OA. The *lbo* parameter is reported in $xx.x$ format, where $xx.x$ represents a numerical value.
>
> For C+L applications, where the C+L Combiner units are used, the value of this parameter should include all losses between the OA OUT port and the outside plant cable (for example, C+L Combiner, LGX and connector losses in addition to any LBO installed on the OA OUT port). The parameter is for the local system.

tfact

> Tilt factor. This parameter is the tilt factor for the addressed OA. The *tfact* parameter is reported in $x.x$ format, where $x.x$ represents a numerical value.

tfilter

> Tilt filter. This parameter indicates whether a linear tilt filter is being used in the addressed OA. It takes the values YES and NO.

sploss

> Span Loss. This parameter is a string of 2 characters indicating the span loss in dB of the optical line connected to the addressed OA output port.
>
> Valid values are: 31, 32, 33, 34, 35, 36, 37. Spans with 31 dB or less loss are represented as 31. The original value of *sploss* is 31.

tilt_error

> Tilt Error. This parameter indicates the difference between the current tilt value and the target value. The *tilt_error* parameter is reported in $xx.xx$ format, where $xx.xx$ represents a numerical value. It can be a negative number or has the value of UNKNOWN.

clamping

> Clamping. This parameter indicates a transmit OA output power is clamped to 0-channel power level. It takes the values ON and OFF.
>
> This parameter should only be allowed for a transmit OA. For a receive OA, the network element will reply with an **NA** (not applicable) for this parameter.

dcm_loss

> DCM (Dispersion Compensation Module) Loss. This parameter is a string of 4 or fewer characters indicating the DCM loss in dB at the

addressed OA DCM ports.

Valid values are within a range of 0.0 to 20.0 dB, inclusive, in steps of 0.1 dB. DCM loss value higher than 20.0 dB shall be reported as 20.0 dB. Since this is a measured value, there will be no original value for this parameter.

This parameter is only applied to OA16. For other OA types, the network element will reply with a **NA** (not applicable) for this parameter.

If the local system is missing an OA16 circuit pack, software shall return this parameter with an **'unknown'.**

oainpwr

OA input signal power. This parameter is the total input signal power (excluding the power of supervisory signal) for the addressed OA. The *oainpwr* parameter is reported in $xx.x$ format, where $xx.x$ represents a numerical value in dBm.

oaoutpwr

OA output signal power. This parameter is the total output signal power (excluding the power of supervisory signal) for the addressed OA. The *oaoutpwr* parameter is reported in $xx.x$ format, where $xx.x$ represents a numerical value in dBm.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query for all OA output ports ("`port-all`") in a 2-fiber repeater. It is a C-Band system with no companion system.

```
RTRV-OLPP:LT-OLS-400G:PORT-ALL:789012;

IP 789012
<
    LT-OLS-400G 99-12-21 12:36:17
M   789012 COMPLD

"port-1-1-1-OUT:::3.5,3.0,SSMF,3.0,0.5,NO,31,2.00,OFF,NA,-5.5,19.5"

"port-1-4-1-OUT:::3.5,3.0,SSMF,3.0,0.5,NO,31,2.00,OFF,NA,-5.5,19.5"
;
```

ERROR RESPONSES

In addition to the non-message-specific error responses listed in the **RTRV-HDR** error responses description, the following error responses are also provided, as specified. If the network element receives this command without an *aid* value or with an *aid* value that is

invalid for an OA output port, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with an otherwise valid *aid* value but for which the command is directed at an OA which does not exist for the provisioned NETYPE, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OLPP

RTRV-OSI

RTRV-OSI: Retrieve OSI

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-OSI:*tid*::*ctag*;

DESCRIPTION

RTRV-OSI command messages can be initiated by a user to retrieve the provisioned area address list and IS/IS protocol levels for the node and the LAN.

This command retrieves all parameter settings that are provisionable via **ENT-OSI** commands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is OSI information to report, the following output message is returned:

```
    sid date time

M  ctag COMPLD

    "localaddress,isislvl,drp"

  ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

localaddress

Local Area Address. This is used to report the area to which this node belongs. Areas may be introduced to reduce the mutual exchange of routing information between nodes, so that larger management networks are possible.

isislvl

ISIS Level. This parameter reports the LAN ISIS and Node ISIS protocol.

drp

Designated Router Priority. This parameter reports the designated router priority for the Level-2 ISIS protocol

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query:

```
rtrv-osi:OLS-400G::999;



IP 999

<


    OLS-400G 98-06-06 16:42:11
```

```
M  999 COMPLD

    "LOCALADDRESS=39000080,ISISLVL=LEVEL-2,DRP=64"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-OSI

RTRV-OTPS

RTRV-OTPS: Retrieve OT_Port_Signal The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-OTPS:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-OTPS** command is used to retrieve the current values of various parameters related to OTU and ORS ports. Although it is addressed to the IN ports it also retrieves values of parameters related to the corresponding OUT ports. This command retrieves parameter values that are provisionable via **ENT-OTPS** commands. The **RTRV-OTPS** command is also used to retrieve current values of the CFDIRESP parameter for input port of the sink mode OC-192 FEC version 2.1 AISC and input port(s) that corresponds to each of the output port(s) of the 10G MUX OTU at the Sink side.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the OTU port or ports for which the command is intended.

Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4,C1IN,C2IN,1AIN,1BIN,2AIN,2BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-OTPS** command, the following output report is returned, sorted on port data by *port_aid* value.

```
   sid date time
M  ctag COMPLD
   "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
   "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
   .        .        .
```

```
        .       .        .
        .       .        .
    "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
;
```

Requirement End R6.1.1-ALL_RTRV_OTPS-1010

For lines in the report with a *port_aid* indicating an ORS IN port, no values are reported in the *oc192in*, *oc192out*, *oc192fec*, *hsbbsig*, *hsbbfreq*, *hsbbcdr*, *aisresp*, cfdiresp, *ochpresp and protn*fields. The only value reported will be in the*pst* field.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

oc192in

OC-192 Input. The reported value will be "OC192", "OCH" or "DEFAULT".

oc192out

OC-192 Output. The reported value will be "OC192" or "OCH".

oc192fec

OC-192 Forward Error Correction. The reported value will be "On" or "Off".

hsbbsig

High-Speed Broadband Signal. The reported value will be "Gigabit Ethernet", "OC-3", "OC-12", or "OC-48".

hsbbfreq

High-Speed Broadband Frequency. This value represents the frequency on the incoming signal in megahertz. It is an integer in the range of 100 to 2500.

hsbbcdr

High-Speed Broadband Clock Data Recovery. The reported value will be "Yes" or "No".

aisresp

AIS Response. The reported value will be "Off" or "AIS".

cfdiresp

The CFDI Response. The reported value will "Off" or "On".

ochpresp

Optical Channel Path Trace Mismatch Response. The reported value will be "Off" or "Pass".

protn

Protection. The reported value will be "Enabled" or "Disabled".

pst

Primary state. This parameter reports the current primary state of the addressed port. The *pst*will have one of the primary states supported by the network element. The primary state for OTU IN ports will have one of the following values:

IS

In service. The port is monitored.

OOS-MA-AS

Out of service, memory administration, assigned. The port is not monitored, except that the appearance of a good signal will cause a transition to the IS state.

OOS

Out of service. The port is not monitored.

RDNA

Requested data not available. If the requested *pst* data for the addressed low speed port is corrupted, this value is reported.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query addressed to all ports related to slot 4 in Shelf 2 of Bay 1 ("PORT-1-2-4-ALL").

```
rtrv-otps:LT-400G:PORT-1-2-4-ALL:789012;


 IP 789012
 <

     LT-400G 99-10-26 16:42:11
  M  789012 COMPLD
"PORT-1-2-4-IN1:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS"

"PORT-1-2-4-IN2:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"

"PORT-1-2-4-IN3:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"

"PORT-1-2-4-IN4:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"
        "PORT-1-2-4-C1IN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-C2IN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-1AIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-1BIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-2AIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-2BIN:::,,,,,,,,,,,:OOS-MA-AS"
  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time
  M  ctag DENY
     IISP
     /* Input, Invalid Syntax or Punctuation */
  ;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
    sid date time
  M  ctag DENY
     IIAC
     /* Input, Invalid Access Identifier */
  ;
```

If the network element receiving this command has a provisioned Network Element Type (NETYPE) that does not have OTU slots, for example if NETYPE = 2F_RPTR or NETYPE = 4F_RPTR, then the command will be denied with the specified error response for an invalid *aid* value.

RELATED TL1 COMMANDS/MESSAGES

ENT-OTPS
UPD-SYS

RTRV-PM-OCHAN

RTRV-PM-OCHAN: Retrieve Performance_Monitoring Optical_Channel

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-PM-OCHAN:*tid*:*aid*:*ctag*::*[montype]*,*[monlev]*,*[locn]*,*[dirn]*,*[tmper]*,*[mondat][*,*montm]*;

DESCRIPTION

The **RTRV-PM-OCHAN** command is initiated by a CIT user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with one or more optical channels for an OLS 1.6T terminal.
Note: If the correponding Optical Amplifier pack is unequipped, historical data is also lost even though it may be within the 8 hour or 7-day range.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Optical Channel (OCHAN)
Legal Values: (OCHAN)-(ALL), (OCHAN)-(1E,1W,2E,2W)-(ALL,9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested. Default is "ALL" if not specified.

This parameter must be specified for one of the following value:
"SPR-C" (Signal Power Received - Optical Channel), or
"SPT-C" (Signal Power Transmitted - Optical Channel), or
"ALL."

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "1-UP" or "0-UP".

> **1-UP**
>> For digital parameters, the **1-UP** *monlev* value means that the network element only reports data that are "non-zero and positive".
>> For analog parameters, the **1-UP** *monlev* value means that the network element only reports data that are "out of range" from the threshold value.
>
> **0-UP**
>> The **0-UP** *monlev* value means that the network element reports data on all requested PM parameters without regard to their values.
>
> Note If no value is provided for this parameter, **1-UP** is assumed.

> **RTRV-PM-OCHAN** will report as **"1-UP"** if the reported parameter value is out of range from the user provisioned threshold value (either greater than the high threshold or less than the low threshold). User provisioned threshold value can be retrieved via the **RTRV-TH-OCHAN** TL-1 command.

> Note: For example, if the baseline value is -50 dBm, the high threshold is +3 dBm and the low threshold is -6dBm, **1-UP** shall be reported when the parameter value is greater than -47 dBm or less than -56 dBm.

locn

Location. This requests PM information for a specified location. This parameter, if specified, must have one of the following values: "NA".

NA
    Not applicable.
If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests PM information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

NA
    Not applicable.
If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN", "1-DAY", or "ALL".

15-MIN
    This requests PM data in 15-minute intervals.
1-DAY
    This requests daily PM data.
ALL
    This requests PM data both in 15-minute and daily intervals (default).
Note: If no value or null is provided for this parameter, then the tmper value shall be assumed to be ALL. When tmper value is ALL, both mondat and montm must also be ALL. If mondat or montm is not ALL, return error message per table in REQ RTRV_PM-400.tmperall.

mondat

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of 15-MIN, the maximum allowable range of valid dates supported by *mondat* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondat* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondat* include the current and previous six days. This parameter, if specified, must have the values of ALL or be in the format of MM-DD (month-day) for SONET and DD-MM for SDH.

MM-DD
>   Month-day.

ALL
>   Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondat*, the current date is assumed. If the *mondat* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondat* value.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of ALL or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH
>   Hour of day-minute of hour.

ALL
>   All applicable beginning times for the given *mondat* value.

If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15-MIN	**ALL**	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	**ALL**	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15-MIN	previous day	no value	return error response (invalid MONDAT)

15-MIN	previous day	**ALL**	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8:15 A.M., return an error response (invalid MONTM).
15-MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15-MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
1-DAY	**ALL**	any	current and previous 6 days data
1-DAY	current day or no value	any	current 1-day data
1-DAY	any one of the previous six days	any	appropriate previous 1-day data
any	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)
ALL or no value	any	**ALL**	return error response (invalid MONDAT)
ALL or no value	**ALL**	any	return error response (invalid MONTM)
ALL or no value	**ALL**	**ALL**	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent
ALL	any	any	return error response (invalid MONDAT)

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

_____

```
      sid date time

M  ctag COMPLD

   "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],

[dirn],tmper,mondat[,montm]"

      .          .          .          .          .

      .          .          .          .          .

      .          .          .          .          .

   "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],

[dirn],tmper,mondat[,montm]"

;
```

The following condition will result in no data being reported:
- Unequipped Slot

If there is no data to return for the given valid command, the following message is returned:

```
      sid date time

M  ctag COMPLD

;
```

If there is no data to return for the given valid command, the following message is returned:

```
      sid date time

M  ctag COMPLD

;
```

The following conditions will result in no data being reported (no error response; command will shall COMPLD):
- Requested MONLEV=1-up and all channel values are within range.
- Slot equippage mismatch (e.g., RTRV-PM-OLINE executed for slot equipped with OMON circuit pack).

● Circuit pack removal

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.
> **OCHAN**
>> This reports performance-monitoring information at the optical channels for an OLS terminal.

montype

Monitored parameter type.

This parameter must be specified for the following value:
"SPR-C" (Signal Power Received - Optical Channel)
"SPT-C" (Signal Power Transmitted - Optical Channel)

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. The format of the analog parameter is XX.XX.

For OLS PM parameters which do not accumulate over time, the PM monitored value shall not be frozen when the threshold is reached until the current 15-minute time interval expires and the next bin becomes active.

monstat

Status indicator for the monitored value. This indicates the validity of the PM data or if the PM data is within the valid threshold range. This parameter, if specified, must have one of the following values:
> **NA**
>> Data not available. This includes monval value not available due to trouble conditions that cause performance-monitoring to be suspended. *monstat* shall be set to NA when data has not yet been collected.
> **GT**
>> Monitored value exceeds high threshold for analog parameters.

LT

Monitored value is below low threshold for the analog parameters.

ND

No PM data is available.

?

Monitored value is corrupt or suspect for analog parameters.

Note: When monstat is not specified (i.e., blank), it means monval value is valid and is within the threshold range for the specified parameter.

baseval

Baselined value. This parameter contains the baselined value of the analog parameter specified in *montype*. An analog parameter's baseline value is provisioned by the customer's request via the SET-BASELINE TL-1 commands. The format of the analog parameter is XX.XX.

basestat

Status indicator for the baseline value. This indicates if the baseline value of an analog parameter has been established. This parameter, if displayed, must have one of the following values:

NA

Not Applicable. Applied to digital parameters only.

NB

Not Baselined. Applied to analog parameters only.

If 'basetat' is null or not displayed, it's an indication that the displayed 'baseval' is valid.

For analog parameters without baseline values, *baseval* must be **null** and *basestat* must be set to **NB**.

For digital parameters, *baseval* must be **null** and *basestat* must be set to **NA**.

locn

Reporting location for the PM information. The value must be **NA**.

dirn

Reporting direction for the PM information. The value must be **NA**.

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format MM-DD (month-day) for SONET and DD-MM for SDH.

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This
parameter has the format HOD-MOH (hour of day-minute of hour).

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical channel signal performance monitoring data for line-1a-9540 is:

```
rtrv-pm-ochan:OLS-400G:ochan-1e-9540:123456::SPR-C,,,,,;
```

```
IP 123456

<


    OLS-400G 97-07-10 15:02:07

M  123456 COMPLD

    "OCHAN-1E-9540,OCHAN:SPR-C,-22,,-30,,,,15-MIN,06-10,13-00"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply
to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the follow-
ing error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element is configured as part of a C-Band system, and it receives this command with an *aid* value for an L-Band system; or if the network element is configured as part of an L-Band system, and it receives this command with an *aid* value for a C-Band system, the following error response will be returned:

```
    tid date time


M  ctag DENY


    IIAC


    /* Input, Invalid Access Identifier,


   AID invalid for the provisioned NE type */


  ;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

  ;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONLEV */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is not supported.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

If the network element receives this command with an invalid *tmper*, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

If the network element receives this command with an invalid *mondat* format, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONDAT */

;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTM */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-TH-OCHAN
RTRV-TH-OCHAN
RTRV-PM-OLINE
RTRV-PM-SUPR
RTRV-PM-OTPS

RTRV-PM-OLINE

RTRV-PM-OLINE: Retrieve Performance_Monitoring Optical_Line

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available beginning in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-PM-OLINE:*tid*:*aid*:*ctag*::*[montype],[monlev],[locn],[dirn],[tmper],[mondat][,montm]*;

DESCRIPTION

The **RTRV-PM-OLINE** command is initiated by a user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with one or more optical lines for an WaveStar 1.6T OLS terminal.

If the corresponding Optical Amplifier pack is unequipped, historical data is also lost even though it may be within the 8 hour or 7-day range.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested.

This parameter must be specified for one of the following values:

"TOPR-OL" (Total Received Power in dBm - Optical Line), or
"TOPT-OL" (Total Transmit Power in dBm - Optical Line), or
"PLE-RP1" (Analog - Pump Laser Efficiency - Receive Pump 1), or
"PLE-RP2" (Analog - Pump Laser Efficiency - Receive Pump 2), or
"PLE-RP3" (Analog - Pump Laser Efficiency - Receive Pump 3), or
"PLE-RP4" (Analog - Pump Laser Efficiency - Receive Pump 4), or
"PLE-RP5" (Analog - Pump Laser Efficiency - Receive Pump 5), or
"PLE-RP6" (Analog - Pump Laser Efficiency - Receive Pump 6), or
"PLE-TP1" (Analog - Pump Laser Efficiency - Transmit Pump 1), or
"PLE-TP2" (Analog - Pump Laser Efficiency - Transmit Pump 2), or
"PLE-TP3" (Analog - Pump Laser Efficiency - Transmit Pump 3), or
"PLE-TP4" (Analog - Pump Laser Efficiency - Transmit Pump 4), or
"PLE-TP5" (Analog - Pump Laser Efficiency - Transmit Pump 5), or
"PLE-TP6" (Analog - Pump Laser Efficiency - Transmit Pump 6), or
"ALL" (all applicable montype values).

If no value is provided for *montype*, the network element will respond with all performance monitoring data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate which performance monitoring data is being requested. This parameter, if specified, must have one of the following values: "1-UP" or "0-UP".

> **1-UP**
>> For digital parameters, the **1-UP** *monlev* value means that the network element only reports data that are "non-zero and positive".
>> For analog parameters, the **1-UP** *monlev* value means that the network element only reports data that are "out of range" from the threshold value.

> **0-UP**
>> The **0-UP** *monlev* value means that the network element reports data on all requested PM parameters without regard to their values.
> Note If no value is provided for this parameter, **1-UP** is assumed.

> **RTRV-PM-OLINE** will report as **"1-UP"** if the reported parameter value is out of range from the user provisioned threshold value (either greater than the high threshold or less than the low threshold). User provisioned threshold value can be retrieved via the **RTRV-TH-OLINE** TL-1 command.

> Note: For example, if the baseline value for TOPT-OL is 10 dBm, the high threshold is +3 dBm and the low threshold is -6dBm, **"1-UP"** shall report when the TOPT-OL value is greater than 13 dBm or less than 4 dBm.

locn

Location. This requests PM information for a specified location. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
>
> If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests PM information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
>
> If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN", "1-DAY", or "ALL".

> **15-MIN**
>> This requests PM data in 15-minute intervals.
>
> **1-DAY**
>> This requests daily PM data.
>
> **ALL**
>> This requests PM data both in 15-minute and daily intervals (default).
>
> Note: If no value or null is provided for this parameter, then the tmper value shall be assumed to be ALL. When tmper value is ALL, both mondat and montm must also be ALL. If mondat or montm is not ALL, return error message per table in REQ RTRV_PM-400.tmperall.

mondat

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of 15-MIN, the maximum allowable range of valid dates supported by *mondat* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondat* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondat* includes the current and previous six days. This parameter, if specified, must have the values of ALL or be in the format of MM-DD (month-day) for SONET and DD-MM for SDH.

MM-DD
>   Month-day.

ALL
>   Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondat*, the current date is assumed. If the *mondat* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondat* value.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of ALL or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

HOD-MOH
>   Hour of day-minute of hour.

ALL
>   All applicable beginning times for the given *mondat* value.

If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **01-03** for a 15-minute PM data is rounded down to **01-00**). If the *tmper* value is **1-DAY** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15-MIN	**ALL**	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	**ALL**	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15-MIN	previous day	no value	return error response (invalid MONDAT)

15-MIN	previous day	**ALL**	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8:15 A.M., return an error response (invalid MONTM).
15-MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM
15-MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
1-DAY	**ALL**	any	current and previous 6 days data
1-DAY	current day or no value	any	current 1-day data
1-DAY	any one of the previous six days	any	appropriate previous 1-day data
any	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)
ALL or no value	any	**ALL**	return error response (invalid MONDAT)
ALL or no value	**ALL**	any	return error response (invalid MONTM)
ALL or no value	**ALL**	**ALL**	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent
ALL	any	any	return error response (invalid MONDAT)

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

```
    sid date time



M   ctag COMPLD
```

```
   "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],

[dirn],tmper,mondat[,montm]"


    .        .        .        .        .


    .        .        .        .        .


    .        .        .        .        .


   "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],

[dirn],tmper,mondat[,montm]"


;
```
___

The following condition will result in no data being reported:
- Unequipped slot

Applicable output lines are ordered as follows:
1. By *aid*.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:
___

```
   sid date time


M  ctag COMPLD


;
```
___

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

      OLINE

          This reports performance-monitoring information at the optical lines for a WaveStar OLS 1.6T terminal.

montype

Monitored parameter type.

This parameter must be specified for one of the following values:

"TOPR-OL" (Total Received Power in dBm - Optical Line), or
"TOPT-OL" (Total Transmit Power in dBm - Optical Line), or
"PLE-RP1" (Analog - Pump Laser Efficiency - Receive Pump 1), or
"PLE-RP2" (Analog - Pump Laser Efficiency - Receive Pump 2), or
"PLE-RP3" (Analog - Pump Laser Efficiency - Receive Pump 3), or
"PLE-RP4" (Analog - Pump Laser Efficiency - Receive Pump 4), or
"PLE-RP5" (Analog - Pump Laser Efficiency - Receive Pump 5), or
"PLE-RP6" (Analog - Pump Laser Efficiency - Receive Pump 6), or
"PLE-TP1" (Analog - Pump Laser Efficiency - Transmit Pump 1), or
"PLE-TP2" (Analog - Pump Laser Efficiency - Transmit Pump 2), or
"PLE-TP3" (Analog - Pump Laser Efficiency - Transmit Pump 3), or
"PLE-TP4" (Analog - Pump Laser Efficiency - Transmit Pump 4), or
"PLE-TP5" (Analog - Pump Laser Efficiency - Transmit Pump 5), or
"PLE-TP6" (Analog - Pump Laser Efficiency - Transmit Pump 6).

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. The format of the analog parameter is XX.XX.

monstat

Status indicator for the monitored value. This indicates the validity of the PM data or if the PM data is within the valid threshold range. This parameter, if specified, must have one of the following values:

NA

> Data not available. This includes monval value not available due to trouble conditions that cause performance-monitoring to be suspended. *monstat* shall be set to `NA` when data has not yet been collected.

GT

> Monitored value exceeds high threshold for the analog parameter.

LT

> Monitored value is below low threshold for the analog parameter.

ND

> No PM data is available.

?

Monitored value is corrupt or suspect.   If set for any of the PLE-RPn or PLE-TPn parameter, this indicates an approximated efficiency value associated with the uncertainty of measuring low drive current.

Note: When monstat is not specified (i.e., blank), it means monval value is valid and is within the threshold range for the specified parameter.

{End of REQ R5.0-ALL RTRV-PM-OLINE_lcm-156}

baseval

Baselined value. This parameter contains the baselined value of the analog parameter specified in *montype*. An analog parameter's baseline value is provisioned by the customer's request via the SET-BASELINE TL-1 commands. The format of the analog parameter is XX.XX.

basestat

Status indicator for the baseline value. This indicates if the baseline value of an analog parameter has been established. This parameter, if displayed, must have one of the following values:

NA

> Not Applicable. Applied to digital parameters only.

NB

> Not Baselined. Applied to analog parameters only.

If 'basetat' is null or not displayed, it's an indication that the displayed 'baseval' is valid.

For analog parameters without baseline values, *baseval* must be **null** and *basestat* must be set to **NB**.

For digital parameters, *baseval* must be **null** and *basestat* must be set to **NA**.

locn

Reporting location for the PM information. The value must be **NA**.

dirn

Reporting direction for the PM information. The value must be **NA**.

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format MM-DD (month-day) for SONET and DD-MM for SDH.

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

No special handling of PM bins shall be provided when the bin crosses a change in the daylight savings time. WaveStar OLS 1.6T shall:
1) report multiple PM entries when the time is moved backward by one hour or
2) allow gaps in the PM output when the time is moved forward by one hour.

EXAMPLE INPUT/OUTPUT

In the following example, the **RTRV-PM-OLINE** command returns all total optical power (TOPR-L) performance monitoring data for optical lines 1e, 1w, 2e, 2w on Aug.10 at 17:00.

```
rtrv-pm-oline:400G-OLS:LINE-ALL:314152::TOPR-OL,0-UP,,,1-DAY,,;



IP 314152

<

    400G-OLS 99-08-10 17:12:31

M  314152 COMPLD

    "LINE-1E,OLINE:TOPR-OL,-14,,-2,,,,1-DAY,08-10,17-00"

    "LINE-1W,OLINE:TOPR-OL,-25,,-2,,,,1-DAY,08-10,17-00"

    "LINE-2E,OLINE:TOPR-OL,-1,,-2,,,,1-DAY,08-10,17-00"

    "LINE-2W,OLINE:TOPR-OL,5,,-2,,,,1-DAY,08-10,17-00"

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONLEV */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time


M  ctag DENY


    IDNV


    /* Input, Data Not Valid, invalid LOCN */


 ;
```

The network element returns the following error response if the *dirn* value is not supported.

```
    sid date time


M  ctag DENY


    IDNV


    /* Input, Data Not Valid, invalid DIRN */


 ;
```

If the network element receives this command with an invalid *tmper*, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

 ;
```

If the network element receives this command with an invalid *mondat* format, the following error
response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONDAT */

;
```

If the network element receives this command with an invalid *montm* value, the following error
response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTM */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-TH-OLINE
RTRV-TH-OLINE
RTRV-PM-OCHAN
RTRV-PM-SUPR
RTRV-PM-OTPS

RTRV-OTPS

RTRV-OTPS: Retrieve OT_Port_Signal The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1). This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-OTPS:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-OTPS** command is used to retrieve the current values of various parameters related to OTU and ORS ports. Although it is addressed to the IN ports it also retrieves values of parameters related to the corresponding OUT ports. This command retrieves parameter values that are provisionable via **ENT-OTPS** commands. The **RTRV-OTPS** command is also used to retrieve current values of the CFDIRESP parameter for input port of the sink mode OC-192 FEC version 2.1 AISC and input port(s) that corresponds to each of the output port(s) of the 10G MUX OTU at the Sink side.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the OTU port or ports for which the command is intended.

Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4,C1IN,C2IN,1AIN,1BIN,2AIN,2BIN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-OTPS** command, the following output report is returned, sorted on port data by *port_aid* value.

```
   sid date time
M  ctag COMPLD
   "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
   "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
   .         .         .
```

```
        .           .            .
        .           .            .
    "port_aid:::,,,oc192in,oc192out,oc192fec,hsbbsig,hsbbfreq,
hsbbcdr,aisresp,cfdiresp,ochpresp,protn,,:pst"
;
```

Requirement End R6.1.1-ALL_RTRV_OTPS-1010

For lines in the report with a *port_aid* indicating an ORS IN port, no values are reported in the *oc192in*, *oc192out*, *oc192fec*, *hsbbsig*, *hsbbfreq*, *hsbbcdr*, *aisresp*, cfdiresp, *ochpresp and protn*fields. The only value reported will be in the*pst* field.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

oc192in

OC-192 Input. The reported value will be "OC192", "OCH" or "DEFAULT".

oc192out

OC-192 Output. The reported value will be "OC192" or "OCH".

oc192fec

OC-192 Forward Error Correction. The reported value will be "On" or "Off".

hsbbsig

High-Speed Broadband Signal. The reported value will be "Gigabit Ethernet", "OC-3", "OC-12", or "OC-48".

hsbbfreq

High-Speed Broadband Frequency. This value represents the frequency on the incoming signal in megahertz. It is an integer in the range of 100 to 2500.

hsbbcdr

High-Speed Broadband Clock Data Recovery. The reported value will be "Yes" or "No".

aisresp

AIS Response. The reported value will be "Off" or "AIS".

cfdiresp

The CFDI Response. The reported value will "Off" or "On".

ochpresp

Optical Channel Path Trace Mismatch Response. The reported value will be "Off" or "Pass".

protn

Protection. The reported value will be "Enabled" or "Disabled".

pst

Primary state. This parameter reports the current primary state of the addressed port. The *pst*will have one of the primary states supported by the network element. The primary state for OTU IN ports will have one of the following values:

IS

In service. The port is monitored.

OOS-MA-AS

Out of service, memory administration, assigned. The port is not monitored, except that the appearance of a good signal will cause a transition to the IS state.

OOS

Out of service. The port is not monitored.

RDNA

Requested data not available. If the requested *pst* data for the addressed low speed port is corrupted, this value is reported.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query addressed to all ports related to slot 4 in Shelf 2 of Bay 1 ("PORT-1-2-4-ALL").

```
rtrv-otps:LT-400G:PORT-1-2-4-ALL:789012;


 IP 789012
 <

     LT-400G 99-10-26 16:42:11
 M   789012 COMPLD
"PORT-1-2-4-IN1:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS"

"PORT-1-2-4-IN2:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"

"PORT-1-2-4-IN3:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"

"PORT-1-2-4-IN4:::,,,DEFAULT,OC192,ON,OC-3,100,YES,Off,PASS,DISABLED,Off,,:OOS-MA-AS"
        "PORT-1-2-4-C1IN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-C2IN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-1AIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-1BIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-2AIN:::,,,,,,,,,,,:OOS-MA-AS"
        "PORT-1-2-4-2BIN:::,,,,,,,,,,,:OOS-MA-AS"
 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receiving this command has a provisioned Network Element Type (NETYPE) that does not have OTU slots, for example if NETYPE = 2F_RPTR or NETYPE = 4F_RPTR, then the command will be denied with the specified error response for an invalid *aid* value.

RELATED TL1 COMMANDS/MESSAGES

ENT-OTPS
UPD-SYS

RTRV-PM-STIME

RTRV-PM-STIME Retrieve Performance_Monitoring Start_Time

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-PM-STIME:*tid*::*ctag*;

DESCRIPTION

The **RTRV-PM-STIME** command can be initiated by all users to retrieve the start time for measuring the day bins.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When reporting the provisioning information, the following output message is returned:

```
    sid date time


M  ctag COMPLD


    ":start_hour"


 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined below.

start_hour

START_HOUR is a position defined parameter to report the start hour for day bin measurements. It is reported in HH-00 format.

EXAMPLE OUTPUT

The following example shows a command *tid* for a network element.

```
rtrv-pm-stime:OLS-400G::CTAG;



IP 123456


<


    OLS-400G 98-11-15 17:41:33


M  CTAG COMPLD
```

```
    ":23:00"
```

```
    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

SET-PM-STIME

RTRV-PM-SUPR

RTRV-PM-SUPR: Retrieve Performance_Monitoring Supervisory

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available beginning in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-PM-SUPR:*tid*:*aid*:*ctag*::*[montype],[monlev],[locn],[dirn],[tmper],[mondat][,montm]*;

DESCRIPTION

The **RTRV-PM-SUPR** command is initiated by a user to request the network element to send the current and/or historical performance-monitoring (PM) data associated with the supervisory channel, for an OLS terminal.

If the Supervisory pack is removed, historical data is also lost even though it may be within the 8 hour or 7-day range.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the facility for which the performance-monitoring data is requested.

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

This is the PM parameter type for which PM data is requested.

This parameter, if not null, must have one of the following values:
"SPR-SU" (Analog - Signal Receive Power in dBm - Supervisory, for C Band only), or
"SPT-SU" (Analog - Signal Transmit Power in dBm - Supervisory), or
"CRC" (Digital - Cyclical Redundancy Check), or
"ES" (Digital - Errored Seconds), or
"BES" (Digital - Bursty Errored Seconds), or
"SES" (Digital - Severely Errored Seconds), or
"UAS" (Digital - Unavailable Errored Seconds).
"ALL" (all applicable montype value).

If no value is provided for *montype*, the network element will respond with all performance monitor-
ing data applicable to the *aid*.

monlev

Monitored parameter level. This provides the level and direction which are used to discriminate
which performance monitoring data is being requested. This parameter, if specified, must have one of
the following values: "1-UP" or "0-UP".

> **1-UP**
>> For digital parameters, the **1-UP** *monlev* value means that the network element only reports
>> data that are "non-zero and positive".
>> For analog parameters, the **1-UP** *monlev* value means that the network element only
>> reports data that are "out of range" from the threshold value.

> **0-UP**
>> The **0-UP** *monlev* value means that the network element reports data on all requested PM
>> parameters without regard to their values.
> Note If no value is provided for this parameter, **1-UP** is assumed.

> **RTRV-PM-SUPR** will report as **"1-UP"** if the reported parameter value is out of range from
> the user provisioned threshold value (either greater than the high threshold or less than the low
> threshold). User provisioned threshold value can be retrieved via the **RTRV-TH-SUPR** TL-1
> command.

> Note: For example, if the baseline value for SPT-SU is -8 dBm, the high threshold is +3 dBm
> and the low threshold is -6dBm, **1-UP** shall be reported when the parameter value is greater
> than -5 dBm or less than -14 dBm.

locn

Location. This requests PM information for a specified location. This parameter, if specified, must
have one of the following values: "NA".

> **NA**
>> Not applicable.
> If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests PM information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This parameter requests performance monitoring data information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN", "1-DAY", or "ALL".

15-MIN

This requests PM data in 15-minute intervals.

1-DAY

This requests daily PM data.

ALL

This requests PM data both in 15-minute and daily intervals (default).

Note: If no value or null is provided for this parameter, then the tmper value shall be assumed to be ALL. When tmper value is ALL, both mondat and montm must also be ALL. If mondat or montm is not ALL, return error message per table in REQ RTRV_PM-400.tmperall.

mondat

Monitored date. This requests the beginning date of the interval for which the PM data is to be reported.

For a *tmper* value of 15-MIN, the maximum allowable range of valid dates supported by *mondat* include only the current day.

Note: The maximum number of 15-MIN periods of data stored is 32 periods. This equates to 8 hours of contiguous 15-MIN periods. Therefore the allowable range for *mondat* is the current 15-MIN period plus the immediate previous 8 hours of 15-MIN data. Fifteen minute data that is outside the 8 hour window is not stored in the system. Therefore, previous day's data is available only if the previous day's data is within 8 hours of the current period.

For a *tmper* value of **1-DAY**, the maximum allowable range of valid dates supported by *mondat* include the current and previous six days. This parameter, if specified, must have the values of ALL or be in the format of MM-DD (month-day) for SONET and DD-MM for SDH.

MM-DD

Month-day.

ALL

Current and previous day(s), as described in the previous paragraphs.

If no value is entered for *mondat*, the current date is assumed. If the *mondat* specifies a date other than the current date or the previous day(s)'s date, as described in the previous paragraph, the network element responds to the user using the current date as the *mondat* value.

montm

Monitored time. This specifies the beginning time of day of the requested performance-monitoring period specified in *tmper*. This parameter, if specified, must have the values of ALL or has the format HOD-MOH (hour of day-minute of hour), where HOD ranges from 00 to 23 and MOH ranges from 00 to 59.

> **`HOD-MOH`**
>> Hour of day-minute of hour.
>
> **`ALL`**
>> All applicable beginning times for the given *mondat* value.
>
> If no value is entered for *montm*, the current HOD-MOH is assumed. If the *montm* value provided does not correspond exactly to the network element PM reporting boundary, the value is *rounded down* to the last applicable boundary (for example, **`01-03`** for a 15-minute PM data is rounded down to **`01-00`**). If the *tmper* value is **`1-DAY`** then the *montm* parameter is not used.

The following table specifies the performance-monitoring data output based on the input values of *tmper*, *mondat*, and *montm* parameters. The term, "other" is used to refer to any input value that is not covered by another entry for the subject parameter. The term, "any" is used to refer to any input value (no validation is needed - don't care if valid or invalid).

RTRV-PM Output Data Relating to MONDAT, TMPER, and MONTM Input Parameters

TMPER	MONDAT	MONTM	Output PM Data
15-MIN	**ALL**	any	15 min. data from the present time to the previous 8.25 hours
15-MIN	current day or no value	**ALL**	15 min. data from the present time to the previous midnight or 8.25 earlier than the present, whichever is more recent.
15-MIN	current day or no value	no value	15 min. data for the current interval HOD-MOH for the current day (see also REQ RTRV_PM-montm).
15-MIN	previous day	no value	return error response (invalid MONDAT)
15-MIN	previous day	**ALL**	15 min. data from the previous midnight to 8 hours earlier than the present time. If the current time is later than 8:15 A.M., return an error response (invalid MONTM).
15-MIN	previous day, current day, or no value	value of MONDAT and MONTM within 8.25 hours of current time	single 15 min. interval of data beginning at MONDAT and MONTM

15-MIN	current day, previous day, or no value	value of MONDAT and MONTM outside of the 8.25 hours of current time, or other	return error response (invalid MONTM)
1-DAY	**ALL**	any	current and previous 6 days data
1-DAY	current day or no value	any	current 1-day data
1-DAY	any one of the previous six days	any	appropriate previous 1-day data
any	other	any	return error response (invalid MONDAT)
other	any	any	return error response (invalid TMPER)
ALL or no value	any	**ALL**	return error response (invalid MONDAT)
ALL or no value	**ALL**	any	return error response (invalid MONTM)
ALL or no value	**ALL**	**ALL**	data from current and previous six days plus 15 min. data from the present time to the previous midnight or 8.25 hour earlier than the present time, whichever is more recent
ALL	any	any	return error response (invalid MONDAT)

OUTPUT FORMAT

After receiving a valid command and having data to report, the following output message is returned:

```
    sid date time

M  ctag COMPLD

    "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],[dirn],tmper,mondat[,montm]"

    .         .          .          .          .

    .         .          .          .          .

    .         .          .          .          .

    "aid,aidtype:montype,monval,[monstat],baseval,[basestat],[locn],[dirn],tmper,mondat[,montm]"

  ;
```

The following condition will result in no data being reported:
- Unequipped slot

Applicable output lines are ordered as follows:
1. By *aid*.
2. By requested time intervals, starting with the current time interval.
3. By applicable PM parameters per *aid*.

If there is no data to return for the given valid command, the following message is returned:

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for `RTRV-HDR`.

Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the address of the facility for which the PM data is being reported.

aidtype

Access identifier type.

> **SUPVY**
> > This reports performance-monitoring information at the supervisory channel for a WaveStar OLS 1.6T terminal.

montype

Monitored parameter type.

This parameter, if not null, must have one of the following values:

"SPR-SU" (Analog - Signal Receive Power in dBm - Supervisory), or
"SPT-SU" (Analog - Signal Transmit Power in dBm - Supervisory), or
"CRC" (Digital - Cyclical Redundancy Check), or
"ES" (Digital - Errored Seconds), or
"BES" (Digital - Bursty Errored Seconds), or
"SES" (Digital - Severely Errored Seconds), or
"UAS" (Digital - Unavailable Errored Seconds).
"ALL" (all applicable montype value).

monval

Monitored value. This contains the measured value of the parameter specified in *montype*. The format of the analog parameter is XX.XX.

monstat

Status indicator for the monitored value. This indicates the validity of the PM data or if the PM data is within the valid threshold range. This parameter, if specified, must have one of the following values:

NA

Data not available. This includes monval value not available due to trouble conditions that cause performance-monitoring to be suspended. *monstat* shall be set to NA when data has not yet been collected.

PRTL

Data is partial, accumulated over some portion of the requested time period (digital parameters only).

OVFL

Counts that exceed the allowed maximum value (digital parameters only).

GT

Monitored value exceeds threshold for digital parameters, or exceeds high threshold for the analog parameters.

LT

Monitored value is below low threshold for the analog parameter.

ND

No PM data is available.

?

Monitored value is corrupt or suspect (both analog and digital).

Note: When monstat is not specified (i.e., blank), it means monval value is valid and is within the threshold range for the specified parameter.

For digital parameters, *OVFL* has a higher priority than GT, and GT has a higher priority than *PRTL*.

baseval

Baselined value. This parameter contains the baselined value of the analog parameter specified in *montype*. An analog parameter's baseline value is provisioned by the customer's request via the SET-BASELINE TL-1 commands. The format of the analog parameter is XX.XX.

basestat

Status indicator for the baseline value. This indicates if the baseline value of an analog parameter has been established. This parameter, if displayed, must have one of the following values:

NA

Not Applicable. Applied to digital parameters only.

NB

Not Baselined. Applied to analog parameters only.
If 'basetat' is null or not displayed, it's an indication that the displayed 'baseval' is valid.

For analog parameters without baseline values, *baseval* must be **null** and *basestat* must be set to **NB**.
For digital parameters, *baseval* must be **null** and *basestat* must be set to **NA**.

locn

Reporting location for the PM information. The value must be **NA**.

dirn

Reporting direction for the PM information. The value must be **NA**.

tmper

Time period. This parameter has the value **15-MIN** or **1-DAY**.

mondat

Monitored date. This is the beginning date of the interval for which PM data is reported. This parameter has the format MM-DD (month-day) for SONET and DD-MM for SDH.

montm

Monitored time. This is the beginning time of the interval for which the PM data is reported. This parameter has the format HOD-MOH (hour of day-minute of hour).

No special handling of PM bins shall be provided when the bin crosses a change in the daylight savings time. WaveStar OLS 1.6T shall:
1) report multiple PM entries when the time is moved backward by one hour or
2) allow gaps in the PM output when the time is moved forward by one hour.

EXAMPLE INPUT/OUTPUT

The command to retrieve performance monitoring data for all supervisory channels is:

```
rtrv-pm-supr:OLS-400G:LINE-ALL:123456::SPR-SU,0-UP,,,15-MIN,,;


IP 123456

<

   OLS-400G 99-07-10 12:03:15

M  123456 COMPLD
```

```
    "LINE-1E,SUPVY:SPR-SU,-50,,-53,,,,15-MIN,07-10,12-00"

    "LINE-1W,SUPVY:SPR-SU,-60,,-53,,,,15-MIN,07-10,12-00"

    "LINE-2E,SUPVY:SPR-SU,-42,,-53,,,,15-MIN,07-10,12-00"

    "LINE-2W,SUPVY:SPR-SU,-55,,-53,,,,15-MIN,07-10,12-00"

  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command without an *aid* or with an invalid *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

  ;
```

If the network element receives this command with a *montype* value that is not supported by the network element, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

  ;
```

If the network element receives this command with a *monlev* which is any value other than **0-UP** or **1-UP**, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONLEV */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn*value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

If the network element receives this command with an invalid *tmper*, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

If the network element receives this command with an invalid *mondat* format, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONDAT */

;
```

If the network element receives this command with an invalid *montm* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTM */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-TH-SUPR
RTRV-TH-SUPR
RTRV-PM-OLINE
RTRV-PM-OCHAN
RTRV-PM-OTPS

RTRV-PROF-ASGNMT

RTRV-PROF-ASGNMT: Retrieve Profile Assignment

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 3.0.

INPUT FORMAT

RTRV-PROF-ASGNMT:*tid***:***aid***:***ctag***::[***aid_type***];**

DESCRIPTION

The **RTRV-PROF-ASGNMT** command retrieves the Alarm Severity Assignment Profile (ASAP) profile type(s) and profile name(s) assigned to the specified entity(s).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

aid

Access Identifier. The *aid* values associated with each *Alarm ID* are shown in the ASAP profile tables attached to Appendix A of the PRD.

Note: Click on the underlined hyperlink above to open Appendix A. Then click on the worksheet tab(s) at the bottom of the screen for the profile type(s) of interest. These tables list the the *aid* values associated with each *pftype* and *alarm_id.*

aid_type

AID Type. This optional parameter is used in conjunction with the required ***aid*** parameter to determine which AID's will be reported by the command. Only those AID's indicated by both the ***aid*** value and the ***aid_type*** value, if supplied, will be reported. If no AID's are indicated in both values,

no AID's will be reported and there will be no error message. The allowable values for the *aid_type*
parameter are **BOS**, **DGE_IN**, **EI**, **OA**, **OA_IN**, **OA_SUP_TX**, **ODU**, **ODU_IN**, **OMON**,
OMON_IN, **OMU**, **ORS_IN**, **OTU**, **OTU_IN**, **SUPVY**, **SUPVY_IN**, **WAD,** **WAD_DROP_IN**,
WDU, **WDU_IN** and **WMU**.

OUTPUT FORMAT

The output lines are sorted by *aid* in alphabetical order, and then for a particular *aid* they are sorted
by *pftype* in alphabetical order.

```
    tid date time

M   ctag COMPLD

    "AID=aid,PFTYPE=pftype,PFNAME=pfname"

    "AID=aid,PFTYPE=pftype,PFNAME=pfname"

    . . .

    "AID=aid,PFTYPE=pftype,PFNAME=pfname"

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT
PARAMETERS** section for **RTRV-HDR**.

aid

Access Identifier. The *aid* values associated with each *Alarm ID* are shown in the ASAP profile
tables attached to Appendix A of the PRD.
   Note: Click on the underlined hyperlink above to open Appendix A. Then click on the work-
   sheet tab(s) at the bottom of the screen for the profile type(s) of interest. These tables list the the
   aid values associated with each *pftype* and *alarm_id.*

pftype

Profile type. The valid values for this parameter are

> **BAY** (Bay)
> **CLIENT** (Client)
> **COM** (General Communication)
> **ENV** (Environment)
> **OCHAN** (Optical Channel)

OLINE (Optical Line)
PACK (Circuit Pack)
SLOT (Slot)
SHELF (Shelf)
SUPVY (Supervisory Signal)
SW (Software Management)
SYSTEM (System)

pfname

Profile name. This is an alphanumeric string of 1 to 24 characters.

EXAMPLE INPUT/OUTPUT

```
RTRV-PROF-ASGNMT:LT-400G:LINE-ALL:123456;



IP 123456

<


   LT-400G 00-04-26 16:42:11

M  123456 COMPLD

   "AID=LINE-1E,PFTYPE=OLINE,PFNAME=Default"

   "AID=LINE-1E,PFTYPE=SUPVY,PFNAME=Default"

   "AID=LINE-1W,PFTYPE=OLINE,PFNAME=Default"

   "AID=LINE-1W,PFTYPE=SUPVY,PFNAME=Default"

   "AID=LINE-2E,PFTYPE=OLINE,PFNAME=CompanyA"

   "AID=LINE-2E,PFTYPE=SUPVY,PFNAME=CompanyA"

   "AID=LINE-2W,PFTYPE=OLINE,PFNAME=Default"

   "AID=LINE-2W,PFTYPE=SUPVY,PFNAME=Default"

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If an invalid *aid* is specified, then the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid aid */

 ;
```

If an invalid *aid_type* is specified, the following error response is returned:

```
    tid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid aid_type */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

```
DLT-ASAP-PROF
ED-ASAP-PROF
ENT-ASAP-PROF
ENT-PROF-ASGNMT
RTRV-ASAP-PROF
```

RTRV-PROTN-GROUP

RTRV-PROTN-GROUP: Retrieve Protection Group

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 6.0.

INPUT FORMAT

RTRV-PROTN-GROUP:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-PROTN-GROUP** command can be initiated by users to retrieve active ORS Protection Tail-end Switching groups.

An Active ORS Protection Tail-end Switching group is defined as having the presence of the three associations required for an ORS Protection Tail-end Switching group regardless whether an ORS pack is equipped or not. NE shall report ORS Protection Tail-end Switching group only if all three (3) associations exists.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This specifies the address of the ORS Client output port which also indentifies ORS Protection Tail-end Switching group for which this command is intended.

Entity: Port (ORS OUT)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(C1OUT,C2OUT)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

```
   sid date time

M  ctag COMPLD

   "aid:::ACTIVE_PORT=value,SWITCH_STATUS=value"

       .            .            .

       .            .            .

   "aid:::ACTIVE_PORT=value,SWITCH_STATUS=value"

;
```

_____

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

aid

Access Identifier. This specifies the address of the ORS Client output port which also indentifies the ORS Protection Tail-end Switching group that has the presence of the three (3) associations for which information is given.

Entity: Port (ORS OUT)
Legal Values: PORT-(1-12)-(1-3)-(1-12)-(C1OUT,C2OUT)

active_port

Active port. This specifies the address of the ORS active port in an ORS tail-end protection group.

Entity: Port (ORS IN)
Legal Values: PORT-(1-12)-(1-3)-(1-12)-(1AIN,IBIN,2AIN,2BIN), <u>RDNA</u>

In the presence of the three (3) associations required for the ORS Protection Tail-end Switching group, software shall set the *active_port* parameter to "RDNA" (Requested Data Not Available) if the ORS circuit pack cannot be reached. An ORS circuit pack cannot be reached may result from the ORS circuit pack not inserted into the slot, system failure, or BAY controller pack not plugged in.

switch_status

Switch Status. It reports the switch status.

> `INH`
>> Inhibit. This specifies that an inhibit request is active.
>
> `FS`
>> Forced. This specifies that a forced protection protection switching request is active.
>
> `SF`
>
> Signal Fail. This specifies that the signal fail automatic switching request is active if there is an outstanding Loss of Signal (LOS).
>
> `NR`
>> No Request. There is no automatic switch request.
>
> `RDNA`
>> Requested Data Not Available. In the presence of the three (3) associations required for the ORS Protection Tail-end Switching group, software shall set the *switch_status* parameter to "RDNA" if the ORS circuit pack cannot be reached. An ORS circuit pack cannot be reached may result from the ORS circuit pack not inserted into the slot, system failure, or BAY controller pack not plugged in.

EXAMPLE INPUT/OUTPUT

The following WaveStar OLS 1.6T example requests the ORS slot 3-1-1 for active ORS tail-end switching groups information. This example shows that PORT-3-1-1-C1OUT's switching group is an active tail-end switching group (that is it has all three associations). The PORT-3-1-1-C2OUT's switching group is not an active tail-end switching group (that is it does not have all three associations), hence it is not reported.

───

```
rtrv-protn-group:OLS-400G:port-3-1-1-ALL:123456;

IP 123456
<
   OLS-400G 2000-10-26 16:42:11
M  123456 COMPLD

"PORT-3-1-1-C1OUT:::ACTIVE_PORT=PORT-3-1-1-1AIN,SWITCH_STATUS=INH"
;
```

───

The following WaveStar OLS 1.6T example requests the ORS slot 3-1-1 for active ORS tail-end switching groups information. This example shows both PORT-3-1-1-C1OUT and PORT-3-1-1-C2OUT switching groups in the ORS pack are not an active Tail-end Switching group (that is they do not have all three associations), hence they are not reported.

───

```
rtrv-protn-group:OLS-400G:port-3-1-1-ALL:123456;
```

```
IP 123456
<
    OLS-400G 2000-10-26 16:42:11
M  123456 COMPLD
;
```

_____

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-PROTN-GROUP** command is received with an invalid *aid* value, the following error response is returned:

_____

```
    sid date time
M  ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

_____

RELATED TL1 COMMANDS/MESSAGES

OPR-PROTNSW-OTPS
RLS-PROTNSW-OTPS
ENT-ASSOC-OTPS
RTRV-ASSOC-OTPS
DEL-ASSOC-OTPS
RTRV-STATE
REPT-SW
REPT-DBCHG

RTRV-RMA

RTRV-SYS: Retrieve Registration Manager Attributes

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

INPUT FORMAT

RTRV-RMA:*tid*::*ctag*;

DESCRIPTION

The **RTRV-RMA** command can be initiated by a user to retrieve the T1.245 Directory Services Registration Management attributes associated with the network that are currently in effect.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When there is system information to report, the following output message is returned:

```
    tid date time

M  ctag COMPLD

    "RM_ACTIVE=enable,PSEL=x,SSEL=y,TSEL=w,PRI_NSAP=z,

SEC1NSAP=z1,SEC2NSAP=z2,SEC3NSAP=z3,COUNTRY=a,ORG=b,SUBORG1=c,

SUBORG2=d,SUBORG3=e,SUBORG4=f,SUBORG5=g,SUBORG6=h"

    ;
```

OUTPUT PARAMETERS

RM_ACTIVE

Registration Manager Active. This parameter reports whether the NE is acting as a T1.245 Directory Services Registration Manager on behalf of its local OSI IS-IS Level 1 routing area.

PSEL

DSA Presentation Selector (PSEL). This parameter determines the OSI Presentation layer context to use for registering directory entries with either a primary or a secondary DSA.

SSEL

DSA Session Selector (SSEL). This parameter determines the OSI Session layer context to use for registering directory entries with either a primary or a secondary DSA.

TSEL

DSA Transport Selector (TSEL). This parameter determines the OSI Transport layer context to use for registering directory entries with either a primary or a secondary DSA.

PRINSAP

Primary DSA Network Service Access Point (NSAP). This parameter determines the OSI Network layer address to use for registering directory entries with the primary DSA.

SEC1NSAP

First Secondary DSA NSAP. This parameter determines the OSI Network layer address to use for registering directory entries with the first secondary DSA.

SEC2NSAP

Second Secondary DSA NSAP. This parameter determines the OSI Network layer address to use for registering directory entries with the second secondary DSA.

SEC3NSAP

Third Secondary DSA NSAP. This parameter determines the OSI Network layer address to use for registering directory entries with the third secondary DSA.

COUNTRY

Directory Name Prefix Country Identification. This parameter determines the RDN of the country under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

ORG

Directory Name Prefix Organization Identification. This parameter determines the RDN of the organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG1

Directory Name Prefix Sub-organization #1 Identification. This parameter determines the RDN of the first sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG2

Directory Name Prefix Sub-organization #2 Identification. This parameter determines the RDN of the second sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG3

Directory Name Prefix Sub-organization #3 Identification. This parameter determines the RDN of the third sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG4

Directory Name Prefix Sub-organization #4 Identification. This parameter determines the RDN of the fourth sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG5

Directory Name Prefix Sub-organization #5 Identification. This parameter determines the RDN of the fifth sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

SUBORG6

Directory Name Prefix Sub-organization #6 Identification. This parameter determines the RDN of the sixth sub-organization under which the directory information of the NEs in the local IS-IS Level 1 routing are should be placed.

EXAMPLE OUTPUT

```
RTRV-RMA:OLS-400G::123456;

IP 123456

<


   OLS-400G 99-02-19 14:21:43

M  123456 COMPLD

   "RM_ACTIVE=enable,PSEL=0104,SSEL=025353,TSEL=025454,

PRINSAP=13390840800000000000000000000008006a052f72,

SEC1NSAP=13390840800000000000000000000008006a06a9dc,COUNTRY=US,

ORG=lucent,SUBORG1=,SUBORG2=,SUBORG3=,SUBORG4=,SUBORG5=,SUBORG6="

   ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-RMA

RTRV-SECTRC

RTRV-SECTRC Retrieve Section_Trace

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-SECTRC:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-SECTRC** command retrieves the received J0 section trace.

This command retrieves section trace information pertaining to the addressed section terminating entity in a line-by-line format.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the report is requested.

Entity: Port (OTU IN and OUT)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN1,IN2,IN3,IN4,OUT1,OUT2,OUT3,OUT4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If there is section trace information to report, the following output message is returned:

```
    tid date time
M   ctag COMPLD
    "aid:::STATUS=x,,MODE=x,INCSECTRC=\"xxxxxxxxxxxxxx\",
EXPSECTRC=\"xxxxxxxxxxxxxx\""
      .       .       .       .       .       .       .       .
      .       .       .       .       .       .       .       .
      .       .       .       .       .       .       .       .
    "aid:::STATUS=x,,MODE=x,INCSECTRC=\"xxxxxxxxxxxxxx\",
EXPSECTRC=\"xxxxxxxxxxxxxx\""
 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access Identifier. This is the address of the signal for which the section trace is to be retrieved.

status

Section Trace Status. This is a status report of the incoming section trace. For **MODE**=64_byte, it would only retrieve an incoming section trace of 64 bytes, the **INCSECTRC** will not be compared with the **EXPSECTRC**. The status of **RTRV_SECTRC** messages can take one of the following values:

> **GOOD**
>> Good. This indicates that the **INCSECTRC** is available and matches the **EXPSECTRC** . This status only applies to **MODE**=16_byte.

> **MISMATCH**
>> Mismatch. This indicates that the **INCSECTRC** is available but does not match the **EXPSECTRC**. This status only applies to **MODE**=16_byte.

> **NOTSUPPORTED**
>> Not supported. This indicates that the AID is valid but not supported for the inserted OTU of the addressed slot, and the **INCSECTRC** will not be compared with the **EXPSECTRC**. For example, AID IN3 is not supported for OC-192 OUT.

> **UNSPECIFIED**
>> Unspecified. This indicates that the **EXPSECTRC** is set to the default string "RESET_SECTRC". The **INCSECTRC** will not be compared with the **EXPSECTRC**. This status is returned regardless of **INCSECTRC** availability except there are equipment defects (i.e. control system failure, OTU circuit pack failure or device problems at the OTU), which should return "**UNAVAILABLE"**status instead. This status only applies to **MODE**=16_byte.

UNAVAILABLE

Unavailable. This indicates that the **INCSECTRC** is not available because there has been either control system failures, loss of signal (LOS), loss of frame (LOF), loss of clock (LOC), channel unequipped (no association), device problems at the OTU, or the OTU does not support provisioned **MODE**.

NOTAPPLICABLE

Not applicable. This indicates that the **INCSECTRC** is available, but the **EXPSECTRC** is not applicable because the OTU is provisioned for 64_byte **MODE**. The **INCSEC-TRC** will not be compared with the **EXPSECTRC**. This status only applies to **MODE**=64_byte.

mode

Receive Section Trace Mode. This is the user provisioned mode for section trace operation. The value of this parameter shall determine the allowable length of **EXPSECTRC**.

incsectrc

Incoming Section trace message. This indicates the incoming Section Trace (J0) content. The **INCSECTRC** is a string of either 15 or 63 ASCII characters received in the Section trace bytes (J0) of the incoming SDH/SONET signal. The length of this string depends upon whether 16 byte or 64 byte section trace is available and has been utilized.

If the **INCSECTRC** is **UNAVAILABLE** or **NOTSUPPORTED** and **MODE** is 16_byte, 15 question marks ("?") are reported for the **INCSECTRC**. If the **INCSECTRC** is **UNAVAILABLE** or **NOTSUPPORTED** and **MODE** is 64_byte, 63 question marks ("?") are reported for the **INCSECTRC**. The section trace is unavailable when there has been a section interruption.

Any <SPACE> character in the value of **INCSECTRC** shall be shown as a <SPACE> character.

Any trailing 0x00 (null) bytes in the value of **INCSECTRC**shall be truncated from the reported value returned by **RTRV-SECTRC**.

Any non-trailing 0x00 (null) bytes within **INCSECTRC** shall be reported as a question mark ("?"), one question mark per 0x00 byte, in the reported value returned by **RTRV-SECTRC**.

expsectrc

Expected incoming Section trace message. This indicates the expected Section Trace (J0) content. The length of the **EXPSECTRC** depends upon the value of **MODE**. For **MODE**=16_byte, the **EXPSECTRC** is a string of the first 15 ASCII characters received in the Section trace bytes (J0) of the SDH/SONET signal. For **MODE**=64_byte, a null *(expsectrc*=\"\") value for this parameter should be returned.

ITU Recommendation G.707 (ITU) defines the J0 as follows:
○ The section access point identifier may use either a single byte (containing the code 0-255)
○ The access point identifier format as defined in section 3 of ITU-T Recommendation G.831 and ITU-T Recommendation G.707.

The Network Element must have the capability to recognized the received SDH/SONET J0 section trace format:

○ If the user enters any other string, other than "RESET_SECTRC", as the value for **EXPSECTRC**, the software causes the Network Element to expect the received J0 byte string in accordance with ITU recommendation G.831 (The first byte is used for CRC7 calculation which is not readable. The other bytes are user provisionable and user readable and are used to transmit the J0 byte information according to recommendation T.50 and ITU-T Recommendations G.831 and G.707).

If there are invalid characters EXPSECTRC, the *status* will be set to **MISMATCH**.

xmmode

xmsectrc

The ASCII characters allowed for the section trace are:

Graphic Symbol	Name	Coded Representation
0-9	Digits	3/0 - 3/9
A-Z	Latin capital letters	4/1 - 5/10
a-z	Latin small letters	6/1 - 7/10
!	Exclamation mark	2/1
"	Quotation mark	2/2
#	Number sign	2/3
$	Dollar sign	2/4
%	Percent sign	2/5
&	Ampersand	2/6
'	Apostrophe	2/7
(	Left parenthesis	2/8
)	Right parenthesis	2/9
*	Asterik	2/10
+	Plus sign	2/11
,	Comma	2/12
-	Hyphen, minus sign	2/13
.	Full stop	2/14
/	Solidus	2/15

:	Colon	3/10
;	Semicolon	3/11
<	Less-than-sign	3/12
=	Equals sign	3/13
>	Greater-than-sign	3/14
?	Question mark	3/15
@	Commercial at	4/0
[	Left square bracket	5/11
\	Reverse solidus	5/12
]	Right square bracket	5/13
^	Circumflex accent	5/14
_	Low line, underline	5/15
'	Grave accent	6/0
{	Left curly bracket	7/11
|	vertical line	7/12
}	Right curly bracket	7/13
~	Tilde	7/14
	<SPACE>	2/0

These are the valid characters. The coded representation is the 7 bit hex representation as specified by the CCITT Recommendation T.50(09/92) International Reference Alphabet.

Each one of the 15 characters of the J0 section trace byte has a unique 7 bit representation as described by the T.50 standard. Any character whose 7 bit representation does not correspond to one of the allowed characters in the trace messages will be mapped to question mark ("?") in the output.

EXAMPLE INPUT/OUTPUT

The following example shows the response to a query addressed to all OTU ports in Bay 1, shelf 2 ("PORT-1-2-ALL") of a network element configured as a 2-Fiber Ring Terminal (Full Add/Drop). The bay has four slots for OTU circuit packs. The OTU in slot 1 is a 10G MUX OTU which contains four low speed input ports: IN1,IN2,IN3,IN4, and four low speed output ports: OUT1,OUT2,OUT3,OUT4. This pack supports both 16 and 64 byte section trace. The input signal on port IN1 has been provisioned for 64 byte section trace. The inputs to ports IN2,IN3,and IN4 as well as the output ports have been provisioned for 16 byte section trace. The input to the port, PORT-1-2-4-IN1, is experiencing a section interruption.

```
rtrv-sectrc:LT-400G:PORT-1-2-ALL:789012;
IP 789012
<
   LT-400G 99-10-26 16:42:11
M  789012 COMPLD
   "PORT-1-2-1-IN1:::STATUS=NOTAPPLICABLE,,MODE=64_byte,
INCSECTRC=\"This is input 1 on OTU70\",EXPSECTRC=\"\"
   "PORT-1-2-1-IN2:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-IN3:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-IN4:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-OUT1:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-OUT2:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-OUT3:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-1-OUT4:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-IN1:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-IN2:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-IN3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-IN4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-OUT1:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-OUT2:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-OUT3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-2-OUT4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-3-IN1:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-3-IN2:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-3-IN3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-3-IN4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
   "PORT-1-2-3-OUT1:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxxy\"
```

```
    "PORT-1-2-3-OUT2:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-3-OUT3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-3-OUT4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-IN1:::STATUS=UNAVAILABLE,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-IN2:::STATUS=GOOD,,MODE=16_byte,
INCSECTRC=\"AID1xxxxxxxxxy\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-IN3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-IN4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-OUT1:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-OUT2:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-OUT3:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    "PORT-1-2-4-OUT4:::STATUS=NOTSUPPORTED,,MODE=16_byte,
INCSECTRC=\"??????????????\",EXPSECTRC=\"AID1xxxxxxxxxy\"
    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **RTRV-SECTRC** command is received with an invalid *aid* value, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
    ;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SECTRC

RTRV-SLOT-STATUS

RTRV-SLOT-STATUS: Retrieve Slot Status

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1). This command is available starting in WaveStar OLS 400G Release 6.1.1.

INPUT FORMAT

RTRV-SLOT-STATUS:*tid*:*aid*:*ctag*;

DESCRIPTION

The **RTRV-SLOT-STATUS** command can be initiated by users to retrieve the status of the circuit packs equipped in the specified slot. The user may use this command to determine which circuit packs are indicating a circuit breaker alarm condition.

INPUT PARAMETERS

tid

> Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:
>
> [A-Z][a-z][0-9].+-/%#_

aid

> Access identifier. This specifies the address of the slot for which this command is intended.
>
> Entity: Slot
> Legal Values: SLOT-(ALL), SLOT-(1-12)-(ALL), SLOT-(1-12)-(1-3)-(ALL),
> SLOT-(1-12)-(1-3)-(1-12)

ctag

> Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

```
    sid date time
M   ctag COMPLD
    "aid:breaker_status"
      .              .
      .              .
    "aid:breaker_status"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this command response are defined as follows:

aid

Access identifier. This is the slot for which the slot status information is given.

breaker_status

Circuit Breaker Status. This is the status of the slot. This parameter shall have one of the following values:

ACTIVE

> Active. This specifies that the circuit pack specified by the slot is currently detecting a circuit breaker condition.

INACTIVE

> Inactive. This specifies that the circuit pack specified by the slot is not currently detecting a circuit breaker condition.

If there is no circuit pack equipped in the slot that corresponds to the specified port, no output is shown.

EXAMPLE INPUT/OUTPUT

The following WaveStar OLS 400G example requests the slot status information for all the slots in Shelf 3 of Bay 1 of a Network Element configured as a 2 Fiber Ring Terminal (Full Add/Drop).

```
RTRV-SLOT-STATUS:OLS-400G:SLOT-1-3-ALL:123456;


IP 123456
<

    OLS-400G 98-10-26 16:42:11
M   123456 COMPLD
    "SLOT-1-2-1:ACTIVE"
    "SLOT-1-2-11:ACTIVE"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. If a **RTRV-SLOT-STATUS** command is received without an aid or with an invalid *aid* value, the following error response is returned:

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

If the network element receives a **RTRV-SLOT-STATUS** command while a system controller reset is in progress, then the following error response is returned to the user:

```
      sid date time
  M   ctag DENY
      SROF
      /* Status, Requested Operation Failed, controller reset in progress */
  ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-STATE

RTRV-STATE: Retrieve State

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-STATE:*tid*:*[aid]*:*ctag*;

DESCRIPTION

The **RTRV-STATE** command can be initiated by users to retrieve system-level states, Optical Translator Unit (OTU) port states, and ORS pack protection switching states. Retrieve system-level states refers to: retrieval of whether office alarms or reporting of selected autonomous messages have been inhibited, or if the flash memory module removal is enabled or disabled.   This command also retrieves the switch status parameters from ORS pack every time OPR-PROTNSW-SW or RLS-PROTNSW-SW TL1 command is executed and whenever automatic switching request is initiated.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

Access identifier. This specifies system, address of the OTU_IN port states or line address in an orderwire protection group or address of the ORS IN port or ports for which this command is intended. The *aid* value may also be **unspecified.** If an *aid* is not sent to the network element, the network element responds as if the *aid* was system, all lines and all ports.
Entity: System
Legal Values: SYSTEM, AUTO_MSG_RPTS, ORS

Entity: Port (OTU IN)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4)

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

Entity: Port (ORS IN)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(1AIN, 1BIN, 2AIN, 2BIN,C1IN,C2IN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the
response to allow association of the command and response messages. Valid values for *ctag* are
strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal
digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with
a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

```
    tid date time

M  ctag COMPLD

    "aid,[CPTYPE]:[PORT_STATE_IN],[SW_STATE],[ACTSWPRTY],[OFFICE_ALM],[FMM_RM]"

    .           .           .           .           .           .

    .           .           .           .           .           .

    "aid,[CPTYPE]:[PORT_STATE_IN],[SW_STATE],[ACTSWPRTY],[OFFICE_ALM],[FMM_RM]"

 ;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT
PARAMETERS** section for **RTRV-HDR**. Additional parameters that specifically apply to this
command response are defined as follows:

aid

Access identifier. This is system, address of the port or line for which state information is given.

cptype

Circuit Pack Type. This is the mnemonic name of the circuit pack. For example, OTU is the
mnemonic name of the optical translator unit circuit pack. This circuit pack value will always be an
OTU (independent of OTU1 or OTU10). This is only applicable for a port entity *aid*.

port_state_in

Port State In. This is the port state in the "in" direction. Valid values are IS, OOS-MA-AS, or OOS corresponding to the "IS", "AUTO", or "NMON" states. 'RDNA' is a valid value, and indicates "Requested data not available". If the requested 'port_state_in' data for the addressed entity is corrupted, this value is reported.

This parameter is blank if it does not apply for a given *aid*.

sw_state

Switch State. This is the switch state of the addressed switchable entity. This parameter will have one of the following values:

    ACT
        Active. This specifies that the addressed entity is in the active state.
    STBY
        Standby. This specifies that the addressed entity is in the standby state.

    RDNA
        Requested data not available. If the requested *sw_state* data for the addressed entity is corrupted, this value is reported.

actswprty

Active Switch Priority. This field is reported for addressed switchable entities and it specifies the current active protection switching request. If non-null, the *actswprty* parameter has one of the following values (for clarity, the values applicable to a given entity are grouped together and listed in the order of priority of request):

    INH
        Inhibit. This specifies that an inhibit protection switching request is active.
    FS
        Forced. This specifies that a forced switching request is active.
    SF
        Signal Fail. This specifies that an automatic protection switching request is active
    NR
        No Request. There is no automatic switch request.
        NOTE:
        This field will be reported in 1+1 optical protection switching and four fiber (4F) network where order-wire switching is supported.
   RDNA
      Requested data not available. If the requested *actswprty* data for the addressed entity is corrupted, this value is reported.

office_alm

Office Alarm. This is the state of the office alarms. This parameter shall have one of the following values:
   INH
        Inhibit. This specifies that the office alarms are inhibited.

ALW
>   Allow. This specifies that the office alarms are reported.
This parameter is valid only for an *aid* value of SYSTEM.
The original value for this parameter is "ALW".

fmm_rm

Flash Memory Module Removal. This is the state of the flash removal. This parameter shall have
one of the following values:

DBLD
>   Disabled. This specifies that the removal of the Flash Memory Module is disabled.
EBLD
>   Enabled. This specifies that the removal of the Flash Memory Module is enabled.
This parameter is valid only for an *aid* value of SYSTEM.
The original value for this parameter is "DBLD".

EXAMPLE INPUT/OUTPUT

The following WaveStar OLS 1.6T example requests the system state information for the Network
Element. If ORS port aid is entered where an OTU is plugged in, it will return empty response
"COMPLD" and vice versa

```
rtrv-state:OLS-400G:SYSTEM:123456;
```

```
IP 123456

<


    OLS-400G 98-10-26 16:42:11

M  123456 COMPLD

    "SYSTEM,:,,,ALW,DBLD"

;
```

The following WaveStar OLS 1.6T example requests the state information for all the ports of an OTU
circuit pack in Slot 1 on Shelf 2 of Bay 1 of a Network Element configured as a 2 Fiber Ring Termi-
nal (Full Add/Drop).

```
rtrv-state:OLS-400G:PORT-1-2-1-ALL:123456;



IP 123456

<


   OLS-400G 98-10-26 16:42:11

M  123456 COMPLD

   "PORT-1-2-1-IN1,OTU:IS,,,,"

   "PORT-1-2-1-IN2,OTU:IS,,,,"

;
```

The following WaveStar OLS 1.6T example requests the state information for all the ports of an ORS circuit pack in Slot 1 on Shelf 3 of Bay 2 of a Network Element configured as a 2 Fiber Ring Terminal (Full Add/Drop).

```
rtrv-state:OLS-400G:PORT-2-3-1-ALL:123456;

   IP 123456

   <

      OLS-400G 2000-10-01 8:8:31;


 M  123456 COMPLD

      "PORT-2-3-1-C1IN,ORS:OOS-MA-AS,,,,"

      "PORT-2-3-1-C2IN,ORS:OOS-MA-AS,,,,"

      "PORT-2-3-1-1AIN,ORS:OOS-MA-AS,ACT,NR,,"

      "PORT-2-3-1-1BIN,ORS:OOS-MA-AS,STBY,NR,,"

      "PORT-2-3-1-2AIN,ORS:OOS-MA-AS,ACT,NR,,"

      "PORT-2-3-1-2BIN,ORS:OOS-MA-AS,STBY,NR,,"
```

```
    ;
```

The following WaveStar OLS 1.6T example requests the state information for the 1AIN ports of an
ORS circuit pack in Slot 1 on Shelf 3 of Bay 3 of a Network Element configured as a 2 Fiber Ring
Terminal (Full Add/Drop)-800G

```
    rtrv-state:OLS-400G:PORT-3-3-1-1AIN:123456;

    IP 123456

    <


      OLS-400G 1999-07-11 13:43:12

    M  123456 COMPLD

      "PORT-3-3-1-1AIN,ORS:,ACT,SF,,"

      "PORT-3-3-1-1BIN,ORS:,STBY,SF,,"

    ;
```

The following WaveStar OLS 1.6T example requests the state information for the 2BIN ports of an
ORS circuit pack in Slot 5 on Shelf 3 of Bay 2 of a Network Element configured as a 2 Fiber Ring
Terminal (Full Add/Drop)-80 Channels

```
    rtrv-state:OLS-400G:PORT-1-3-5-2BIN:123456;

    IP 123456

  <

      OLS-400G 2000-01-05 12:53:10

  M  123456 COMPLD

     "PORT-2-3-5-2BIN,ORS:,ACT,FS,,"

     "PORT-2-3-5-2AIN,ORS:,STBY,FS,,"

  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply
to this command.

If a **RTRV-STATE** command is received with an invalid *aid* value, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

OPR-PROTNSW-OTPS
RLS-PROTNSW-OTPS
INH-MSG-EQPT
ALW-MSG-EQPT
INH-FMM-RMVL
ALW-FMM-RMVL
REPT-SW

RTRV-SUPR

RTRV-SUPR: Retrieve Supervisory

The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-SUPR:*tid*:*aid*:*ctag[:type]*;

DESCRIPTION

RTRV-SUPR command messages can be initiated by a user to retrieve the current provisioned parameters for the specified supervisory channel. This command retrieves all supervisory parameter settings that are provisionable via **ENT-SUPR** commands pertaining to the supervisory channel addressed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the entity for which the report is requested.

Access identifier. This is the address of the supervisory channel for which this command is intended.

Entity: Supervisory Channel [End terminals, Ring terminals, and Repeaters]
Legal Values: (LINE)-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

type

Type. A value for this parameter is neither expected nor allowed.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-SUPR** command, the following output report is returned.

```
    sid date time

M   ctag COMPLD

    "supr_aid:::,ow1type,ow2type,ow3type,provdltype,fixdltype"

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

supr_aid

Supervisory channel access identifier. This is the supervisory channel address for which output is being reported.

ow1type

Type of Orderwire 1. This parameter is the type of Orderwire 1 for the supervisory channel(s) addressed by the *aid*.

The *ow1type* parameter is reported in OW1TYPE=*xx* format where *xx* may have one of the following values:
> **local**
> > This indicates that Orderwire 1 is of local type.
> **express**
> > This indicates that Orderwire 1 is of express type.

ow2type

Type of Orderwire 2. This parameter is the type of Orderwire 2 for the supervisory channel(s) addressed by the *aid*.

The *ow2type* parameter is reported in `OW2TYPE=xx` format where *xx* may have one of the following values:

> **local**
>> This indicates that Orderwire 2 is of local type.
>
> **express**
>> This indicates that Orderwire 2 is of express type.

ow3type

Type of Orderwire 3. This parameter is the type of Orderwire 3 for the supervisory channel(s) addressed by the *aid*.

The *ow3type* parameter is reported in `OW3TYPE=xx` format where *xx* may have one of the following values:

> **local**
>> This indicates that Orderwire 3 is of local type.
>
> **express**
>> This indicates that Orderwire 3 is of express type.

provdltype

Type and Orientation of the Provisionable Data Link. This parameter is the type and orientation of the provisionable Data Link for the supervisory channel(s) addressed by the *aid*.

The *provdltype* parameter is reported in `PROVDLTYPE=xx` format where *xx* may have one of the following values:

> **local-user**
>> This indicates that the provisionable Data Link is of local type and user orientation.
>
> **local-network**
>> This indicates that the provisionable Data Link is of local type and network orientation.
>
> **express**
>> This indicates that the provisionable Data Link is of express type (orientation has no meaning for this Data Link type).

fixdltype

Type and Orientation of the Fixed Data Link. This parameter is the type and orientation of the fixed Data Link for the supervisory channel(s) addressed by the *aid*.

The *fixdltype* parameter is reported in `FIXDLTYPE=xx` format where *xx* may have one of the following values:

local-user
>>>This indicates that the fixed Data Link is of local type and user orientation.

local-network
>>>This indicates that the fixed Data Link is of local type and network orientation.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query concerning a supervisory channel.

```
rtrv-supr:LT-400G:line-1e:123456;
```

```
IP 123456

<


   LT-400G 98-10-26 16:42:11

M  123456 COMPLD

   "LINE-1E:::,OW1TYPE=local,OW2TYPE=local,OW3TYPE=express,PROVDLTYPE=express,FIXDLTYPE=local-network"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

 ;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier*/

 ;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-SUPR

RTRV-SWDB-ATTR

RTRV-SWDB-ATTR: Retrieve Software and Database Attributes

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 5.0.

INPUT FORMAT

RTRV-SWDB-ATTR:*tid*::*ctag*;

DESCRIPTION

The **RTRV-SWDB-ATTR** command can be initiated by a user to retrieve the attributes of the current software version(s) and the current and backup databases in the local network element.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When reporting the software and database information, the following output message is returned:

```
   sid date time
M  ctag COMPLD
   "spec_block"
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

spec_block

Specific block. This parameter field is used for returning the software and database information of the local network element. Parameters within the specific block are positionally independent and are specified using a name defined construct of: PARAMETER=*value* in a comma separated list. The parameters are listed and explained below.

It should be noted, however, that the network element will return the parameters within the *spec_block* in the following order: **ACTSWINSTTIME, ACTSWVERSION, ACTSWSTATUS, INACTSWINSTTIME, INACTSWVERSION, INACTSWSTATUS, DBRESTTIME, DBBACK-UPTIME** .

ACTSWINSTTIME

This is the last rebooted date and time of the software in the active partition of the Flash Memory Module (FMM) in the BOS SYSCTL. If the local network element is provisioned to operate in SONET mode, this parameter is reported in the format \"YY-MM-DD HH:MM:SS\" (year-month-day hour:minute:second). If the local network element is provisioned to operate in SDH mode, this parameter is reported in the format \"DD-MM-YY HH:MM:SS\" (day-month-year hour:minute:second).

ACTSWVERSION

This is the version identification of the software in the active partition of the FMM in the BOS SYSCTL. It is a string with the format 1.6T_RELEASE_x.y.z-1600 where x is the release number, y is the point release number and z is the bugfix release number. x, y and z are all two decimal digits max, $1 <= x <= 99$, $0 <= y$, $z <= 99$.

ACTSWSTATUS

This is the current status of the software in the active partition of the FMM in the BOS SYSCTL. It takes one of the following values with the indicated meaning:

> **OK**
> - the code in the active partition matches the currently executing code.
> **MISMATCH**
> - the code in the active partition does not match the currently executing code.
> **EMPTY**
> - there is no code in the active partition of the FMM.
> **FAILED**
> - the FMM is failed or missing.

INACTSWINSTTIME

This is the last installation date and time of the software in the inactive partition of the FMM in the BOS SYSCTL. If the local network element is provisioned to operate in SONET mode, this parameter is reported in the format \"YY-MM-DD HH:MM:SS\" (year-month-day hour:minute:second). If the local network element is provisioned to operate in SDH mode, this parameter is reported in the format \"DD-MM-YY HH:MM:SS\" (day-month-year hour:minute:second).

INACTSWVERSION

This is the version identification of the software in the inactive partition of the FMM in the BOS SYSCTL. It is a string with the format 1.6T_RELEASE_x.y.z-1600 where x is the release number, y is the point release number and z is the bugfix release number. x, y and z are all two decimal digits max, $1 <= x <= 99$, $0 <= y, z <= 99$.

INACTSWSTATUS

This is the current status of the software in the inactive partition of the FMM in the BOS SYSCTL. It takes one of the following values with the indicated meaning:

> **OK**
> - the code in the inactive partition is compatible with the current database version.
> **MISMATCH**
> - the code in the inactive partition is not compatible with the current database version.
> **EMPTY**
> - there is no code in the inactive partition of the FMM.
> **FAILED**
> - the FMM is failed or missing.

DBRESTTIME

This is the date and time the current database was last restored. For all intents and purposes, this the is time the local network element was last reset. If the local network element is provisioned to operate in SONET mode, this parameter is reported in the format \"YY-MM-DD HH:MM:SS\" (year-month-day hour:minute:second). If the local network element is provisioned to operate in SDH mode, this parameter is reported in the format \"DD-MM-YY HH:MM:SS\" (day-month-year hour:minute:second).

DBBACKUPTIME

This is the date and time the current database was last backed up (either autonomously by the local network element or by external user request). If the local network element is provisioned to operate in SONET mode, this parameter is reported in the format \"YY-MM-DD HH:MM:SS\" (year-month-day hour:minute:second). If the local network element is provisioned to operate in SDH mode, this parameter is reported in the format \"DD-MM-YY HH:MM:SS\" (day-month-year hour:minute:second).

EXAMPLE OUTPUT

The following example shows a **RTRV-SWDB_ATTR** command for a network element. The line breaks in this example are to make the output easier to read and do not appear in the actual TL1 output.

```
rtrv-swdb-attr:ols-400g::c123;IP C123
<
   OLS-400G 00-05-26 11:18:23
   M  C123 COMPLD
   "ACTSWINSTTIME=\"00-03-34 08:12:33\",
   ACTSWVERSION=1.6T_RELEASE_2.1.1-1600,ACTSWSTATUS=OK,
   INACTSWINSTTIME=\"00-05-25 14:32:07\",
   INACTSWVERSION=1.6T_RELEASE_3.0.1-1600,INACTSWSTATUS=MISMATCH,
   DBRESTTIME=\"00-05-21 19:05:52\",DBBACKUPTIME=\"00-05-26 00:43:41\"";
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

RTVR-EQPT

RTRV-SYS

RTRV-SYS: Retrieve System

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-SYS:*tid*::*ctag*;

DESCRIPTION

The **RTRV-SYS** command can be initiated by a user to retrieve network element attributes associated with that network element at the system level that are currently in effect.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When there is system information to report, the following output message is returned:

```
   tid date time


M  ctag COMPLD
```

```
    "tid=system_name,std=x,netype=y,ip_address=z,eth_adrs=a,


  dfltrtr_ipaddress=b,local_subnetmask=c,nat_ipaddress=d,

  quick_tran=e,cit_port_ip=f,cit_port_eth_adrs=g,cit_port_dfltrtr_ip=h,

  cit_port_local_subnetmask=i,cit_port_nat_ip=j"



  ;
```

OUTPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

std

Standard. This parameter reports if the NE is configured for operation in SONET or SDH environment.

netype

Please see the description for NETYPE parameter in ENT_SYS command page.

ip_address

Internet Protocol (IP) Address. This entry in the report indicates the IP address of the network element.

eth_adrs

Ethernet Address. This entry in the report indicates the MAC address of the OS port ethernet-based LAN. It is a six byte value, displayed in the hexadecimal format of FF-FF-FF-FF-FF-FF. This value is also used as the System ID field of the NSAP.

dfltrtr_ipaddress

Default Router Internet Protocol (IP) Address. This entry in the report indicates the IP address of the default router for outgoing messages.

local_subnetmask

Local Sub-network Mask. This entry in the report indicates the value for Local Subnet Mask used by the network element.

nat_ipaddress

The Internal Network Address Translation IP Address. This entry in the report indicates the NAT IP address used internally by the network element.

quick_tran

The QUICK_TRAN refers to restoration of transmission quickly after a power-up cycle or power failure. This parameter with a value of **ENABLED** or **DISABLED** in the report indicates that the quick transmission restoration is either enabled or disabled.

cit_port_ip
CIT Port Internet Protocol (IP) Address. This entry in the report indicates the IP address of the CIT port on the network element.

cit_port_eth_adrs
CIT Port Ethernet Address. This entry in the report indicates the MAC address of the ethernet-based LAN of the CIT port. It is a six byte value, displayed in the hexadecimal format of FF-FF-FF-FF-FF-FF.

cit_port_dfltrtr_ip
CIT Port Default Router Internet Protocol (IP) Address. This entry in the report indicates the IP address of the default router for outgoing messages on the CIT port.

cit_port_local_subnetmask
CIT Port Local Sub-network Mask. This entry in the report indicates the value for Local Subnet Mask used by the network element on the CIT port.
     <6> {End of REQ R6.0-ALL RTRV_SYS-51}

cit_port_nat_ip
CIT Port Internal Network Address Translation IP Address. This entry in the report indicates the NAT IP address used internally by the network element on the CIT port.

EXAMPLE OUTPUT

The following example requests the current system level attributes associated with the network element node: OLS-400G

_____

```
RTRV-SYS:OLS-400G::123456;


IP 123456


   OLS-400G 98-03-13 16:42:11

M  123456 COMPLD

   "TID=OLS-400G,STD=SDH,NETYPE=2F_END_80,IP_ADDRESS=10.17.23.11,

ETH_ADRS=CC-00-20-8D-D2-10,DFLTRTR_IPADDRESS=10.17.38.108,

LOCAL_SUBNETMASK=255.255.0.0,NAT_IPADDRESS=30.0.0.0, QUICK_TRAN=DISABLED,

CIT_PORT_IP=123.12.27.4,CIT_PORT_ETH_ADRS=CC-00-20-A7-33-2F,

CIT_PORT_DFLTRTR_IP=123.12.27.232,CIT_PORT_LOCAL_SUBNETMASK=255.255.255.0,

CIT_PORT_NAT_IP=0.0.0.0"

   ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also
apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-SYS
PROV-SYS

RTRV-TH-OCHAN

RTRV-TH-OCHAN: Retrieve Threshold Optical_Channel

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-TH-OCHAN:*tid*:*aid*:*ctag*::[*montype*],[*locn*],[*dirn*][,*tmper*];

DESCRIPTION

The **RTRV-TH-OCHAN** command instructs a network element to send the current threshold level and QOS notification status of one or more monitored parameters for optical channel signal types.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Optical Channel (OCHAN)
Legal Values: (OCHAN)-(ALL), (OCHAN)-(1E,1W,2E,2W)-(ALL,9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

This parameter must be specified for one of the following values:

"SPR-C" (Analog - Signal Power Received - Optical Channel), or
"SPT-C" (Analog - Signal Power Transmited - Optical Channel), or
"ALL" (All applicable montype values).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
> If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
> If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This requests threshold information for a specified time interval. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
> If no value is provided for *tmper*, **NA** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

    .         .         .           .

    .         .         .           .

    .         .         .           .

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier.

       OCHAN

          The optical channels for OLS 1.6T.

montype

Monitored parameter for which threshold level is being retrieved.

locn

Reporting location for the threshold information. The value must be **NA**.

dirn

Reporting direction for the threshold information. The value must be **NA**.

hithlev

Current high threshold level for the monitored parameter. The format of the analog parameter is XX.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

lothlev

Current low threshold level for the monitored parameter. The format of the analog parameter is XX.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

tmper

Reporting time period for the PM information.

Reporting time interval for the threshold information. The value must be **NA**.

notify

TCA/QOS notification. This parameter indicates if Threshold Crossing Alert(TCA)/Quality of Service (QOS) notification has been turned on or off for the specified *montype*. A value of **on** means TCA/QOS notification is turned on and a value of **off** indicates TCA/QOS notification is turned off.

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical channel's SPT-C threshold parameter for OCHAN-2W-9195 is:

```
rtrv-th-ochan:LT-400G:OCHAN-2W-9195:123456::SPT-C,,,;



IP 123456

<



   LT-400G 99-01-04 05:43:50

M  123456 COMPLD

   "OCHAN-2W-9195,OCHAN:SPT-C,NA,NA,4,-5,NA,on"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element is configured as part of a C-Band system, and it receives this command with an *aid* value for an L-Band system; or if the network element is configured as part of an L-Band system, and it receives this command with an *aid* value for a C-Band system, the following error response will be returned:

```
    tid date time


M   ctag DENY


    IIAC


    /* Input, Invalid Access Identifier,


  AID invalid for the provisioned NE type */


;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */


;
```

The network element returns the following error response if the *dirn* value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
   sid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid TMPER */

;
```

_____

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN
SET-TH-OCHAN

RTRV-TH-OLINE

RTRV-TH-OLINE: Retrieve Threshold Optical_Line

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-TH-OLINE:*tid*:*aid*:*ctag*::[*montype*],[*locn*],[*dirn*][,*tmper*];

DESCRIPTION

The **RTRV-TH-OLINE** command instructs a network element to send the current threshold level and QOS notification status of one or more monitored parameters for optical line signal types.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

This parameter must be specified for one of the following values:

"TOPR-OL" (Analog - Total Optical Power Received - Line), or
"TOPT-OL" (Analog - Total Optical Power Transmitted - Line), or
"PLE-RP1" (Analog - Pump Laser Efficiency - Receive Pump 1), or
"PLE-RP2" (Analog - Pump Laser Efficiency - Receive Pump 2), or
"PLE-RP3" (Analog - Pump Laser Efficiency - Receive Pump 3), or
"PLE-RP4" (Analog - Pump Laser Efficiency - Receive Pump 4), or
"PLE-RP5" (Analog - Pump Laser Efficiency - Receive Pump 5), or
"PLE-RP6" (Analog - Pump Laser Efficiency - Receive Pump 6), or
"PLE-TP1" (Analog - Pump Laser Efficiency - Transmit Pump 1), or
"PLE-TP2" (Analog - Pump Laser Efficiency - Transmit Pump 2), or
"PLE-TP3" (Analog - Pump Laser Efficiency - Transmit Pump 3), or
"PLE-TP4" (Analog - Pump Laser Efficiency - Transmit Pump 4), or
"PLE-TP5" (Analog - Pump Laser Efficiency - Transmit Pump 5), or
"PLE-TP6" (Analog - Pump Laser Efficiency - Transmit Pump 6), or
"ALL" (all applicable analog montype values).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".
> **NA**
>> Not applicable.
> If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".
> **NA**
>> Not applicable.
> If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This requests threshold information for a specified time interval. This parameter, if specified, must have one of the following values: "NA".
> **NA**
>> Not applicable.
> If no value is provided for *tmper*, **NA** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
     sid date time

M  ctag COMPLD

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

       .        .       .         .

       .        .       .         .

       .        .       .         .

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier.

> **OLINE**
>> The optical line for WaveStar OLS 40G and 1.6T.

montype

Monitored parameter for which threshold level is being retrieved.

locn

Reporting location for the threshold information. The value must be **NA**.

dirn

Reporting direction for the threshold information. The value must be **NA**.

hithlev

Current high threshold level for the monitored parameter. The format of the parameter is XX for TOPR-OL/TOPT-OL. There is no *hithlev* for PLE-RPx/PLE-TPx, whose values must be returned as the "null" value.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

lothlev

Current low threshold level for the monitored parameter. The format of the parameter is XX for TOPR-OL/TOPT-OL, and X.XX for PLE-RP1, .., PLE-RP6, PLE-TP1, .., and PLE-TP6.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

tmper

Reporting time period for the PM information.

Reporting time interval for the threshold information. The value must be **NA**.

notify

TCA/QOS notification. This parameter indicates if Threshold Crossing Alert(TCA)/Quality of Service (QOS) notification has been turned on or off for the specified *montype*. A value of **on** means TCA/QOS notification is turned on and a value of **off** indicates TCA/QOS notification is turned off.

EXAMPLE INPUT/OUTPUT

The command to retrieve the optical oline's TOPR-OL threshold parameter for LINE-2W is:

```
rtrv-th-oline:OLS-400G:LINE-2W:123456::TOPR-OL,,,;


IP 123456

<

    OLS-400G 98-10-23 10:24:05

M  123456 COMPLD

    "LINE-2W,OLINE:TOPR-OL,NA,NA,4,-2,NA,on"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OLINE
SET-TH-OLINE

RTRV-TH-OTPS

RTRV-TH-OTPS: Retrieve Threshold Optical_Translator_Port_Signal The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

Requirement End UPC-PM1

Discussion Begin 400G-RSF029

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-TH-OTPS:*tid*:*aid*:*ctag*::[*montype*],[*locn*],[*dirn*][,*tmper*];

DESCRIPTION

The **RTRV-TH-OTPS** command instructs a network element to retrieve the current threshold level and QOS notification status of one or more monitored parameters of OTUs. Both SONET and SDH PM parameters are supported.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Port (OTU)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN, IN1, IN2, IN3, IN4, OUT1, OUT2, OUT3, OUT4,
9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505,
9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420,
9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335,
9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250,
9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025,
9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955,

8950, 8945, 8940,
8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870,
8865, 8860, 8855,
8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785,
8780, 8775, 8770,
8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700,
8695, 8690, 8685,
8680, 8675, 8670, 8665, 8660, 8655, 8650)

Note: User can enter any of the valid "Wavelength" for OCh10G output port. They will all yield the same result as they
basically point to the line side output port of the plugged in OTU. It is not necessary that the frequency specified has to match the frequency specified by the plugged in MUX OTU. Also the output will always show the port label as "WXYZ" regardless of what was input.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

 This parameter must be specified for one of the following values: (SONET ONLY)

"LBC"(Analog Laser Bias Current at OC-48/STM-16 or OC-192/STM-64 OTU, LSBB OTU, or HSBB OTU, 10G MUX OTU), or
"CVS"(Digital-Coding violation:OC-48/STM-16, OC-192/STM-64), or
"ESS"(Digital-Errored second:OC-48/STM-16, OC-192/STM-64), or
"SESS"(Digital-Severely errored second:OC-48/STM-16, OC-192/STM-64, 10G MUX OTU), or
"SEFSS"(Digital-Severely errored framing seconds:OC-48/STM-16, OC-192/STM-64, 10G MUX OTU), or
"FEC-EC"(Digital - FEC Error Count - OC-48/STM-16, OC-192/STM-64, MUX OCh10G signal), or
"FEC-UBC"(Digital - FEC Uncorrectable Block Count - OC-48/STM-16, OC-192/STM-64, MUX OCh10G signal), or
"ALL" (All applicable montype values).

This parameter must be specified for one of the following values: (SDH ONLY)

"LBC"(Analog Laser Bias Current at OC-48/STM-16 or OC-192/STM-64 OTU, LSBB OTU, or HSBB OTU, 10G MUX OTU), or
"BBE"(Digital - Background Block Errors: STM-16 or STM-64, 10G MUX OTU), or
"ESS"(Digital - Errored Second: STM-16 or STM-64, 10G MUX OTU), or
"SESS"(Digital - Severely Errored Second: STM-16 or STM-64, 10G MUX OTU), or
"UASS"(Digital - Unavailable Second: STM-16 or STM-64, 10G MUX OTU), or
"FEC-EC"(Digital - FEC Error Count - OC-48/STM-16, OC-192/STM-64, MUX OCh10G signal), or
"FEC-UBC"(Digital - FEC Uncorrectable Block Count - OC-48/STM-16, OC-192/STM-64, MUX OCh10G signal), or
"ALL" (All applicable montype values).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This requests threshold information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN","1-DAY", "NA", or "ALL".

15-MIN

This requests digital PM threshold in 15-minute intervals.

1-DAY

This requests daily digital PM threshold.

NA

Not Applicable - only applies to analog PM threshold.

ALL

This requests both 15-minute and daily thresholds for digital parameters and NA for analog parameters for the specified facilities.

If no value is provided for *tmper*, **ALL** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
   "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"
     .       .       .       .
     .       .       .       .
     .       .       .       .
   "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

Access identifier type.

OTPS

> The optical translator port states encompass the AID types for OTU packs.

montype

Monitored parameter for which threshold level is being retrieved.

locn

Reporting location for the threshold information. The value must be **NA**.

dirn

Reporting direction for the threshold information. The value must be **NA**.

hithlev

Current high threshold level for the monitored parameter. The format of the LBC parameter is X.XX. Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

The threshold values for FEC-EC and FEC-UBC shall support the format "mEe", where

- ■ "m" represents the mantissa, and is an non-negative integer of 1 to 5 digits within the range 0 to 65535
- ■ "E" is a literal byte

- - "e" represents the exponent, and is a non-negative integer of 1 to 2 digits within the range 0 to 12

Note that to represent a number such as "2.5E10", then in order to keep the mantissa being an integer value, the number can be represented in this format as 25E9.

The threshold values for FEC-EC and FEC-UBC shall also support the numeric format, i.e. "100".

lothlev

Current low threshold level for the monitored parameter. Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins. For LBC and the digital parameters, *lothelev* must be **null.**

tmper

Reporting time period for the PM threshold information.

notify

TCA/QOS notification. This parameter indicates if Threshold Crossing Alert(TCA)/Quality of Service (QOS) notification has been turned on or off for the specified *montype*. A value of **on** means TCA/QOS notification is turned on and a value of **off** indicates TCA/QOS notification is turned off.

EXAMPLE INPUT/OUTPUT

Retrieve the CVS threshold parameter and QOS autonomous message notification status.

```
rtrv-th-otps:OLS-400G:PORT-12-3-2-IN2:123456::CVS,NA,NA,1-DAY;

IP 123456
<
    OLS-400G 98-12-22 17:48:12
M  123456 COMPLD
    "PORT-12-3-2-IN2,OTPS:CVS,NA,NA,92,,1-DAY,OFF"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time
M  ctag DENY
```

```
     IIAC
     /* Input, Invalid Access Identifier */
;
```

The network element returns the following error response if the *montype* value is not supported.

```
     sid date time
M   ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *locn* value is invalid.

```
     sid date time
M   ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *dirn* value is not supported.

```
     sid date time
M   ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid DIRN */
;
```

The network element returns the following error response if the *tmper* value is invalid.

```
     sid date time
M   ctag DENY
     IDNV
     /* Input, Data Not Valid, invalid TMPER */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OTPS
SET-TH-OTPS

RTRV-TH-SUPR

RTRV-TH-SUPR: Retrieve Threshold Supervisory

The User Privilege Code (UPC) for this command is Performance Monitoring Level 1 (PM1).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-TH-SUPR:*tid*:*aid*:*ctag*::[*montype*],[*locn*],[*dirn*][,*tmper*];

DESCRIPTION

The **RTRV-TH-SUPR** command instructs a network element to send the current threshold level and QOS notification status of one or more monitored parameters for supervisory channel signals.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being retrieved.

This parameter must be specified for one of the following values:

"SPR-SU" (Analog - Signal Power Received : Supervisory, for C Band only), or
"SPT-SU" (Analog - Signal Power Transmitted : Supervisory), or
"CRC" (Digital - Cyclical Redundancy Check), or
"ES" (Digital - Errored Seconds), or
"BES" (Digital - Bursty Errored Seconds), or
"SES" (Digital - Severely Errored Seconds), or
"UAS" (Digital - Unavailable Errored Seconds), or
"ALL" (All applicable analog and digital montype values).

If no value is provided for this parameter, the value of **ALL** is assumed.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
>
> If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.
>
> If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. This requests threshold information for a specified time interval. This parameter, if specified, must have one of the following values: "15-MIN","1-DAY", "NA", or "ALL".

> **15-MIN**
>> This requests digital PM threshold in 15-minute intervals.
>
> **1-DAY**
>> This requests daily digital PM threshold.
>
> **NA**
>> Not Applicable - only applies to analog PM threshold.
>
> **ALL**
>> This requests both 15-minute and daily thresholds for digital parameters and NA for analog parameters for the specified facilities.
>
> If no value is provided for *tmper*, **ALL** is assumed.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    sid date time

M  ctag COMPLD

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

    .        .        .         .

    .        .        .         .

    .        .        .         .

    "aid,aidtype:montype,locn,dirn,hithlev,lothlev,tmper,notify"

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for
the normal completion response also apply to this command.

aid

Access identifier. This identifies the facility for which threshold levels are being retrieved.

aidtype

The type of access identifier. Valid value for *aidtype* is:

      SUPVY

          The E-1 level supervisory channel for OLS 1.6T.

montype

Monitored parameter for which threshold level is being retrieved.

locn

Reporting location for the threshold information. The value must be **NA**.

dirn

Reporting direction for the threshold information. The value must be **NA**.

hithlev

Current high threshold level for the monitored parameter. The format of the analog parameter is XX.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

lothlev

Current low threshold level for the monitored parameter. The format of the analog parameter is XX.

Analog parameters are not accumulative in nature, as a result, the output threshold value for the analog *montype* must be the same for the 15-minute and 1-day bins.

For the digital parameters, *lothelev* must be **null.**

tmper

Reporting time period for the PM information.

Reporting time period for the threshold information.

notify

TCA/QOS notification. This parameter indicates if Threshold Crossing Alert(TCA)/Quality of Service (QOS) notification has been turned on or off for the specified *montype*. A value of **on** means TCA/QOS notification is turned on and a value of **off** indicates TCA/QOS notification is turned off.

EXAMPLE INPUT/OUTPUT

```
rtrv-th-supr:OLS-400G:LINE-1W:123456::ES,NA,NA,15-MIN;



IP 123456

<

    OLS-400G 98-12-23 12:11:13

M  123456 COMPLD

    "LINE-1W,SUPVY:ES,NA,NA,690,,15-MIN,off"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

The network element returns the following error response if the *montype* value is not supported.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

The network element returns the following error response if the *locn* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is not supported.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-SUPR
SET-TH-SUPR

RTRV-TMGSRC-SUPR

RTRV-TMGSRC-SUPR: Retrieve Supervisory_Timing_Source

The User Privilege Code (UPC) for this command is Provisioning Level 1 (P1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

RTRV-TMGSRC-SUPR:*tid*:*aid*:*ctag*;

DESCRIPTION

RTRV-TMGSRC-SUPR command messages can be initiated by a user to retrieve the current values of timing source parameters related to Supervisory Circuit Packs. This command retrieves all parameter values that are provisionable via **ENT-TMGSRC-SUPR** commands.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access Identifier. This is the address of the Supervisory Ciruit Pack slots for which the command is intended.

Entity: Slot (Supervisory Circuit Pack for NETYPES 2F_END_80, 2F_FULL_AD_80, 2F_4CH_AD, 2F_4CH_AD2, 2F_END_80_800G, 2F_END_80_800GL, 2F_FULL_AD_80_800G, 2F_FULL_AD_80_800GL, 2F_END_16, 2F_FULL_AD_16, 2F_END_80L)
Legal Values: SLOT-(1)-(2)-(7)

Entity: Slot (Supervisory Circuit Pack for NETYPE 2F_RPTR, 2F_RPTRL, 2F_RPTR_16)
Legal Values: SLOT-(1)-(1)-(9)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

Because the network element supports pre-provisioning of parameters, lines are included for all applicable *aid* values in response to this command, whether or not the present equipage is capable of supporting the type of facility specified.

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

In response to a valid **RTRV-TMGSRC-SUPR** command, the following output report is returned.

```
    sid date time

M   ctag COMPLD

    "slot_aid:::tmgsrc"

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

slot_aid

Supervisory circuit pack slot access identifier. This is the supervisory circuit pack slot address for which output is being reported.

tmgsrc

Timing source. This parameter is the timing source for the supervisory channel(s) addressed by the *aid*.

The *tmgsrc* parameter is reported in TMGSRC=*xx* format where *xx* may have one of the following values:

> **internal**
> > The internal clock is set as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

> **line_east**
> > The East side line is set as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

line_west
> The West side line is set as the timing source of the supervisory channels supported by the specified supervisory circuit pack.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query concerning a supervisory circuit pack timing source.

```
rtrv-tmgsrc-supr:LT-400G:SLOT-1-2-7:123456;
```

```
IP 123456

<


   LT-400G 98-10-26 16:42:11

M  123456 COMPLD

   "SLOT-1-2-7:::TMGSRC=INTERNAL"



;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with any extra (beyond the input format specification above) null or non-null command parameter blocks (:), parameters (,), or termination characters (;), the following error response is returned:

```
     sid date time

M  ctag DENY

     IISP

     /* Input, Invalid Syntax or Punctuation */

;
```

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
     sid date time

M  ctag DENY

     IIAC

     /* Input, Invalid Access Identifier */

;
```

RELATED TL1 COMMANDS/MESSAGES

ENT-TMGSRC-SUPR

RTRV-TRACE-OA

`RTRV-TRACE-OA`: Retrieve Trace OA

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 4.0.

OA version 6.1 and earlier does not support the tone trace feature. Attempting to retrieve information via this command for such an OA will result in invalid data. Software shall not be required to do any validity checking.

INPUT FORMAT

  `RTRV-TRACE-OA`:*tid*:*aid*:*ctag*;

DESCRIPTION

  `RTRV-TRACE-OA` command can be initiated by a user to retrieve the current values of the Trace Signal being received at a particular OA port (SUPVY input or output or line output).

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

  which the command is intended.

  Entity: Trace Port (OA)
  Legal Values: PORT-(ALL), PORT-(1-4)-(ALL), PORT-(1-4)-(1-3)-(ALL),
  PORT-(1-4)-(1-3)-(1-12)-(ALL), PORT-(1-4)-(1-3)-(1-12)-(OUT,SUP_TX,SUP_RX)

  ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **RTRV-TRACE** command, the following output report is returned, sorted on port data by *port_aid* value.

```
    tid date time
M   ctag COMPLD

    "port_aid:::tracesig"
    "port_aid:::tracesig"
     .       .       .
     .       .       .
     .       .       .
    "port_aid:::tracesig"
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

tracesig

Unlike C-band OA, the L-band OA is not equipped with a supervisory drop tone detector. Signal trace is not supported for *port_aid* =
SUP_RX. Thus, for a L-band OA, the value of *tracesig* shall be **not_supported** for SUP_RX aid.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query addressed to all OA ports in a single circuit pack:

```
rtrv-trace-oa:WaveStar-OLS-400G-3:port-2-1-5-all:ant539;IP ANT539
<
    WAVESTAR-OLS-400G-3 98-07-23 16:33:43
M   789012 COMPLD
    "PORT-2-1-5-OUT:::TRACESIG=off"
    "PORT-2-1-5-SUP_TX:::TRACESIG=ON"
    "PORT-2-1-5-SUP_RX:::TRACESIG=off"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
   tid date time
M  ctag DENY
   IIAC
   /* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

opr-trace-otu
rls-trace-otu
opr-trace-supvy
rls-trace-supvy

RTRV-TRACE-OTU

`RTRV-TRACE-OTU`: Retrieve Trace OTU

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 4.0.

INPUT FORMAT

`RTRV-TRACE-OTU`:*tid*:*aid*:*ctag*;

DESCRIPTION

`RTRV-TRACE-OTU` command can be initiated by a user to retrieve the current values of the Trace Signal being received at a particular OTU input port.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

for which the command is intended.

Entity: Port (OTU IN)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(ALL), PORT-(1-12)-(1-3)-(1-12)-(IN1,IN2,IN)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid `RTRV-TRACE` command, the following output report is returned, sorted on port data by *port_aid* value.

```
    tid date time
 M  ctag COMPLD
    "port_aid:::tracesig"
    "port_aid:::tracesig"
    .         .         .
    .         .         .
    .         .         .
    "port_aid:::tracesig"
 ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

port_aid

Port access identifier. This is the port address of the facility for which output is being reported.

tracesig

Trace Signal. This parameter indicates whether or not the signal on the addressed port is carrying the Trace Signal. The *tracesig* parameter is reported in TRACESIG=*xx* format where *xx* has one of the following values:

> **ON**
> > Trace Signal is present
>
> **off**
> > Trace Signal is not present
>
> **pack_failed**
> > Pack failed or pack is not booted
>
> **not_supported**
> > *port_aid* is not valid for the inserted OTU of the addressed slot

> If a single or multiple OTUs are failed, then for each failed OTU specified in the aid, the software will respond with "Completed" and indicate in the output line for each port on each failed OTU that the *tracesig* value is pack_failed.

> For a 10G MUX OTU, signal trace is not supported for *port_aid* = IN1 or IN2. Thus, for a 10G MUX OTU, the value of *tracesig* will be **not_supported** for these *port_aid*s.

> Similarly, for regular OTUs, the *port_aid* of IN physically does not exist. Thus, for regular OTUs and a *port_aid* = IN, *tracesig* will take the value **not_supported**.

> In addition, signal trace is not supported for ORS circuit packs; however these packs can be legally inserted in an OTU slot. Thus, for all *port_aid*s (IN, IN1, IN2), the value of *tracesig* will be **not_supported** for an addressed slot containing an ORS pack.

EXAMPLE INPUT/OUTPUT

Line wrapping is not supported in the **OUTPUT FORMAT**. Output lines are broken here **only** for the convenience of the reader.

The following example shows the response to a query addressed to all OTU IN ports in a single circuit pack:

```
rtrv-trace-otu:WaveStar-OLS-400G-3:port-4-3-6-all:bug688;
IP BUG688
<
    WAVESTAR-OLS-400G-3 98-07-23 12:40:02
M   789012 COMPLD
    "PORT-4-3-6-IN1:::TRACESIG=off"
    "PORT-4-3-6-IN2:::TRACESIG=ON"
    "PORT-4-3-6-IN:::TRACESIG=not_supported"
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV** command without an *aid* value or with an *aid* value that is invalid for this command, the following error response is returned:

```
    tid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

RELATED TL1 COMMANDS/MESSAGES

opr-trace-otu
rls-trace-otu

RTRV-TSB

RTRV-TSB: Retrieve Transport Service Bridge

This command is available starting in WaveStar OLS 1.6T release 2.

The User Privilege Code (UPC) for this command is Security Level 1 (S1).

INPUT FORMAT

RTRV-TSB:*tid*::*ctag*;

DESCRIPTION

The **RTRV-TSB** command can be initiated by a user to retrieve the Transport Service Bridge (TSB) attributes associated with the network that are currently in effect.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

When there is system information to report, the following output message is returned:

```
    tid date time

M  ctag COMPLD

   "PRITSBNSAP=I,SECTSBNSAP=J,PRIIPADDR=K,SECIPADDR=K,SEC1IPADDR=K1,SEC2IPADDR=K2,SEC3IPADDR=K3"

;
```

OUTPUT PARAMETERS

PRITSBNSAP

Primary Transport Service Bridge (TSB) NSAP. This parameter determines the first OSI
Network layer address to use for registering directory entries with a DSA across a RFC 1006
TSB.

SECTSBNSAP

Secondary Transport Service Bridge (TSB) NSAP. This parameter determines the second OSI
Network layer address to use for registering directory entries with a DSA across a RFC 1006
TSB.

PRIIPADDR

Primary DSA IP Address. This parameter determines the IP address of the primary DSA to use
for registering directory entries with a DSA across a RFC 1006 TSB.

SEC1IPADDR

First Secondary DSA IP Address. This parameter determines the IP address of the first
secondary DSA to use for registering directory entries with a DSA across a RFC 1006 TSB.

SEC2IPADDR

Second Secondary DSA IP Address. This parameter determines the IP address of the second
secondary DSA to use for registering directory entries with a DSA across a RFC 1006 TSB.

SEC3IPADDR

Third Secondary DSA IP Address. This parameter determines the IP address of the third
secondary DSA to use for registering directory entries with a DSA across a RFC 1006 TSB.

EXAMPLE OUTPUT

```
RTRV-TSB:OLS-400G::124356;

IP 124356

<


   OLS-400G 99-05-04 08:59:27

M  123456 COMPLD

   "PRITSBNSAP=133908408000000000000000000000008006aa24ebb,
```

```
    SECTSBNSAP=133908408000000000000000000000008006a5c7236,

    PRIIPADDR=147.13.37.183,SEC1IPADDR=147.13.22.14,SEC2IPADDR=,SEC3IPADDR="

    ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR** **ERROR RESPONSES** section. The error responses listed there also apply to this command.

RELATED TL1 COMMANDS/MESSAGES

ENT-RMA
ENT-TSB
RTRV-RMA

RTRV-USER-SECU

RTRV-USER-SECU: Retrieve User Security

The User Privilege Code (UPC) for this command is Security Level 4 (S4).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

RTRV-USER-SECU:*tid*:*[uid]*:*ctag*;

DESCRIPTION

The **RTRV-USER-SECU** command is used by a user with a UPC of S3 or higher to retrieve the security parameters associated with a user, except for the user's password, which cannot be retrieved.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

uid

This is the User Identifier of a user. If specified, the valid value is a single uid. If omitted, this command retrieves user security parameters for all the existing user identification.

The word "all" could be used as a uid.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element has user identifiers to report, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

   "uid:,uap,vst,lastlog,expdat,page,alw_uid"

;
```

When multiple users' security parameters are displayed, the entries are sorted by "uid" values in alphabetical (ASCII) order.

If the network element receives a **RTRV-USER-SECU** command with a non-existing *uid*, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

uid

User Identifier. Valid values are a case sensitive alphanumeric string of 1 to 10 characters.

uap

The <privilege> shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:

S[0-5]

    For **S**ecurity Administration Authorization Level 0 through 5.

P[0-5]

    For **P**rovisioning Authorization Level 0 through 5.

PM[0-5]

    For **P**erformance **M**onitoring Authorization Level 0 through 5.

M[0-5]

    For **M**aintenance Authorization Level 0 through 5.

T[0-5]

    For **T**est Access Authorization Level 0 through 5.

The `<privilege>` shows the user's Authorization Levels (AL) for each command Function Category (FC) in the form of **FCAL&FCAL&FCAL&FCAL&FCAL**.

Multiple FCALs are specified by using single ampersands **(&)**.

Commands are grouped into 5 FCs: Security Administration (S), Provisioning (P), Performance Monitoring (PM), Maintenance (M), and Test Access (T).

For each FC, a user can have one of six AL values. The allowable values are 0 (zero), 0 means there is no authorization for that FC, and from 1 (low, default) to 5(high). At a minimum, S1 must be assigned to each login for the purpose of changing one's own password, login and logoff.

The following are possible FCAL values:

S[1-5]

    For **S**ecurity Administration Authorization Level 0 through 5.

P[0-5]

    For **P**rovisioning Authorization Level 0 through 5.

PM[0-5]

    For **P**erformance **M**onitoring Authorization Level 0 through 5.

M[0-5]

    For **M**aintenance Authorization Level 0 through 5.

T[0-5]

    For **T**est Access Authorization Level 0 through 5.

vst

Temporary. This indicates that this User Identifier is assigned for temporary access to the network element. If there is a temporary user identifier, this indicates "yes" and, if not, this indicates "no".

lastlog

Last logged in. This is the date and time of the last session established by this *uid*. It is output in the format "YY-MM-DD HH-MM-SS" with the date and time separated by one space. If no information is available regarding the last login session for this *uid* (for example, this is the first login session),

this output field is not populated.

expdat

Expiration Date. This is the **EXPDAT** that is associated with a visitor's login. This has the format YY-MM-DD (year-month-day) for a SONET environment and DD-MM-YY (day-month-year) for an SDH environment, where YY is the last two digits of the year ranging from 00 to 99; MM is the month of the year ranging from 01 to 12; and DD is the day of the month ranging from 01 to 31.

If there is no visitor, the expiration date is not populated.

`page`
  Password Aging Interval. This parameter specifies the period in days after which the user has to change the password of his or her account. It can take a value between 7 and 999 days, or 0, which disables the password aging mechanism.

`alw_login`
  Allow User Login. This parameter is used to enable or disable a user login and can take the following values: "YES", "NO".

EXAMPLE INPUT/OUTPUT

```
RTRV-USER-SECU:LT-400G:kjlee:123456;
```

```
IP 123456

<

   LT-400G 99-10-26 16:42:11

M  123456 COMPLD

   "kjlee:,S1&P1&PM0&M1&T0,yes,12-23 18-31-17,99-12-27,90,yes"

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-USER-SECU** command with an invalid *uid*, the following error response is returned:

```
    sid date time

M   ctag DENY

    PIUI

    /* Privilege, Illegal User Identity, invalid UID */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
ENT-USER-SECU
ED-USER-SECU
DLT-USER-SECU
```

RTRV-MAP-RING

`RTRV-MAP-RING`: Retrieve Map Ring

The User Privilege Code (UPC) for this command is Maintenance Level 1 (M1).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

`RTRV-MAP-RING`:tid::ctag;

DESCRIPTION

The **`RTRV-MAP-RING`** command generates a report listing all network elements in the local transmission ring.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

In response to a valid **`RTRV-MAP-RING`** command, the following output report is returned to the user.

```
    sid date time

M  ctag COMPLD

    "spec_block"

    .       .       .       .       .       .       .
```

```
    .        .        .        .        .        .        .

    "spec_block"

  ;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

spec_block

Specific block. This parameter field is used for returning the ring map information of the network. Parameters within the specific block are positionally independent and are specified using a name defined construct of: PARAMETER=*value* in a comma separated list. The parameters are listed and explained below.

It should be noted, however, that the network element will return the parameters within the *spec_block* in the following order: **TID, NETYPE, FBRCONN, RINGID**.

TID

This is the target identifier of the network element. Refer to the **RTRV-HDRINPUT PARAME-TERS** section. The character set requirements for *tid* listed there apply to the **TID** also. The **TID** is provisioned by the TL1 command **ENT-SYS**.

NETYPE

Please see the description for NETYPE parameter in ENT_SYS command page.

FBRCONN

Fiber Connection. This field can have the following values: 1E_1E, 1E_1W, 1E_2E, 1E_2W, 1W_1E, 1W_1W, 1W_2E, 1W_2W, 2E_1E, 2E_1W, 2E_2E, 2E_2W, 2W_1E, 2W_1W, 2W_2E, 2W_2W, or -.

FBRCONN indicates how each line of the node is connected to the neighbor following it in the report. The first two characters indicate which line of this (**TID**) node connects to the following neighbor. The last two characters indicate to which line of the following neighbor this (**TID**) nodes line connects.

For closed rings, the report uses a circular list. For open rings, a dash is displayed at the last node because it has no neighbor.

RINGID

Ring Identification. This field can have the values of A or B in 4 fiber systems and has the value A in 2 fiber systems. **RINGID** indicates which logical ring the entry in the report belongs to. It is used to distinguish between the logical ring involving one line and the logical ring involving the other line in 4 fiber systems. Usually, these two logical rings have virtually the same topology differing only in the line numbers associated with each **RINGID**.

In ring terminals, there is an implied logical bidirectional connection between the "E" and "W" sides within a node. Hence, line 1E is bidirectionally connected to line 1W and line 2E is bidirectionally connected to line 2W within a node (Lines 2E and 2W exist in 4 fiber ring systems only). A closed ring is one in which the connection from the "E" side at the local node is followed around through each neighbor node until the "W" side of the local node is reached. An open ring is one in which the connection from the "E" side at the local node is followed around through each neighbor node until an end terminal node is reached.

The **RTRV-MAP-RING** report lists the topology data for a specific line as a series of entries in the report. For 2 fiber systems, the report lists a single map for **RINGID**=A corresponding to the map constructed from the topology data for Line 1 of the local node. For 4 fiber systems, the report first lists one map for **RINGID**=A corresponding to the map constructed from the topology data for Line 1 of the local node and then lists a second map for **RINGID=**B corresponding to the map constructed from the topology data for Line 2 of the local node.

For incomplete open or closed rings, only the local node shall be displayed in the report.

For a closed ring, the topmost entry in the in the **RTRV-MAP-RING** report represents the network element at which the command is being executed. The subsequent entries in the report represent the remaining network elements in the local ring arranged in the following sequence: the immediate neighbor next to the East side of the network element at which the command is being executed, followed by its immediate neighbor, followed by its immediate neighbor, etc, until the immediate neighbor next to the West side of the network element at which the command is being executed is reached.

The report output for a closed ring will look different when the command is executed at different nodes within the same ring.

For an open ring, the topmost entry in the Retrieve Map Ring report represents the End Terminal with the lowest **nsap**. The subsequent entries in the report represent the remaining systems in the local ring arranged in the following sequence: the immediate neighbor next to the End Terminal with the lowest **nsap**, followed by its immediate neighbor, followed by its immediate neighbor, etc, until the other End Terminal is reached.

The report output shall look identical when this command is executed at different nodes within the same open ring.

EXAMPLE OUTPUT

The following example requests the map in a **closed 2 fiber ring** system. The
RTRV-MAP-RING command is issued at LT-400G-NODE-3 (a repeater node).

```
rtrv-map-ring:LT-400G-NODE-3::123456;
IP 123456

<

    LT-400G-NODE-3 98-12-24 23:59:59

M  123456 COMPLD

    "TID=LT-400G-NODE-3,NETYPE=2F_RPTR,FBRCONN=1E_1E,RINGID=A"

    "TID=LT-400G-NODE-4,NETYPE=2F_RPTR,FBRCONN=1W_1E,RINGID=A"

    "TID=LT-400G-NODE-5,NETYPE=2F_FULL_AD_80,FBRCONN=1W_1W,RINGID=A"

    "TID=LT-400G-NODE-6,NETYPE=2F_RPTR,FBRCONN=1E_1W,RINGID=A"

    "TID=LT-400G-NODE-7,NETYPE=2F_4CH_AD,FBRCONN=1E_1W,RINGID=A"

    "TID=LT-400G-NODE-8,NETYPE=2F_RPTR,FBRCONN=1E_1W,RINGID=A"

    "TID=LT-400G-NODE-1,NETYPE=2F_FULL_AD_80,FBRCONN=1E_1E,RINGID=A"

    "TID=LT-400G-NODE-2,NETYPE=2F_RPTR,FBRCONN=1W_1W,RINGID=A"

 ;
```

The following example requests the map in an **open 2 fiber ring**. The **RTRV-MAP-RING**
command is issued at LT-400G-NODE-1. The node with **TID** value LT-400G-NODE-5 has a
lower **nsap** (but not necessarily the lowest **nsap** in the ring, but is the lowest **nsap** for any End
Terminal in the ring) compared to the node with **TID** value LT-400G-NODE-1.

```
rtrv-map-ring:LT-400G-NODE-1::123456;
IP 123456

<

    LT-400G-NODE-1 98-12-24 23:59:59

M  123456 COMPLD

    "TID=LT-400G-NODE-5,NETYPE=2F_END_80,FBRCONN=1E_1W,RINGID=A"
```

```
    "TID=LT-400G-NODE-4,NETYPE=2F_RPTR,FBRCONN=1E_1E,RINGID=A"

    "TID=LT-400G-NODE-3,NETYPE=2F_4CH_AD,FBRCONN=1W_1W,RINGID=A"

    "TID=LT-400G-NODE-2,NETYPE=2F_RPTR,FBRCONN=1E_1E,RINGID=A"

    "TID=LT-400G-NODE-1,NETYPE=2F_END_80,FBRCONN=-,RINGID=A"

  ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **RTRV-MAP-RING** with an otherwise valid set of input parameter values but the command could not be completed by the network element, the following error response is returned to the user:

```
    sid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed */

  ;
```

RELATED TL1 COMMANDS/MESSAGES

SET-ATTR-ALM

SET-ATTR-ALM: Set Attribute Alarm

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

SET-ATTR-ALM:*tid*::*ctag*[:::spec_block];

DESCRIPTION

The **SET-ATTR-ALM** command can be executed to provision the incoming signal alarm delay, the alarm clear delay intervals and the alarm behavior of TCA's for OTU Digital performance parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific block. Parameters included within the specific block are positionally independent and are specified using a name-defined construct of: PARAMETER=*value*. The specific block may have one, more than one or none of the following parameters specified within it in a comma-separated list. Furthermore, each parameter listed below can appear at most once within the specific block for a single **SET-ATTR-ALM**command. The parameters are listed in alphabetic order.

almdel

Alarm delay. This is the incoming signal alarm delay parameter. Legal values are 0-120 (seconds) or it may be omitted, in which case the value of the parameter is left unchanged. The original value for this parameter is "2".

clrdel

Alarm clear delay. This is the alarm clear delay parameter. Legal values are 0-120 (seconds) or it may be omitted, in which case the value of the parameter is left unchanged. The original value for this parameter is "10".

report

Report. This parameter is used to determine the reporting behavior of the Threshold Crossing Alert/quality of service (QOS) autonomous message notification for the OTU Digital performance parameters. This parameter, if specifed, must have one of the following values: "alert" or "alarm" where **alert** will report the OTU Digital TCA's as an event (transient condition) and **alarm** will report the OTU Digital TCA's as a condition (standing condition). If no value is provided for *report*, it means "no change" to this parameter value. The original value of this parmeter is "alert".

prottribfail
prottribbusy
srvtribrept

OUTPUT FORMAT

If the network element fully complies with the **SET-ATTR-ALM** request, the following normal completion response is returned.

_____

    sid date time

M   ctag COMPLD

 ;

_____

If the **SET-ATTR-ALM** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a **SET-ATTR-ALM** command that provisions the incoming signal delay to 10 seconds and provision the alarm clear delay to 30 seconds.

```
SET-ATTR-ALM:OLS-400G::123:::almdel=10,clrdel=30;
```


IP 123

<

    OLS-400G 98-06-06 16:42:11

M 123 COMPLD

;

The following example shows a **SET-ATTR-ALM** command that provisions the alarm clear delay to 14 seconds.

```
SET-ATTR-ALM:LT-PF-2000::123456:::clrdel=14;
```


IP 123456

<

    LT-PF-2000 93-10-26 16:42:11

M 123456 COMPLD

;

The following example shows a **SET-ATTR-ALM** command that provisions the OTU Digital TCA reporting behavior to **alarm**.

```
   SET-ATTR-ALM:LT-PF-2000::123456:::report=alarm;
```

```
   IP 123456

   <

      LT-PF-2000 93-10-26 16:42:11

   M  123456 COMPLD

   ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-ATTR-ALM** command is received with an invalid almdel parameter, the following error response is returned:

```
   sid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid almdel parameter */

 ;
```

If a **SET-ATTR-ALM** command is received with an invalid clrdel parameter, the following error response is returned:

```
   sid date time

M  ctag DENY

   IDNV

   /* Input, Data Not Valid, invalid clrdel parameter */

 ;
```

If a **SET-ATTR-ALM** command is received with an invalid report parameter, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid report parameter */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-ALM

SET-ATTR-CONT

SET-ATTR-CONT: Set Attribute Control

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

SET-ATTR-CONT:*tid*:*aid*:*ctag*::*conttype*;

DESCRIPTION

The **SET-ATTR-CONT** command can be executed to provision (define) the description associated with an external control.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. The *aid* identifies the external miscellaneous discrete control for which attributes are being set. An *aid* value must be provided.

Entity: Single Point (Control)
Legal Values: (CONT)-(1-4)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

conttype

Control Type. The *conttype* is the text string associated with the selected miscellaneous discrete control. It is an alphanumeric string, upper and lower case, spaces and periods allowed, up to 26 characters long. *conttype* is case sensitive and is enclosed using delimiters. The delimiter to be used is \" [that is, backslash followed by double quotes]. A conttype entry is required.

OUTPUT FORMAT

If the network element fully complies with the **SET-ATTR-CONT** request, the following normal completion response is returned.

```
   sid date time

M   ctag COMPLD

;
```

If the **SET-ATTR-CONT** command does not alter the already provisioned description, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a **SET-ATTR-CONT** command that provisions the text string for miscellaneous discrete control 3 to *\"fan3\"* for a WaveStar OLS 1.6T system:

```
SET-ATTR-CONT:OLS-400G:CONT-3:123456::\"fan3\";


IP 123456

<

   OLS-400G 98-06-06 16:42:11

M   123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-ATTR-CONT** command is received with an invalid access identifier, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If a **SET-ATTR-CONT** command is entered with an invalid conttype parameter the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid CONTTYPE */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-CONT

SET-ATTR-ENV

SET-ATTR-ENV: Set Attribute Environment

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

SET-ATTR-ENV:*tid*:*aid*:*ctag*::,,*almmsg*;

DESCRIPTION

SET-ATTR-ENV commands can be initiated to request the network element to set the notification code (alarm level) and alarm message (condition description) associated with environmental alarm/status points.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This is the address of the environmental points to be provisioned.

Entity: Single Point (Environmental)

Legal Values: (ENV)-(1-16)

A null value is not permitted with this parameter.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

almmsg

Alarm message. This is the condition description to be associated with the addressed environmental point. The description may be a string of up to 26 characters consisting of case-sensitive (upper-case and lower-case) alphanumerics, spaces, and "." (periods). The description must be enclosed using delimiters. The delimiter to be used is **\"** [that is, backslash followed by double-quotes].

This parameter is an exception to the general rule of TL1 input parameters being case-insensitive.

OUTPUT FORMAT

If the network element fully complies with the set attribute environment request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

If the network element receives a valid **SET-ATTR-ENV** command, but the command does not alter the existing alarm attributes, the network element provides a normal completion response.

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
SET-ATTR-ENV:OLS-400G:env-10:123456::,,\"environment 10\";



IP 123456

<

    OLS-400G 98-06-06 16:42:11

M   123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to the **SET-ATTR-ENV** command.

If the network element receives a **SET-ATTR-ENV** command with an invalid or missing *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

 ;
```

If the network element receives a **SET-ATTR-ENV** command with an invalid *almmsg* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid ALMMSG */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-ATTR-ENV

SET-BASELINE-OCHAN

SET-BASELINE-OCHAN: Baseline Optical Parameter(s) for the Optical Channel

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-BASELINE-OCHAN:*tid*:*aid*:*ctag*::*[montype],reason,,,,[,,]*;

DESCRIPTION

The **SET-BASELINE-OCHAN** command can be initiated to baseline performance parameters **SPT-C** and **SPR-C** for each addressed optical channel in a network element.

The **SET-BASELINE-OCHAN** command will require the user to provide a "reason" for baselining.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the optical line for which optical parameters need to be baselined.

Entity: Optical Channel (OCHAN)
Legal Values: (OCHAN)-(ALL), (OCHAN)-(1E,1W,2E,2W)-(ALL,9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type to be baselined.

This parameter carries one of the following values (if not specified, default is "ALL"):

"SPR-C" (Analog - Signal Power Received - Optical Channel), or
"SPT-C" (Analog - Signal Power Transmitted - Optical Channel), or
"ALL".

reason

This parameter states the reason for executing **SET-BASELINE-OCHAN** command on the addressed optical channel. This field must take one of the following values: "CHAN_ADDED", "NEW_SYSTEM", "OA_REPLACED", "OMON_REPLACED", ""0", "1", "2", "3", "4", "5", "6", "7", "8", or "9".

ochan_aid

OUTPUT FORMAT

If the network element fully complies with the baselining request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
SET-BASELINE-OCHAN:OLS-400G:OCHAN-1E-ALL:123456::OMON_REPLACED,,,,;
```

```
IP 123456
<

    OLS-400G 99-01-26 14:40:09

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

If the network element is configured as part of a C-Band system, and it receives this command with an *aid* value for an L-Band system; or if the network element is configured as part of an L-Band system, and it receives this command with an *aid* value for a C-Band system, the following error response will be returned:

```
    tid date time



M  ctag DENY
```

```
   IIAC


  /* Input, Invalid Access Identifier,


  AID invalid for the provisioned NE type */


 ;
```

If the network element receives this command with any entry in the position defined parameter blocks, the following error response is returned:

```
   sid date time
M  ctag DENY
   IISP
   /* Input, Invalid Syntax or Punctuation */
 ;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
   sid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid MONTYPE */
 ;
```

If the network element receives this command with an invalid *reason*, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, Invalid REASON */

;
```
_____

If the `SET-BASELINE-OCHAN` command failed because of an existing defect condition (e.g., LOS/AIM), the following error response will be returned:
_____

```
    tid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, SET-BASELINE-OCHAN failed because

       of possible defect condition (e.g., LOS/AIM) */

;
```
_____

If the SET-BASELINE-OCHAN command failed because of an invalid channel (e.g., the channel is non-existent or has not been provisioned properly), the following error response will be returned:

_____

```
    tid date time

M   ctag DENY

    SROF

    /* Status, Requested Operation Failed, SET-BASELINE-OCHAN

       failed because of an invalid channel */

;
```

_____

RELATED TL1 COMMANDS/MESSAGES

RTRV-BASELINE-OCHAN
SET-BASELINE-OLINE
RTRV-BASELINE-OLINE

SET-BASELINE-SUPR
RTRV-BASELINE-SUPR

SET-BASELINE-OLINE

SET-BASELINE-OLINE: Set Baseline OLINE

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in Wavestar 1.6T Release 1.0.

INPUT FORMAT

SET-BASELINE-OLINE:*tid*:*aid*:*ctag*::*[montype],reason*,,,,*[,,]*;

DESCRIPTION

The **SET-BASELINE-OLINE** command can be initiated to baseline certain optical parameters for each addressed optical line in a network element. Starting Wavestar 1.6T R1.0, it is used to baseline TOPR-OL and TOPT-OL in the addressed optical line.

The **SET-BASELINE-OLINE** command will require the user to provide a "reason" for baseline.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the optical line for which optical parameters need to be baselined.

Entity: Line
Legal Values: LINE-(ALL), LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type to be baselined.

This parameter carries one of the following values (if not specified, default is "ALL"):

"TOPR-OL" (Analog - Total Optical Power Received - Optical Line), or
"TOPT-OL" (Analog - Total Optical Power Transmitted - Optical Line), or
"ALL".

reason

This parameter states the reason for executing **SET-BASELINE-OLINE** command on the addressed optical line. This field must take one of the following values: "CHAN_ADDED", "CHAN_DELETED", "NEW_SYSTEM", "OA_REPLACED", "0", "1", "2", "3", "4", "5", "6", "7", "8", or "9".

Replacement of an OA circuit pack will also affect Supervisory performance parameters(**SPR-SU** and **SPT-SU**) which shall be baselined separately via the **SET-BASELINE-SUPR** command.

OUTPUT FORMAT

If the network element fully complies with the initialize register request, the following normal completion response is returned:

```
   sid date time
M  ctag COMPLD
;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
SET-BASELINE-OLINE:LT-400G:LINE-1E:123456::TOPR-OL,OA_REPLACED,,,,;IP 123456
<

   LT-400G 93-10-26 16:42:11
M  123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
   sid date time
M  ctag DENY
   IIAC
   /* Input, Invalid Access Identifier */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
   sid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, invalid MONTYPE */
;
```

If the network element receives this command with an invalid *reason* value, the following error response is returned:

```
   sid date time
M  ctag DENY
   IDNV
   /* Input, Data Not Valid, Invalid REASON */
;
```

If the network element receives this command with any entry in the position defined parameter blocks, the following error response is returned:

```
    sid date time
M   ctag DENY
    IISP
    /* Input, Invalid Syntax or Punctuation */
;
```

If the `SET-BASELINE-OLINE` command failed because of an existing defect condition (e.g., LOS/AIM), the following error response will be returned:

```
    tid date time
M   ctag DENY
    SROF
    /* Status, Requested Operation Failed, SET-BASELINE-OLINE failed because
       of possible defect condition (e.g., LOS/AIM) */
;
```

RELATED TL1 COMMANDS/MESSAGES

SET-BASELINE-OCHAN
RTRV-BASELINE-OCHAN
RTRV-BASELINE-OLINE
SET-BASELINE-SUPR
RTRV-BASELINE-SUPR

SET-BASELINE-SUPR

SET-BASELINE-SUPR: Set Baseline SUPR

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in Wavestar 1.6T Release 1.0.

INPUT FORMAT

SET-BASELINE-SUPR:*tid*:*aid*:*ctag*::*[montype]*,*reason*,,,,*[,,]*;

DESCRIPTION

The **SET-BASELINE-SUPR** command can be initiated to baseline certain optical parameters for the Supervisory Channel in a network element. Starting Wavestar 1.6T R1.0, it is used to baseline SPR-SU and SPT-SU in the addressed Supervisory Channel.

The **SET-BASELINE-SUPR** command will require the user to provide a "reason" for baseline.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the optical line for which optical parameters need to be baselined.

Entity: Line
Legal Values: LINE-(ALL), LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type to be baselined.

This parameter carries one of the following values (if not specified, default is "ALL"):

"SPR-SU" (Analog - Signal Receive Power - Supervisory, for C Band only), or
"SPT-SU" (Analog - Signal Transmit Power - Supervisory), or
"ALL".

reason

This parameter states the reason for executing **SET-BASELINE-SUPR** command on the addressed supervisory channel. This field must take one of the following values: "NEW_SYSTEM", "OA_REPLACED", "SUPVY_REPLACED", "0", "1", "2", "3", "4", "5", "6", "7", "8", or "9".

Replacement of an OA circuit pack may also affect optical parameters(**TOPR-OL** and **TOPT-OL**) which shall be baselined separately via the **SET-BASELINE-OLINE** command.

OUTPUT FORMAT

If the network element fully complies with the initialize register request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

The output parameters included in the normal completion response are specified in the **OUTPUT PARAMETERS** section for **RTRV-HDR**.

EXAMPLE INPUT/OUTPUT

```
SET-BASELINE-SUPR:LT-400G:LINE-1E:123456::SPR-SU,SUPVY_REPLACED,,,,;



IP 123456

<
```

```
    LT-400G 93-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives this command with an invalid *aid* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

If the network element receives this command with an invalid *reason* value, the following error response is returned:

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, Invalid REASON */

;
```

If the network element receives this command with any entry in the position defined parameter blocks, the following error response is returned:

```
    sid date time

M  ctag DENY

    IISP

    /* Input, Invalid Syntax or Punctuation */

;
```

If the SET-BASELINE-SUPR command failed because of an existing defect condition (e.g., LOS/AIM), the following error response will be returned:

```
    tid date time

M  ctag DENY

    SROF

    /* Status, Requested Operation Failed, SET-BASELINE-SUPR failed because

        of possible defect condition (e.g., LOS/AIM) */

;
```

RELATED TL1 COMMANDS/MESSAGES

SET-BASELINE-OLINE
RTRV-BASELINE-OLINE
RTRV-BASELINE-SUPR

SET-PM-STIME

SET-PM-STIME Set Performance_Monitoring Start_Time

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-PM-STIME:*tid*::*ctag*::*start_hour*;

DESCRIPTION

The **SET-PM-STIME** command specifies the start time for the measurement of all twenty-four hour performance monitoring parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

start_hour

Start Hour. The *start_hour* is a position defined parameter which specifies the start hour for day bin measurements. It can take the value of an integer between 0 and 23.

OUTPUT FORMAT

If the network element fully complies with the **SET-PM-STIME** request, the following normal completion response is returned:

```
   sid date time

M  ctag COMPLD

;
```

If the **SET-PM-STIME** command does not alter the existing attributes, the network element will not deny the command. Instead the system will respond with the completion message (shown in the previous screen display).

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example shows a command **SET-PM-STIME** for the network element.

```
set-pm-stime:OLS-400G::CTAG::22;


IP 123456

<

   OLS-400G 99-01-12 20:31:43

   M  CTAG COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If a **SET-PM-STIME** command is received with an invalid start_hour value, the following error response is returned:

```
   sid date time


M  ctag DENY
```

```
    IDNV


    /* Input, Data Not Valid, Invalid START_HOUR */


 ;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-STIME

SET-TH-OCHAN

SET-TH-OCHAN: Set Threshold Optical_Channel

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-TH-OCHAN:*tid*:*aid*:*ctag*::*montype*,[*hithlev*],[*lothlev*],[*locn*],[*dirn*],[*tmper*][,*notify*];

DESCRIPTION

The **SET-TH-OCHAN** command instructs a network element to set the threshold level for optical channel monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Optical Channel (OCHAN)
Legal Values: (OCHAN)-(ALL), (OCHAN)-(1E,1W,2E,2W)-(ALL,9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following value:

"SPR-C" (Analog - Signal Power Received - Optical Channel), or
"SPT-C" (Analog - Signal Power Transmitted - Optical Channel).

hithlev

High threshold level. This is the high threshold level to be set for the specified *montype*. For analog parameters, the value represents delta (in dB) from the baseline value. The allowable range of values is from 0 to 99 dB. The format of the analog parameter is XX.

For the Repeater and Type 1 WAD, since both the SPR-C and SPT-C refer to the same measurement point, their thresholds should be set to the same value. Only the SPT-C threshold will generate TCA.

Note: 1. The original high threshold level for analog *montype* is +3dB from the baseline value which is set at the installation.
2. If no value is specified for this parameter, the threshold level will remain unchanged.

lothlev

Low threshold level. This is the low threshold level to be set for the specified *montype*. For analog parameters, the value represents the delta (in dB) from the baseline value. The allowable range of values is from -99 to 0 dB. The format of the analog parameter is XX. This parameter does not apply to the digital *montype*.

For the Repeater and Type 1 WAD, since both the SPR-C and SPT-C refer to the same measurement point, their thresholds should be set to the same value. Only the SPT-C threshold will generate TCA.

Note:

1. The original low threshold level for analog *montype* is -6dB from the baseline value which is set at the installation.
2. If no value is specified for this parameter, the threshold level will remain unchanged.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

NA
>   Not applicable.
If no value is provided for *locn*, **NA** is assumed.

dirn

  Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".
  NA
  >   Not applicable.
  If no value is provided for *dirn*, **NA** is assumed.

tmper

  Time period. The threshold is set for performance monitoring data information for a specified time interval. The parameter, if specified, must have one of the following values: "NA"
  NA
  >   Not Applicable.
  If no value is provided for *tmper*, **NA** is assumed.

  Analog parameters are not accumulative in nature, as a result, time intervals shall not apply to the threshold values of an optical parameter.

notify

  TCA/QOS notification. This parameter is used to turn on or off the Threshold Crossing Alert (TCA)/quality of service (QOS) autonomous message notification of the specified *montype*. This parameter, if specified, must have one of the following values: "on" or "off"where **on** turns on the QOS autonomous message notification and **off** turns off QOS autonomous message notification. If no value is provided for *notify*, it means "no changes" to this parameter value. Default is "off."

  CAUTION: Executing this command may affect the automatic message notification of performance monitoring (PM) quality of service (QOS) messages.

OUTPUT FORMAT

  If the network element fully complies with the request, the following normal completion response is returned:

```
    sid date time



M  ctag COMPLD



;
```
_____

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The optical PM parameters are not accumulated based on time periods.

This message will set the low threshold for SPT-C for optical channel 2 in optical line 2W of the network element.

_____

```
set-th-ochan:OLS-400G:OCHAN-2W-9195:123456::SPT-C,,-5,,,NA;

IP 123456

<

    OLS-400G 99-01-04 01:11:35

M  123456 COMPLD



;
```
_____

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
     sid date time

 M  ctag DENY

     IIAC

     /* Input, Invalid Access Identifier */

 ;
```

If the network element is configured as part of a C-Band system, and it receives this command with an *aid* value for an L-Band system; or if the network element is configured as part of an L-Band system, and it receives this command with an *aid* value for a C-Band system, the following error response will be returned:

```
     tid date time


 M  ctag DENY


     IIAC


     /* Input, Invalid Access Identifier,


   AID invalid for the provisioned NE type */


 ;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

The network element returns the following error response if the *hithlev* value is out of range.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid HIGHTHLEV */

;
```

The network element returns the following error response if the *lothlev* value is out of range.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOWTHLEV */

;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with montype.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

The network element returns the following error response if the *notify* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid NOTIFY */

;
```

_____

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OCHAN
RTRV-TH-OCHAN

SET-TH-OLINE

SET-TH-OLINE: Set Threshold Optical_Line

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-TH-OLINE:*tid*:*aid*:*ctag*::*montype*,[*hithlev*],[*lothlev*],[*locn*],[*dirn*],[*tmper*][,*notify*];

DESCRIPTION

The **SET-TH-OLINE** command instructs a network element to set the threshold level for optical line monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Single Line
Legal Values: LINE-(1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following values:

"TOPR-OL" (Analog - Total Optical Power Received - Optical Line), or
"TOPT-OL" (Analog - Total Optical Power Transmitted - Optical Line), or
"PLE-RP1" (Analog - Pump Laser Efficiency - Receive Pump 1), or
"PLE-RP2" (Analog - Pump Laser Efficiency - Receive Pump 2), or
"PLE-RP3" (Analog - Pump Laser Efficiency - Receive Pump 3), or
"PLE-RP4" (Analog - Pump Laser Efficiency - Receive Pump 4), or
"PLE-RP5" (Analog - Pump Laser Efficiency - Receive Pump 5), or
"PLE-RP6" (Analog - Pump Laser Efficiency - Receive Pump 6), or
"PLE-TP1" (Analog - Pump Laser Efficiency - Transmit Pump 1), or
"PLE-TP2" (Analog - Pump Laser Efficiency - Transmit Pump 2), or
"PLE-TP3" (Analog - Pump Laser Efficiency - Transmit Pump 3), or
"PLE-TP4" (Analog - Pump Laser Efficiency - Transmit Pump 4), or
"PLE-TP5" (Analog - Pump Laser Efficiency - Transmit Pump 5), or
"PLE-TP6" (Analog - Pump Laser Efficiency - Transmit Pump 6).

Note: For the Repeater and Type 1 WAD, both the PLE-RPx and PLE-TPx (where x is one of the six OA pump lasers) refer to the same
measurement point.

hithlev

High threshold level. This is the high threshold level to be set for the specified *montype*.

For analog parameters, TOPR-OL and TOPT-OL, the value represents delta (in dB) from the baseline value. The allowable range of values is from 0 to 99 dB. The format is XX. The original high threshold level is +3dB from the baseline value. There is no *hithlev* for PLE-RPx/PLE-TPx.

Note: If no value is specified for this parameter, the threshold level will remain unchanged.

lothlev

Low threshold level. This is the low threshold level to be set for the specified *montype*.

For analog parameters, TOPR-OL and TOPT-OL, the value represents the delta (in dB) from the baseline value. The allowable range of values is from -99 to 0 dB. The format is XX. The original low threshold level is -6dB from the baseline value

For the PLE-RPx/PLE-TPx parameter, The allowable range of values is from 0.00 to 1.00. The original low threshold level is 0.80. The format is X.XX.

For the Repeater and Type 1 WAD, since both the PLE-RPx and PLE-TPx (where x is one of the six OA pump lasers) refer to the same measurement point, their thresholds should be set to the same value. Only the PLE-RPx threshold will generate TCA.

Note: If no value is specified for this parameter, the threshold level will remain unchanged.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. The threshold is set for performance monitoring data information for a specified time interval. The parameter, if specified, must have one of the following values: "NA"

NA

Not Applicable.

If no value is provided for *tmper*, **NA** is assumed.

Analog parameters are not accumulative in nature, as a result, time intervals shall not apply to the threshold values of an optical parameter.

notify

TCA/QOS notification. This parameter is used to turn on or off the Threshold Crossing Alert (TCA)/quality of service (QOS) autonomous message notification of the specified *montype*. This parameter, if specified, must have one of the following values: "on" or "off"where **on** turns on the QOS autonomous message notification and **off** turns off QOS autonomous message notification. If no value is provided for *notify*, it means "no changes" to this parameter value. Original value is "off."

CAUTION: Executing this command may affect the automatic message notification of performance monitoring (PM) quality of service (QOS) messages.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

_____

```
   sid date time


M  ctag COMPLD


;
```
_____

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

Set the high threshold for TOPT-OL for the optical line 2W.
_____

set-th-oline:OLS-400G:LINE-2W:123456::TOPT-OL,4,,,,,on;

```
IP 123456

<

   OLS-400G 98-10-22 11:47:24

M  123456 COMPLD

;
```
_____

Set the low threshold for TOPR-OL for the optical line 1E and turn off QOS autonomous notification.
_____

set-th-oline:OLS-400G:LINE-1E:123456::TOPR-OL,,-5,,,,off;

```
IP 123456

<

   OLS-400G 98-10-15 14:27:33

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

 ;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

 ;
```

The network element returns the following error response if the *hithlev* value is out of range.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid HIGHTHLEV */

 ;
```

The network element returns the following error response if the *lothlev* value is out of range.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOWTHLEV */

;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with montype.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

The network element returns the following error response if the *notify* value is invalid.

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid NOTIFY */

;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OLINE
RTRV-TH-OLINE

SET-TH-OTPS

SET-TH-OTPS: Set Threshold Optical_Translator_Port_Signal The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3). This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-TH-OTPS:*tid*:*aid*:*ctag*::*montype*,[*hithlev*],[*lothlev*],[*locn*],[*dirn*],[*tmper*][,*notify*];

DESCRIPTION

The **SET-TH-OTPS** command instructs a network element to set the threshold level for optical translator unit (OTU) monitored parameters. Both SONET and SDH PM parameters are supported.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility to which the threshold applies. Entity: Port (OTU)
Legal Values: PORT-(ALL), PORT-(1-12)-(ALL), PORT-(1-12)-(1-3)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(ALL),
PORT-(1-12)-(1-3)-(1-12)-(IN,IN1,IN2,IN3,IN4,OUT1,OUT2,OUT3,OUT4,
9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520,
9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450,
9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380,
9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310,
9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240,
9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030,
9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960,
8955, 8950, 8945, 8940, 8935, 8930, 8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890,
8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820,
8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750,
8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680,
8675, 8670, 8665, 8660, 8655, 8650)

Note: Wavelength is the valid AID for 10G MUX OCh10G output port while only the last provisioned value will be stored in the database for the addressed slot. User can enter any of the valid "Wavelength" for OCh10G output port. They will all yield the same result as they basically point to the line side output port of the plugged in OTU. It is not necessary that the

frequency specified has to match the frequency specified by the plugged in MUX OTU. Also the output will always show the port label as "WXYZ" regardless of what was input.

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following values: (SONET ONLY)

"LBC"(Analog Laser Bias Current at OC-48/STM-16 or OC-192/STM-64 OTU, LSBB OTU, or
"HSBB OTU, 10G MUX OTU), or
"CVS"(Digital - Coding violation: OC-48 or OC-192, 10G MUX OTU), or
"ESS"(Digital - Errored Second: OC-48 or OC-192, 10G MUX OTU), or
"SESS"(Digital - Severely Errored Second: OC-48 or OC-192, 10G MUX OTU), or
"SEFSS"(Digital - Severely Errored Frame Second: OC-48 or OC-192, 10G MUX OTU), or
"FEC-EC"(Digital - FEC Error Count - OC-48/STM-16 or OC-192/STM-64, MUX OCh10G signal), or
"FEC-UBC"(Digital - FEC Uncorrectable Block Count - OC-48/STM-16 or OC-192/STM-64, MUX OCh10G signal).

This parameter must be specified for one of the following values: (SDH ONLY)

"LBC"(Analog Laser Bias Current at OC-48/STM-16 or OC-192/STM-64 OTU, LSBB OTU, or
"HSBB OTU, 10G MUX OTU), or
"BBE"(Digital - Background Block Errors: STM-16 or STM-64, 10G MUX OTU), or
"ESS"(Digital - Errored Second: STM-16 or STM-64, 10G MUX OTU), or
"SESS"(Digital - Severely Errored Second: STM-16 or STM-64, 10G MUX OTU), or
"UASS"(Digital - Unavailable Second: STM-16 or STM-64, 10G MUX OTU), or
"FEC-EC"(Digital - FEC Error Count - OC-48/STM-16 or OC-192/STM-64, MUX OCh10G signal), or
"FEC-UBC"(Digital - FEC Uncorrectable Block Count - OC-48/STM-16 or OC-192/STM-64, MUX OCh10G signal).

hithlev

High threshold level. This is the high threshold level to be set for the specified *montype*.

For LBC, the original value is 1.50, with legal range of 0.00 to 9.99.

Note: If no value is specified for this parameter, the threshold level will remain unchanged. **Valid and original SONET threshold values for each applicable OTU *montype* are given as follows:**

montype	Legal Range for 15-MIN tmper	Original Value for 15-MIN tmper	Legal Range for 1-DAY tmper	Original Value for 1-DAY tmper
CVS (count)	1 - 895,795	224	1 - 85,996,339	2150
CVS (BER)	10^{-11} to 10^{-7}	10^{-10}	10^{-12} to 10^{-7}	10^{-11}
ESS	1 - 900	25	1 - 86,400	250
SESS	1 - 900	10	1 - 86,400	40
SEFSS	1 - 900	5	1 - 86,400	10
FEC-EC	$0 - 5 \times 10^{10}$	1×10^9	$0 - 5 \times 10^{12}$	1×10^{11}
FEC-UBC	$0 - 5 \times 10^8$	10	$0 - 5 \times 10^{10}$	100

Note: SET-TH-OTPS shall provision coding violations (CVs) in the format of counts of CV. The legal ranges and original values in the above table are based on the corresponding BERs of OC-192 and OC-48 respectively

Valid and Original SDH threshold values for each applicable OTU *montype* are given as follows:

montype	Legal Range for 15-MIN tmper	Original Value for 15-MIN tmper	Legal Range for 1-DAY tmper	Original Value for 1-DAY tmper
BBE	1 - 7 199 100	9000	1- 691,113,600	48,000
ESS	1 - 900	180	1 - 86,400	1500
SESS	1 - 810	15	1 - 77,760	20
UASS	1 - 900	15	1 - 86,400	20
FEC-EC	$0 - 5 \times 10^{10}$	1×10^9	$0 - 5 \times 10^{12}$	1×10^{11}
FEC-UBC	$0 - 5 \times 10^8$	10	$0 - 5 \times 10^{10}$	100

The threshold values for FEC-EC and FEC-UBC shall support the format "mEe", where

- "m" represents the mantissa, and is an non-negative integer of 1 to 5 digits within the range 0 to 65535
- "E" is a literal byte
- "e" represents the exponent, and is a non-negative integer of 1 to 2 digits within the range 0 to 12

Note that to represent a number such as "2.5E10", then in order to keep the mantissa being an integer value, the number can be represented in this format as 25E9.

The threshold values for FEC-EC and FEC-UBC shall also support the numeric format, i.e. "100".

lothlev

Low threshold level. This is the low threshold level to be set for the specified *montype*.

For LBC and digital *montype*, this parameter must be set to **null.**

Note: If no value is specified for this parameter, the threshold level will remain unchanged.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

NA

Not applicable.

If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. The threshold is set for performance monitoirng data information for a specified time interval. The prameter, if specified, must have one of the following values: "15-MIN","1-DAY", or "NA".

15-MIN This requests digital PM data in 15-minute intervals.

1-DAY This requests daily digital PM data.

NA Not Applicable - only applies to analog PM data.

If no value is provided for *tmper*, **15-MIN** is assumed.

For analog parameters, only **NA** shall be allowed for *tmper*, otherwise, the network element shall return ERROR responses.

notify

TCA/QOS notification. This parameter is used to turn on or off the Threshold Crossing Alert (TCA)/quality of service (QOS) autonomous message notification of the specified *montype*. This parameter, if specified, must have one of the following values: "on" or "off"where **on** turns on the QOS autonomous message notification and **off** turns off QOS autonomous message notification. If no value is provided for *notify*, it means "no changes" to this parameter value. Default is "off."

CAUTION: Executing this command may affect the automatic message notification of performance monitoring (PM) quality of service (QOS) messages.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
sid date time
```

```
M   ctag COMPLD
;
```

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

Set the high and low thresholds for the day bin for CV-Ss, for the port of OTU IN2.

```
set-th-otps:OLS-400G:PORT-12-3-12-IN2:123456::CVS,24,,,,1-DAY;
IP 123456
<
    OLS-400G 98-12-22 17:21:01
M   123456 COMPLD
;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command. The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time
M   ctag DENY
    IIAC
    /* Input, Invalid Access Identifier */
;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid MONTYPE */
;
```

The network element returns the following error response if the *hithlev* value is out of range.

```
    sid date time
```

```
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid HITHLEV */
;
```

The network element returns the following error response if the *lothlev* value is out of range.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LOTHLEV */
;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with montype.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid LOCN */
;
```

The network element returns the following error response if the *dirn* value is invalid.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid DIRN */
;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid TMPER */
;
```

The network element returns the following error response if the *notify* value is invalid.

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid NOTIFY */
;
```

RELATED TL1 COMMANDS/MESSAGES

RTRV-PM-OTPS
RTRV-TH-OTPS

SET-TH-SUPR

SET-TH-SUPR: Set Threshold Supervisory

The User Privilege Code (UPC) for this command is Performance Monitoring Level 3 (PM3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

SET-TH-SUPR:*tid*:*aid*:*ctag*::*montype*,[*hithlev*],[*lothlev*],[*locn*],[*dirn*],[*tmper*][,*notify*];

DESCRIPTION

The **SET-TH-SUPR** command instructs a network element to set the threshold level for supervisory channel monitored parameters.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Access identifier. This identifies the facility to which the threshold applies.

Entity: Line
Legal Values: LINE-(ALL,1E,1W,2E,2W)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

montype

Monitored parameter type. This is the PM parameter type for which a threshold is being set.

This parameter must be specified for one of the following values:

"SPR-SU" (Analog - Signal Receive Power - Supervisory, for C Band only), or
"SPT-SU" (Analog - Signal Transmit Power - Supervisory), or
"CRC" (Digital - Cyclical Redundancy Check), or
"ES" (Digital - Errored Seconds), or
"BES" (Digital - Bursty Errored Seconds), or
"SES" (Digital - Severely Errored Seconds), or
"UAS" (Digital - Unavailable Errored Seconds).

hithlev

High threshold level. This is the high threshold level to be set for the specified *montype*. For analog parameters, the value represents delta (in dB) from the baseline value. The allowable range of values is from 0 to 99 dB. The format of the analog parameter is XX.

Note: 1. The original high threshold level for analog *montype* is +3dB from the baseline value which is set at the installation.
2. If no value is specified for this parameter, the threshold level will remain unchanged.

Valid and original threshold values for each applicable SUPVY digital *montype* are given as follows:

montype	Legal Range for 15-MIN tmper	Original Value for 15-MIN tmper	Legal Range for 1-DAY tmper	Original Value for 1-DAY tmper
CRC	1-184	20	1-17,695	180
ES	1 - 900	25	1 - 86,400	250
BES	1 - 900	25	1 - 86,400	250
SES	1 - 900	10	1 - 86,400	40
UAS	1 - 900	5	1 - 86,400	10

lothlev

Low threshold level. This is the low threshold level to be set for the specified *montype*. For analog parameters, the threshold value is the delta (in dB) from the baseline value. The allowable range of values is from -99 to 0 dB. The format of the analog parameter is XX. For digital *montype*, this parameter must be set to `null.`

Note: 1. The original low threshold level for analog *montype* is `-6dB` from the baseline value which is set at installation.
2. If no value is specified for this parameter, the threshold level will remain unchanged.

locn

Location. This requests threshold information for a specified location. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.

If no value is provided for *locn*, **NA** is assumed.

dirn

Direction. This requests threshold information for a specified direction. This parameter, if specified, must have one of the following values: "NA".

> **NA**
>> Not applicable.

If no value is provided for *dirn*, **NA** is assumed.

tmper

Time period. The threshold is set for performance monitoirng data information for a specified time interval. The parameter, if specified, must have one of the following values: "15-MIN","1-DAY", or "NA".

> **15-MIN** This requests digital PM data in 15-minute intervals.
> **1-DAY**   This requests daily digital PM data.
> **NA**   Not Applicable - only applies to analog PM data.

If no value is provided for *tmper*, **15-MIN** is assumed.

For analog parameters, only **NA** shall be allowed for *tmper*, otherwise, the network element shall return ERROR responses.

Analog parameters are not cumulative in nature, as a result, time intervals shall not apply to the threshold values of an optical parameter.

notify

TCA/QOS notification. This parameter is used to turn on or off the Threshold Crossing Alert (TCA)/quality of service (QOS) autonomous message notification of the specified *montype*. This parameter, if specified, must have one of the following values: "on" or "off"where **on** turns on the QOS autonomous message notification and **off** turns off QOS autonomous message notification. If no value is provided for *notify*, it means "no changes" to this parameter value. Original value is "off."

CAUTION: Executing this command may affect the automatic message notification of performance monitoring (PM) quality of service (QOS) messages.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

_____

```
    sid date time

M   ctag COMPLD

;
```

If the requested command does not alter the existing condition, the network element shall respond with a COMPLD message.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

In the *tmper* input parameter of this command, the digital PM parameters of SUPR channel are cumulated on a per-bin basis for each SUPR channel, whereas the optical PM parameters are not collected based on time periods.

Set the quarter-hour bin threshold and turn on the Quality of Service (QOS) autonomous notification for the Errored Second parameter for Optical Line channel 1W.

```
set-th-supr:OLS-400G:LINE-1W:123456::ES,690,,,,15-MIN,on;

IP 123456

>

OLS-400G 98-12-23 11:23:12

M   123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

The network element returns the following error response if the *aid* value is missing or invalid.

```
    sid date time

M  ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

;
```

The network element returns the following error response if the *montype* value is missing or not supported.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid MONTYPE */

;
```

The network element returns the following error response if the *hithlev* value is out of range.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid HIGHTHLEV */

;
```

The network element returns the following error response if the *lothlev* value is out of range.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOWTHLEV */

;
```

The network element returns the following error response if the *locn* value is invalid or inconsistent with montype.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid LOCN */

;
```

The network element returns the following error response if the *dirn* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid DIRN */

;
```

The network element returns the following error response if the *tmper* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TMPER */

;
```

The network element returns the following error response if the *notify* value is invalid.

```
    sid date time

M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid NOTIFY */

;
```

RELATED TL1 COMMANDS/MESSAGES

```
RTRV-PM-SUPR
RTRV-TH-SUPR
```

TEST-ALM

TEST-ALM: Test Alarm

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 2.0.

INPUT FORMAT

TEST-ALM:*tid*::*ctag*::[*mode*][,*repeat*];

DESCRIPTION

The **TEST-ALM** command provides for specific and general tests of the audible and visible office alarms. The corresponding User Panel LEDs shall be illuminated simultaneously with each office alarm.

When the **TEST-ALM** command is entered, the system will exercise the audible and visible office alarms.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

mode

Mode. This is the mode of the alarm test. This parameter can have one of the following values: "ALL", "CR/PROMPT", "MJ/DEFERRED", or "MN".If no value is provided for this parameter, then **ALL** is assumed.

repeat(1-10)

Repeat. This indicates the number of times the test will be repeated. This parameter must be an integer between 1 and 10. If no value is provided for this parameter, **1** is assumed.

None

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    sid date time
M  ctag COMPLD
;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
TEST-ALM:OLS-400G::123456::CR/PROMPT,1;IP 123456
<

    OLS-400G 98-11-17 15:51:11
M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives a **TEST-ALM** command with an invalid *mode*, the following error response is returned:

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid MODE */
;
```

_____

If the network element receives this command with an invalid *repeat*, the following error response is returned:

_____

```
    sid date time
M   ctag DENY
    IDNV
    /* Input, Data Not Valid, invalid REPEAT */
;
```

_____

RELATED TL1 COMMANDS/MESSAGES

None

TEST-AUTO-LOCAL

TEST-AUTO-LOCAL: Test Auto Local

The User Privilege Code (UPC) for this command is Test Access Level 4 (T4).

This message is available starting in WaveStar OLS 1.6T release 2.0.

INPUT FORMAT

TEST-AUTO-LOCAL:*tid*::*ctag*::*spec_block*;

DESCRIPTION

The **TEST-AUTO-LOCAL** command is intented to be used by the customer during Acceptance Testing of the network element as supported by the User/Service Manual. This test checks the internal node transmission paths that require fiber connection tracing between circuit packs (CPs).

The output of this command is an indication of whether the test passed or failed.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

spec_block

Specific Parameter Block. The system level attributes to be modified are specified inside the *spec_block*. Parameters within *spec_block* are specified using a *name=value,name=value,...* type construct with no constraints on the order of the arrangement of parameters. Constructs such as *name1=value1, name2=, name3=, name4=, name5=value5,...* are acceptable and in this example only the parameters *name1* and *name5* will be attempted to be changed at the NE. If the current value of the parameter *name1* is already *value1* in the example just shown, then *name1* will not be changed.

For the **TEST-AUTO-LOCAL** command, the input *spec_block* may contain the following parameter.

```
test_type
```
Test type. `test_type` is a string of 12 or fewer characters. The four types of continuity tests that will be performed on an OLS 1.6T network element are: Payload, OMON, Supervisory (SUPVY) Channel, and ORS tests. This parameter shall take on the values of the res_type. In addition to the res_type values, this parameter shall take on the value of "ALL" and perform all of the above module tests.

The original value of this parameter is "ALL".

OUTPUT FORMAT

In response to a valid instance of this command, the following output report is returned:

```
    tid date time
M   ctag COMPLD

    "aid:res_type,[omon-aid],[line_res],[add_otu-aid],[add_res],
[drop_otu-aid],[drop_res],[loop_res],

[wad-w-e_res],[wad-e-w_res],[ors-cin-aid],

[ors-ain-res],[ors-bin-res],[ors-cin-res],[ors-aout-res],[ors-bout-res]"



    .        .        .        .        .



    .        .        .        .        .



    .        .        .        .        .



    "aid:res_type,[omon-aid],[line_res],[add_otu-aid],[add_res],

[drop_otu-aid],[drop_res],[loop_res],

[wad-w-e_res],[wad-e-w_res],[ors-cin-aid],

[ors-ain-res],[ors-bin-res],[ors-cin-res],[ors-aout-res],[ors-bout-res]"
```

```
":,,[line_res],,,,,"
```


```
;
```
_____

In response to a valid instance of this command, the following output report is returned:
_____

```
    tid date time
M   ctag COMPLD

    "aid:res_type,[omon-aid],[line_res],[add_otu-aid],[add_res],
[drop_otu-aid],[drop_res],[loop_res],

[type2-wad-w-e_res],[type2-wad-e-w_res],[ors-cin-aid],

[ors-ain-res],[ors-bin-res],[ors-cin-res],[ors-aout-res],[ors-bout-res]"



    .        .        .        .        .



    .        .        .        .        .



    .        .        .        .        .



    "aid:res_type,[omon-aid],[line_res],[add_otu-aid],[add_res],

[drop_otu-aid],[drop_res],[loop_res],

[type2-wad-w-e_res],[type2-wad-e-w_res],[ors-cin-aid],

[ors-ain-res],[ors-bin-res],[ors-cin-res],[ors-aout-res],[ors-bout-res]"

":,,[line_res],,,,,"



    ;
```
_____

Pre-service testing of WaveStar OLS 1.6T facilities and fiber connection tracing shall be done on both end and repeater terminals by verifying transmission through all supervisory channels via the optical amplifiers and supervisory circuit packs.

For an End Terminal (ET) under test with a SUPVY circuit pack in the slot, the output signal shall be looped back and read via the appropriate dB loss jumper.

Also, for a Repeater Terminal (RT) under test with a SUPVY circuit pack in the slot, the SUPVY output signal is looped back on to the SUPVY input signal.

Pre-service testing of WaveStar OLS 1.6T ORS pack fiber connection tracing shall be done on OLS 1.6T end terminals and ring terminals by verifying transmission through all channels via the OTU and ORS circuit packs.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

aid

Line access identifier. This is the address of the line for which the test result is being reported.

Entity: Line
Legal Values: LINE-(1E,1W,2E,2W)

If the *res_type* is **ORS**, then *aid* parameter will return with no value.

res_type

Result type. The four types of continuity tests that will be performed on an OLS 1.6T network element are: Payload (**PYLD**), **OMON**, Supervisory (**SUPVY**) Channel Test, and **ORS** Test.

PYLD. Payload Channel Test shall verify the connectivity between the OTU, OMU/WAD/WMU, OA, OA, ODU/WAD/WDU, and OTU for each OC-48 or OC-192 payload channel. Payload Channel Tests will be applicable to all NE types except Repeaters.

OMON. Optical Monitoring Test shall verify the connectivity between OAs and the OMON circuit packs (CPs) by checking the continuity of each of the optical fiber connection.

SUPVY. Supervisory Channel Test shall verify the connectivity between OAs and the SUPVY CPs by checking the continuity of each of the optical fiber connection.

ORS. Optical Ring Switching Test shall verify the connectivity between the OTU and the ORS circuit packs (CPs) by checking the continuity of each of the optical fiber connection.

omon-aid

Optical monitoring access identifier. This shall be the port identification (when res_type = OMON) that shall be fixed to specific bay-shelf-slot positions for each NETYPE.

Entity: Port
Legal Values: PORT-(1,2)-(1,2)-(2,6,8,12)-(IN_1-IN_8)

line_res

Line result. This field shall be used to return the result of the line test and it shall take on the following values:

PASS
> Test result was good or successful.

FAIL
> Test result failed or was unsuccessful.

NOT_TESTED
> The entity was not included in the test.

> This field shall be used to return error condition from all continuity tests. Only one error condition will be returned.

ASSOCS_ERR
> This indicates an error during testing. There are improper port associations or too few port associations for the test to proceed. The **res_type** parameter shall be "PYLD" for this value.

TX_OA_LASER_ERR
> This indicates an error during testing. The transmit side OA LASER has failed. The **res_type** parameter shall be "PYLD" for this value.

RX_OA_LASER_ERR
> This indicates an error during testing. The receive side OA LASER has failed. The **res_type** parameter shall be "PYLD" for this value.

> This field shall be used to return the result of the clean-up on the last line after the test is completed (All other fields
> will remain null including aid.):

CLEANUP-PASSED
> Clean-up was successful.

CLEANUP-FAILED
> Clean-up was unsuccessful.

add_otu-aid

Add side OTU access identifier. This is the association for the add side OTU port address.

Entity: Single 1550 Band Output Port (OTU)
Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540, 9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465, 9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390, 9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315, 9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250,9245, 9240, 9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015, 9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930,

8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845, 8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760, 8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675, 8670, 8665, 8660, 8655, 8650)

add_res

Add side result. This field shall be used to return the add side result of the line test and it shall take on the following values:

> **PASS**
> > Test result was good or successful.
> **FAIL**
> > Test result failed or was unsuccessful.
> **NOT_TESTED**
> > The entity was not included in the test.

drop_otu-aid

Drop side OTU access identifier. This is the association of the drop side OTU port address.

Entity: Single Intput Port (OTU)
Legal Values: (PORT)-(1-12)-(1-3)-(1-12)-(IN1, IN2,
9585, 9580, 9575, 9570, 9565, 9560, 9555, 9550, 9545, 9540,
9535, 9530, 9525, 9520, 9515, 9510, 9505, 9500, 9495, 9490, 9485, 9480, 9475, 9470, 9465,
9460, 9455, 9450, 9445, 9440, 9435, 9430, 9425, 9420, 9415, 9410, 9405, 9400, 9395, 9390,
9385, 9380, 9375, 9370, 9365, 9360, 9355, 9350, 9345, 9340, 9335, 9330, 9325, 9320, 9315,
9310, 9305, 9300, 9295, 9290, 9285, 9280, 9275, 9270, 9265, 9260, 9255, 9250, 9245, 9240,
9235, 9230, 9225, 9220, 9215, 9210, 9205, 9200, 9195, 9190, 9045, 9040, 9035, 9030, 9025, 9020, 9015,
9010, 9005, 9000, 8995, 8990, 8985, 8980, 8975, 8970, 8965, 8960, 8955, 8950, 8945, 8940, 8935, 8930,
8925, 8920, 8915, 8910, 8905, 8900, 8895, 8890, 8885, 8880, 8875, 8870, 8865, 8860, 8855, 8850, 8845,
8840, 8835, 8830, 8825, 8820, 8815, 8810, 8805, 8800, 8795, 8790, 8785, 8780, 8775, 8770, 8765, 8760,
8755, 8750, 8745, 8740, 8735, 8730, 8725, 8720, 8715, 8710, 8705, 8700, 8695, 8690, 8685, 8680, 8675,
8670, 8665, 8660, 8655, 8650)

drop_res

Drop result. This field shall be used to return the drop side result of the line test and it shall take on the following values:

> **PASS**
> > Test result was good or successful.
> **FAIL**
> > Test result failed or was unsuccessful.
> **NOT_TESTED**
> > The entity was not included in the test.

loop_res

Loop result. This field shall be used to return the loop result of a line test and it shall take on the following values:

PASS
    Test result was good or successful.
FAIL
    Test result failed or was unsuccessful.
NOT_TESTED
    The entity was not included in the test.

wad-w-e_res

Type2 WAD West Receive side to East Transmit side result. The AID field for this parameter is LINE-1W and the test_type is PYLD. This field shall be used to return the result of Type2 WAD configuration fiber connection from the West Receive side to the East Transmit side and it shall take on the following values:

W-E-PASS
    Test result was good or successful.
W-E-FAIL
    Test result failed or was unsuccessful.
W-E-NOT_TESTED
    The entity was not included in the test.

"WDU West to WMU East" connections are not tested and not reported.

"Type2 WAD West Receive side to East Transmit side result" or "WDU West to WMU East result". The AID field for this parameter is LINE-1W and the test_type is PYLD. This field shall be used to return the result of Type2 WAD or 40-Channel WAD configuration fiber connection from the West Receive side to the East Transmit side and it shall take on the following values:

W-E-PASS
    Test result was good or successful.
W-E-FAIL
    Test result failed or was unsuccessful.
W-E-NOT_TESTED
    The entity was not included in the test.

type2-wad-w-e_res

Type2 WAD West Receive side to East Transmit side result. The AID field for this parameter is LINE-1W and the test_type is PYLD. This field shall be used to return the result of Type2 WAD configuration fiber connection from the West Receive side to the East Transmit side and it shall take on the following values:

W-E-PASS
    Test result was good or successful.

W-E-FAIL
> Test result failed or was unsuccessful.

W-E-NOT_TESTED
> The entity was not included in the test.

wad-e-w_res

Type2 WAD East Receive side to West Transmit side result. The AID field for this parameter is LINE-1E and the test_type is PYLD. This field shall be used to return the result of Type2 WAD configuration fiber connection from the East Receive side to the West Transmit side and it shall take on the following values:

E-W-PASS
> Test result was good or successful.

E-W-FAIL
> Test result failed or was unsuccessful.

E-W-NOT_TESTED
> The entity was not included in the test.

"WDU East to WMU West" connections are not tested and not reported.

"Type2 WAD East Receive side to West Transmit side result" or "WDU East to WMU West result". The AID field for this parameter is LINE-1E and the test_type is PYLD. This field shall be used to return the result of Type2 WAD or 40-Channel WAD configuration fiber connection from the East Receive side to the West Transmit side and it shall take on the following values:

E-W-PASS
> Test result was good or successful.

E-W-FAIL
> Test result failed or was unsuccessful.

E-W-NOT_TESTED
> The entity was not included in the test.

type2-wad-e-w_res

Type2 WAD East Receive side to West Transmit side result. The AID field for this parameter is LINE-1E and the test_type is PYLD. This field shall be used to return the result of Type2 WAD configuration fiber connection from the East Receive side to the West Transmit side and it shall take on the following values:

E-W-PASS
> Test result was good or successful.

E-W-FAIL
> Test result failed or was unsuccessful.

E-W-NOT_TESTED
> The entity was not included in the test.

ors-cin-aid

Optical Ring Switch access identifier. This shall be the port identification (when res_type = ORS) that shall be fixed to specific bay-shelf-slot positions for each NETYPE.

Entity: Port
Legal Values: PORT-(1-12)-(1-3)-(1-12)-(C1IN, C2IN)

ors-ain-res

ORS result for 1AIN port connection (when ors-cin-aid = C1IN) or 2AIN port connection (when
ors-cin-aid = C2IN). This field shall be used to return the ORS result of an ORS test and it shall take on
the following values:

> **PASS**
>> Test result was good or successful.
>
> **FAIL**
>> Test result failed or was unsuccessful.
>
> **NOT_TESTED**
>> The entity was not included in the test.
>
> If the ORS input port 1AIN or 2AIN has no association, this field shall return a value of
> **NOT_TESTED** for the given port.

ors-bin-res

ORS result for 1BIN port connection (when ors-cin-aid = C1IN) or 2BIN port connection (when
ors-cin-aid = C2IN). This field shall be used to return the ORS result of an ORS test and it shall take on
the following values:

> **PASS**
>> Test result was good or successful.
>
> **FAIL**
>> Test result failed or was unsuccessful.
>
> **NOT_TESTED**
>> The entity was not included in the test.
>
> If the ORS input port 1BIN or 2BIN has no association, this field shall return a value of
> **NOT_TESTED** for the given port.

ors-cin-res

ORS result for C1IN port connection (when ors-cin-aid = C1IN) or C2IN port connection (when
ors-cin-aid = C2IN). This field shall be used to return the ORS result of an ORS test and it shall take on
the following values:

> **PASS**
>> Test result was good or successful.
>
> **FAIL**
>> Test result failed or was unsuccessful.
>
> **NOT_TESTED**
>> The entity was not included in the test.

ors-aout-res

ORS result for 1AOUT port connection (when ors-cin-aid = C1IN) or 2AOUT port connection (when ors-cin-aid = C2IN). This field shall be used to return the ORS result of an ORS test and it shall take on the following values:

PASS
> Test result was good or successful.

FAIL
> Test result failed or was unsuccessful.

NOT_TESTED
> The entity was not included in the test.

> ORS output ports 1AOUT and 2AOUT should have associations. However these fiber connections can not be tested at this time. The fiber connection to 1AOUT and 2AOUT ports shall be removed before executing this test. This field shall return a value of **NOT_TESTED** for these ports.

ors-bout-res

ORS result for 1BOUT port connection (when ors-cin-aid = C1IN) or 2BOUT port connection (when ors-cin-aid = C2IN). This field shall be used to return the ORS result of an ORS test and it shall take on the following values:

PASS
> Test result was good or successful.

FAIL
> Test result failed or was unsuccessful.

NOT_TESTED
> The entity was not included in the test.

> ORS output ports 1BOUT and 2BOUT should have associations. However these fiber connections can not be tested at this time. The fiber connection to 1BOUT and 2BOUT ports shall be removed before executing this test. This field shall return a value of **NOT_TESTED** for these ports.

EXAMPLE INPUT/OUTPUT

The following example shows the result for all testable entities for a Type2 WAD terminal with ORS packs.

```
TEST-AUTO-LOCAL:OLS-400G::123456::TEST-TYPE=ALL;

IP 123456
<
   OLS-400G 99-01-28 16:29:11
M  123456 COMPLD

"LINE-1E:PYLD,,,PORT-1-3-5-9515,PASS,PORT-1-3-7-9515,PASS,PASS,,,,,,,"
```

```
"LINE-1E:PYLD,,,PORT-1-3-5-9525,PASS,PORT-1-3-7-9525,PASS,PASS,,,,,,,"
    "LINE-1E:PYLD,,,,,,E-W-PASS,,,,,"

"LINE-1W:PYLD,,,PORT-2-3-5-9535,PASS,PORT-2-3-7-9535,PASS,PASS,,,,,,,"

"LINE-1W:PYLD,,,PORT-2-3-5-9545,PASS,PORT-2-3-7-9545,pASS,PASS,,,,,,,"
    "LINE-1W:PYLD,,,,,W-E-PASS,,,,,,"
    "LINE-1E:OMON,PORT-2-2-12-IN_2,PASS,,,,,,,,,,,,"
    "LINE-1E:OMON,PORT-2-2-12-IN_6,PASS,,,,,,,,,,,,"
    "LINE-1W:OMON,PORT-2-2-12-IN_3,PASS,,,,,,,,,,,,"
    "LINE-1W:OMON,PORT-2-2-12-IN_7,PASS,,,,,,,,,,,,"
    "LINE-1E:SUPVY,,PASS,,,,,,,,,,,,"
    "LINE-1W:SUPVY,,FAIL,,,,,,,,,,,,"
    ":ORS,,,,,,,,,,PORT-3-1-1-C1IN,PASS,PASS,PASS,PASS,PASS"
    ":ORS,,,,,,,,,,PORT-3-1-1-C2IN,PASS,PASS,PASS,PASS,PASS"
    ":,,CLEANUP-PASSED,,,,,,,,,,,,"
;
```

The following example shows the result for all testable entities.

```
TEST-AUTO-LOCAL:OLS-400G::123456::TEST-TYPE=ALL;


IP 123456

<

    OLS-400G 99-01-28 16:29:11

M  123456 COMPLD

    "LINE-1E:PYLD,,,PORT-1-3-5-9515,PASS,PORT-1-3-7-9515,PASS,PASS,,,,,,,"

    "LINE-1W:PYLD,,TX_OA_LASER_ERR,,,,,,,,,,,,"

    "LINE-1E:OMON,,OMON_TST_DENIED,,,,,,,,,,,,"

    "LINE-1W:OMON,,OMON_TST_DENIED,,,,,,,,,,,,"

    "LINE-1E:SUPVY,,SUPVY_TEST_DENIED,,,,,,,,,,,,"

    "LINE-1W:SUPVY,,SUPVY_TEST_DENIED,,,,,,,,,,,"

    ":,,CLEANUP-PASSED,,,,,,,,,,,,"

;
```

The following example shows the result when the system is unable to turn on three OTU LASERS.

```
TEST-AUTO-LOCAL:OLS-400G::123456;


IP 123456

<

   OLS-400G 99-01-28 16:29:11

M  123456 COMPLD

   "LINE-1W:PYLD,,,PORT-1-3-6-9580,FAIL,PORT-1-3-6-9580,NOT_TESTED,NOT_TESTED,,"

   "LINE-1W:PYLD,,,PORT-1-3-6-9560,PASS,PORT-1-3-6-9560,NOT_TESTED,NOT_TESTED,,"

   "LINE-1W:PYLD,,,PORT-1-3-8-9540,PASS,PORT-1-3-8-9540,NOT_TESTED,NOT_TESTED,,"

   "LINE-1W:PYLD,,,PORT-1-3-8-9520,FAIL,PORT-1-3-8-9520,NOT_TESTED,NOT_TESTED,,"

   "LINE-1E:PYLD,,,PORT-1-2-4-9570,NOT_TESTED,PORT-1-2-4-9570,NOT_TESTED,NOT_TESTED,,"

   "LINE-1E:PYLD,,,PORT-1-2-4-9550,NOT_TESTED,PORT-1-2-4-9550,NOT_TESTED,NOT_TESTED,,"

   "LINE-1E:PYLD,,,PORT-1-2-2-9530,NOT_TESTED,PORT-1-2-2-9530,NOT_TESTED,NOT_TESTED,,"

   "LINE-1E:PYLD,,,PORT-1-2-2-9510,NOT_TESTED,PORT-1-2-2-9510,NOT_TESTED,NOT_TESTED,,"

   "LINE-1W:PYLD,,,,,,,,W_E_NOT_TESTED,"

   "LINE-1E:PYLD,,,,,,,,E_W_NOT_TESTED"

   "OMON,,OMON-TEST-DENIED,,,,,

   "LINE-1W:SUPVY,,SUPVY_TST_DENIED,,,,,"

   "LINE-1E:SUPVY,,SUPVY_TST_DENIED,,,,,"

 ;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
   tid date time
M  ctag DENY
```

```
    IIAC
    /* Input, Invalid Access Identifier */
 ;
```

If a circuit pack is removed during a test, the Test Director shall abort the test:

```
    tid date time
 M  ctag DENY
    SROF
    /* Status, Requested Operation Failed */
 ;
```

If a circuit pack, that is being tested, is removed, the test will be aborted.

```
    tid date time
 M  ctag DENY
    TASF
    /* Test Aborted due to System Failure
    The requested test has been aborted due to System Failure. */
 ;
```

If this command is received with an unsupported *TEST_TYPE* value,

the following error response is returned:

```
    tid date time

 M  ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid TEST_TYPE */

 ;
```

If standing alarms that interfere with the test are present in the system, the test will be aborted.

```
     tid date time

  M  ctag DENY

     SROF

     /* Status, Requested Operation Failed

     The requested test can not be completed because of alarms present. */

   ;
```

RELATED TL1 COMMANDS/MESSAGES

None

TEST-LED

TEST-LED: Test LED

The User Privilege Code (UPC) for this command is Maintenance Level 3 (M3).

This command is available starting in WaveStar OLS 1.6T Release 1.0.

INPUT FORMAT

TEST-LED:*tid*:[*aid*]:*ctag*[::*repeat*];

DESCRIPTION

The **TEST-LED** command provides for testing of the LEDs of the whole system or of each circuit pack.

The LED(s) under test is turned on for 10 seconds, then off for 10 seconds, after which it reverts to its normal operation. This command does not affect the operation of the office alarms.

The definition of "normal" is the state of the indicator immediately before the test was executed. After the test is executed, "normal" also includes any state changes during the test.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

aid

Entity: Slot
Legal Values: SLOT-(ALL), SLOT-(1-12)-(ALL), SLOT-(1-12)-(1-3)-(ALL),
SLOT-(1-12)-(1-3)-(1-12)

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

repeat(1-10)

Repeat. This indicates the number of times the test will be repeated. This parameter must be an integer between 1 and 10. If no value is provided for this parameter, **1** is assumed.

NOTE: For the AID (Access Identifier), when the construct ALL is used no other entry must appear to the right of ALL. For example, entity-ALL is valid but anything following entity-ALL- is invalid.

OUTPUT FORMAT

If the network element fully complies with the request, the following normal completion response is returned:

```
    sid date time

M   ctag COMPLD

;
```

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

```
TEST-LED:OLS-400G:SLOT-1-1-5:123456::REPEAT=1;



IP 123456

<

    OLS-400G 98-06-06 16:42:11

M   123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If this command is received with an invalid access identifier, the following error response is returned:

```
    sid date time

M   ctag DENY

    IIAC

    /* Input, Invalid Access Identifier */

 ;
```

If the network element receives this command with an invalid *repeat*, the following error response is returned:

```
    sid date time

M   ctag DENY

    IDNV

    /* Input, Data Not Valid, invalid REPEAT */

 ;
```

RELATED TL1 COMMANDS/MESSAGES

None

UPD-SYS

UPD-SYS: Update System

The User Privilege Code (UPC) for this command is Provisioning Level 3 (P3).

This command is available starting in 1.6T OLS Release 1.0.

INPUT FORMAT

UPD-SYS:*tid*::*ctag*;

DESCRIPTION

The **UPD-SYS** command updates the network element data base to reflect the existing incoming signals.

INPUT PARAMETERS

tid

Target identifier. This is the name of the network element to which the command is addressed. It must be a string of 20 or fewer characters from the following set:

[A-Z][a-z][0-9].+-/%#_

ctag

Correlation tag. This is included in the command and is repeated back by the network element in the response to allow association of the command and response messages. Valid values for *ctag* are strings of up to 6 characters comprised of identifiers and/or decimal numerals (a string of decimal digits with an optional non-trailing "."). Strings containing both numbers and letters must begin with a letter. A "." is allowed only if all other characters are digits.

OUTPUT FORMAT

If the network element fully complies with this command, the following output message is returned:

```
    sid date time

M   ctag COMPLD

;
```

The network element will return a COMPLD whenever it is completed even if the update resulted in no change to the database of the network element.

OUTPUT PARAMETERS

Refer to the **RTRV-HDR OUTPUT PARAMETERS** section. The output parameters listed there for the normal completion response also apply to this command.

EXAMPLE INPUT/OUTPUT

The following example illustrates the command/response associated with an update:

```
upd-sys:LT-400G::123456;



IP 123456

<

    LT-400G 93-10-26 16:42:11

M  123456 COMPLD

;
```

ERROR RESPONSES

Refer to the **RTRV-HDR ERROR RESPONSES** section. The error responses listed there also apply to this command.

If the network element receives an **UPD-SYS** command while the volatile memory and the active partition of the non-volatile memory of the system controller have incompatible software versions, the following error response is returned:

```
    sid date time

M  ctag DENY

    SSTP

    /* Status, SToPped

    The execution of this command stopped because
```

```
    the volatile memory and the active partition of the non-volatile

    memory of the system controller

    have incompatible software versions.

        */

    ;
```

RELATED TL1 COMMANDS/MESSAGES

INIT-SYS

Appendix A: ASAP Profiles

Overview

Purpose   This appendix provides information about ASAP profiles and the allowable values for specified parameters.

☐

Appendix A

The tables in this Appendix, list the *aid* values associated with each *pftype* and *alarm_id.*

Table 1 – Bay

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
	Service Indepen-dent	Service Dependent		Service Indepen-dent	Service Dependent				
		Service Affecting	Non-Service Affecting		Service Affecting	Non-Service Affecting			
Power A for fan1 failure	MJ	--	--	PROMPT	--	--	Bay	PWRAFAN1FAIL	bay
Power A for fan2 failure	MJ	--	--	PROMPT	--	--	Bay	PWRAFAN2FAIL	bay
Fan failure	MJ	--	--	PROMPT	--	--	Bay	FAN1FAIL	bay
Fan2 failure	MJ	--	--	PROMPT	--	--	Bay	FAN2FAIL	bay
Power B for fan1 failure	MJ	--	--	PROMPT	--	--	Bay	PWRBFAN1FAIL	bay
Power B for fan2 failure	MJ	--	--	PROMPT	--	--	Bay	PWRBFAN2FAIL	bay
Power A and Power B for fan1 failure	MJ	--	--	PROMPT	--	--	Bay	PWRABFAN1FAIL	bay
Power A and Power B for fan2 failure	MJ	--	--	PROMPT	--	--	Bay	PWRABFAN2FAIL	bay
BC Bus failure	--	--	MJ	--	--	PROMPT	Bay	BCBUSF	bay
Clogged dust filter1	MN	--	--	DEFERRED	--	--	Bay	CLOGFILTER1	bay
Clogged dust filter2	MN	--	--	DEFFERED	--	--	Bay	CLOGFILTER2	bay

Table 2 – Client

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Indepen-dent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
JO mismatch	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	J0MISMATCH	client
Incoming OC-48/STM-16 LOS failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCO48S16LOS	client
Incoming OC-192/STM-64 LOS failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCO192S64LOS	client
Incoming LSBB LOS failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCLSBBLOS	client
Incoming HSBB LOS failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCHSBBLOS	client
Incoming OC-48/STM-16 LOF failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCO48S16LOF	client
Incoming OC-192/STM-64 LOF failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCO192S64LOF	client
Incoming HSBB LOL	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	INCHSBBLOL	client
OTU LASER shut off	--	--	NA	--	--	No Alarm	Port (OTU IN), Port	OTULASEROFF	client
Client synchronization failure	--	--	MJ	--	--	PROMPT	PORT (OTU IN), Port	CSYNCFAIL	client
ORS inhibit switch	--	--	NA	--	--	No Alarm	Port (ORS IN)	ORSINH	client
ORS forced switch	--	--	NA	--	--	No Alarm	Port (ORS In)	ORSFS	client
ORS signal fail auto switch	--	--	NA	--	--	No Alarm	Port (ORS IN)	ORSAUTOSF	client
Incoming ORS client LOS	--	--	MN	--	--	DEFERRED	Port (ORS IN)	INCORSCLILOS	client
Incoming ORS client LOS	--	--	MN	--	--	DEFERRED	Port (ORS IN)	INCORSLNLOS	client
Incompatible trace identifier with OTU	--	--	MN	--	--	DEFERRED	Port (OTU IN)	INCOMPTRACE	client
TCA Digital Alarm: OTU OC-48/STM-16 CVS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC48CVS15MA	client
TCA Digital Alarm: OTU OC-48/STM-16 ESS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC48ESS15MA	client
TCA Digital Alarm: OTU OC-48/STM-16 SESS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC48SESS15MA	client

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TCA Digital Alarm: OTU OC-48/STM-16 SEFSS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC48SEFSS15MA	client
TCA Digital Alarm: OTU OC-48/STM-16 CVS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC48CVS1DA	client
TCA Digital Alarm: OTU OC-48/STM-16 ESS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC48ESS1DA	client
TCA Digital Alarm: OTU OC-48/STM-16 SESS 1day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC48SESS1DA	client
TCA Digital Alarm: OTU OC-48/STM-16 SEFSS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC48SEFSS1DA	client
TCA Digital Alarm: OTU OC-192/STM-64 CVS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192CVS15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 ESS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192ESS15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 SESS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192SESS15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 SEFSS 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192SEFSS15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 CVS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC192CVS15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 ESS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC192ESS1DA	client
TCA Digital Alarm: OTU OC-192/STM-64 SESS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC192SESS1DA	client
TCA Digital Alarm: OTU OC-192/STM-64 SEFSS 1 day	--	--	MJ	--	--	DEFERRED	Port (OTU IN)	OC192SEFSS1DA	client
TCA Digital Alarm: OTU OC-192/STM-64 FEC- EC15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192EC15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 FEC-UBC 15 Min	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192UBC15MA	client
TCA Digital Alarm: OTU OC-192/STM-64 FEC-EC 1 day	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192EC1DA	client
TCA Digital Alarm: OTU OC-192/STM-64 FEC-UBC 1 day	--	--	MN	--	--	DEFERRED	Port (OTU IN)	OC192UBC1DA	client
ORS signal fail on standby	--	--	NA	--	--	No Alarm	Port (ORS IN)	ORSSFONSTBY	client

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Table 3 – Env

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Independ-ent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
provisionedcontrolpt	--	--	NA	--	--	No Alarm	Ext Ctl Pts	DISCOUT	env
provisionedenvironmentalpt	MN	--	--	DEFERRED	--	--	Ext Env Pts	DISCIN	env

Table 4 – Com

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Independ-ent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			

Table 5 – Ochan

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Independ-ent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
Incoming optical channel LOS	--	--	MN	--	--	DEFERRED	Channel (Optical)	OCHANLOS	ochan
Optical channel transmit failure	--	--	MN	--	--	DEFERRED	Channel (Optical)	OCHABTXFAIL	ochan
Incoming OCH10G LOS failure	--	--	MN	--	--	DEFERRED	Port (OTU IN)	INCOCH10GLOS	ochan
Incoming OCH10G LOF failure	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	ONCOCH10GLOF	ochan
WaveWrapper path trace mismatch	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	PATHTRACEMM	ochan
OCH Payload Label mismatch	--	--	MN	--	--	DEFERRED	PORT (OTU IN)	OCHPLM	ochan

Table 6 – Oline

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Independ-ent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
WAD drop channel LOS	--	--	MN	--	--	DEFERRED	Port (WAD DROP IN)	WADDROPLOS	oline
Insufficient span loss (<10db)	--	--	MJ	--	--	PROMPT	Line	ISPANLOSS	oline
Incoming optical Line LOS	--	--	MJ	--	--	PROMPT	Line	OLINELOS	oline
OMS (OA) LOS	--	--	MJ	--	--	PROMPT	Port (OA IN)	OMSLOS	oline
WAD incoming optical line LOS	--	--	MJ	--	--	PROMPT	Line	WADLINELOS	oline
OMON LOS	--	--	MJ	--	--	PROMPT	Port (OMON IN)	OMONLOS	oline
WAD ADD LOS	--	--	MJ	--	--	PROMPT	Port (WAD IN)	WADADDLOS	oline

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Table 7 – Pack

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Indepen-dent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
WAD failure	--	--	MJ	--	--	PROMPT	Slot (WAD)	WADCPF	pack
APSD active -line	--	--	NA	--	--	No Alarm	Slot (OA)	APSDACTLINE	pack
APSD active -ODU	--	--	NA	--	--	No Alarm	Slot (OA)	APSDACTODU	pack
ODU failure	--	--	MJ	--	--	PROMPT	Slot (ODU)	ODUCPF	pack
OMU failure	--	--	MJ	--	--	PROMPT	Slot (OMU)	OMUCPF	pack
EI failure	--	--	MJ	--	--	PROMPT	Slot (EI)	EICPF	pack
OMON failure	--	--	MJ	--	--	PROMPT	Slot (OMON)	OMONCPF	pack
OA failure	--	--	MJ	--	--	PROMPT	Slot (OA)	OACPF	pack
ODU warmup in progress	--	--	NA	--	--	No Alarm	Slot (ODU)	ODUWRMUP	pack
OMU warmup in progress	--	--	NA	--	--	No Alarm	Slot (OMU)	OMUWRMUP	pack
BOS failure	--	--	MJ	--	--	PROMPT	Slot (BOS)	BOXCTLF	pack
OTU failure	--	--	MJ	--	--	PROMPT	Slot (OUT)	OTUCPF	pack
FLASH failure	--	--	MJ	--	--	PROMPT	Slot (BOS)	FLASHF	pack
FLASH removed	--	--	MJ	--	--	PROMPT	Slot (BOS)	FLASHR	pack
FLASH unrecognized code	--	--	MJ	--	--	PROMPT	Slot (BOS)	FLASHUNCODE	pack
FLASH/SYSCTL code mismatch	--	--	MJ	--	--	PROMPT	Slot (BOS)	FLASHSYSCTL	pack
SUPVY failure	--	--	MJ	--	--	PROMPT	Slot (SUPVY)	SUPVYCPF	pack
Flash removal enabled	--	--	MJ	--	--	PROMPT	Slot (BOS)	FLASHRMENBLD	pack
ORS failure	--	--	MJ	--	--	PROMPT	Slot (ORS)	ORSCPF	pack
Clamping transmit OA to output O-channel power	--	--	MJ	--	--	PROMPT	Slot (OA)	TXOAOUT	pack
Outdated boot flash	--	--	NA	--	--	No Alarm	SLOT	OUTBOOTFLSH	pack
WAD booting	--	--	NA	--	--	No Alarm	Slot (WAD)	WADCBT	pack
ODU booting	--	--	NA	--	--	No Alarm	Slot (ODU)	ODUCBT	pack
OMU booting	--	--	NA	--	--	No Alarm	Slot (OMU)	OMUCBT	pack
OA booting	--	--	NA	--	--	No Alarm	Slot (OA)	OACBT	pack
BOS booting	--	--	NA	--	--	No Alarm	Slot (BOS)	BOSCBT	pack
ORS/OTU booting	--	--	NA	--	--	No Alarm	Slot (OTU)	OTUCBT	pack
SUPVY booting	--	--	NA	--	--	No Alarm	Slot (SUPVY)	SUPVYCBT	pack

Table 8 – Shelf

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
	Service Independent	Service Dependent		Service Independent	Service Dependent				
		Service Affecting	Non-Service Affecting		Service Affecting	Non-Service Affecting			
Circuit breaker/power failure A	--	--	MJ	--	--	PROMPT	Shelf	POWERA	shelf
Circuit breaker/power failure A & B	--	--	MJ	--	--	PROMPT	Shelf	POWERAB	shelf
Circuit breaker/power failure B	--	--	MJ	--	--	PROMPT	Shelf	POWERB	shelf

Table 9 – Supvy

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
	Service Independent	Service Dependent		Service Independent	Service Dependent				
		Service Affecting	Non-Service Affecting		Service Affecting	Non-Service Affecting			
SUPVY drop output LOS	MJ	--	--	PROMPT	--	--	Port (OA IN)	SUPVYDROPLOS	supvy
SUPVY add input LOS	MJ	--	--	PROMPT	--	--	Port (OA SUP TX)	SUPVYADDLOS	supvy
Incoming SUPVY channel LOS	MJ	--	--	PROMPT	--	--	Port (SUPVY IN)	INCSUPVYLOS	supvy
Incoming SUPVY channel LOF	MJ	--	--	PROMPT	--	--	Post (SUPVY IN)	INCSUPVYLOF	supvy
OW1TYPE Mismatch	MJ	--	--	PROMPT	--	--	Line	OW1MISMATCH	supvy
OW2TYPE Mismatch	MJ	--	--	PROMPT	--	--	Line	OW2MISMATCH	supvy
OW3TYPE Mismatch	MJ	--	--	PROMPT	--	--	Line	OW3MISMATCH	supvy
PROVDLTYPE Mismatch	MJ	--	--	PROMPT	--	--	Line	PROVDLMISMATCH	supvy
Local SUPVY DL failure	MJ	--	--	PROMPT	--	--	Line	LSUPVYDLF	supvy
Express SUPVY DL failure	MJ	--	--	PROMPT	--	--	Line	ESUPVYDLF	supvy

Table 10 – Slot

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
		Service Dependent			Service Dependent				
	Service Independ-ent	Service Affecting	Non-Service Affecting	Service Indepen-dent	Service Affecting	Non-Service Affecting			
WAD removed	--	--	MJ	--	--	PROMPT	Slot (WAD)	WADCPR	slot
ODU removed	--	--	MJ	--	--	PROMPT	Slot (ODU)	ODUCPR	slot
OMU removed	--	--	MJ	--	--	PROMPT	Slot (OMU)	OMUCPR	slot
EI removed	--	--	MJ	--	--	PROMPT	Slot (EI)	EICPR	slot
OMON removed	--	--	MJ	--	--	PROMPT	Slot (OMON)	OMONCPR	slot
Unexpected CP type	MN	--	--	DEFERRED	--	--	Slot (unknown)	CPUT	slot
No CP expected in slot	--	--	NA	--	--	No Alarm	Slot	NOCPEXP	slot
OA removed	--	--	MJ	--	--	PROMPT	Slot (OA)	OACPR	slot
BOS removed	--	--	MJ	--	--	PROMPT	Slot (BOS)	BOSCTLR	slot
OTU removed	--	--	MJ	--	--	PROMPT	Slot (OTU)	OTUCPR	slot
SUPVY removed	--	--	MJ	--	--	PROMPT	Slot (SUPVY)	SUPVYCPR	slot
CP not in service indicated	NA	--	No Alarm	No Alarm	--	--	Slot	CPNISI	slot
ORS removed	--	--	MJ	--	--	PROMPT	Slot (ORS)	OTUORS	slot

Table 11 – System

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
	Service Indepen-dent	Service Dependent		Service Indepen-dent	Service Dependent				
		Service Affecting	Non-Service Affecting		Service Affecting	Non-Service Affecting			
Test LED in progress	NR	--	--	No Report	--	--	System	TSTLEDIP	system
Inhibit alarms-office alarms	NA	--	--	No Alarm	--	--	System	INHAOALM	system
Reset in progress	MJ	--	--	PROMPT	--	--	System	BOOT	system
Test alarm in progress	NR	--	--	No Report	--	--	System	ALARMT	system
Logins inhibited	NA	--	--	No Alarm	--	--	System	INHLOG	system
Bay Bus failure	--	--	MJ	--	--	PROMPT	System	BAYBUSF	system
RM unreachable	--	--	MJ	--	--	PROMPT	System	RMNR	system
DSA unreachable	--	--	MJ	--	--	PROMPT	System	DSANR	system
OH Bus failure	--	--	MJ	--	--	PROMPT	System	OHBUSF	system
Topology construction in progress	MJ	--	--	PROMPT	--	--	System	TOPINITC	system
Topology construction incomplete	MJ	--	--	PROMPT	--	--	System	TOPINITINC	system
APSD disabled	MJ	--	--	PROMPT	--	--	System	APSDDISABLE	system
Inhibit orderwire protection switch	NA	--	--	No Alarm	--	--	System	INHOWPS	system

Table 12 – SW

WaveStar OLS 400G Conditions/Events	SONET alarm Severity Code			SDH alarm Severity Code			Source Address ID	Alarm ID	ASAP Entity Types
	Service Indepen-dent	Service Dependent		Service Indepen-dent	Service Dependent				
		Service Affecting	Non-Service Affecting		Service Affecting	Non-Service Affecting			

Glossary

A

ABN

Abnormal (condition)

ACO

Alarm Cutoff — A push-button switch on the indicator strip that can be used to retire an audible office alarm.

AID

Access Identifier — A unique identifier used to address equipment slots and ports, as well as facility tributaries, that are defined for the OLS architecture.

AIS

Alarm Indication Signal — A code transmitted downstream in a digital network indicating that an upstream failure has been detected and alarmed if the upstream alarm has not been suppressed.

APSD

Automatic Power Shutdown — A safety procedure automatically performed by the OLS when a loss of optical power occurs. APSD powers down the Optical Amplifier to a safe, Class 1 level then restarts it once the system has been repaired or links have been re-established.

Asynchronous

Refers to network elements that are not timed from references traceable to a single Stratum-1 source.

AUTO

Automatic — One possible state of a port or slot. When a port is in the AUTO state and a good signal is detected, the port automatically enters the IS (in-service) state. When a slot is in the AUTO state and a circuit pack is detected, the slot automatically enters the EQ (equipped) state.

B **BCLAN**

Board Controller Local Area Network — The internal local area network that provides communications between the Line Controller circuit pack and board controllers on the circuit packs associated with a high speed line.

Bidirectional Line

A transmission path consisting of 2 fibers that handle traffic in both the transmit and receive directions.

C **CIT**

Craft Interface Terminal — A personal computer that meets OLS minimum require-ments and has Interface-2000 software installed.

Closed Ring Network

A network formed of a ring-shaped configuration of systems

CMS

See customer maintenance signal

CO

Central Office

Collocated

Located in the same Central Office

CR

Critical (alarm)

CS&O

Lucent Technologies Customer Support and Operations

Current Value

The value currently assigned to a provisionable parameter.

CV

Coding Violation

D **Data**

A collection of system parameters and their associated values.

dB

Decibels

DCE

Data Communications Equipment — The equipment that provides the signal conversion and coding between the data terminating equipment and the line. The DCE may be separate equipment or a part of the data terminating equipment.

DDM-2000

Lucent Technologies' SONET-ready network multiplexer that can function as a lightwave terminal. It is designed primarily for loop feeder and interoffice applications that will work in existing asynchronous as well as the emerging SONET networks.

Demultiplexing

A process applied to a multiplexed signal for recovering signals combined within it and for restoring the distinct individual channels of these signals.

Dispersion

Time-broadening of a transmitted light pulse

Divergence

When the OA provides unequal amplification of incoming wavelengths, the result is a power divergence between wavelengths.

Doping

The addition of impurities to a substance in order to attain desired properties.

DRAM

Dynamic Random Access Memory

Drop Side Signal

An optical signal suitable for transmission over OLS.

DS3

Digital Signal Level 3 (44.736 Mb/s)

DS-NE

Directory Service Network Element — A designated network element that is responsible for administering a database that maps network element names (TIDs) to addresses [NSAPs (network service access points). There can be one DS-NE per ring.

DTE

Data Terminating Equipment — The equipment that originates data for transmission and accepts transmitted data.

Dual Ring Interworking

A configuration of two ring networks that share two common nodes. DRI permits a circuit with one termination in one ring and one termination in another ring to survive a loss-of-signal failure of the shared node that is currently carrying service for the circuit.

DWDM

Dense Wavelength Division Multiplexing

E   EC-1

Electrical Carrier level-1 signal — An STS-1 signal that has been shaped and encoded for transmission over electrical media.

ECI

Equipment Catalog Item

EEPROM

Electrically Erasable Programmable Read-Only Memory

EMC

Electromagnetic Compatibility

EMI

Electromagnetic Interference — High-energy, electrically induced magnetic fields that cause data corruption in cables passing through the fields.

End Terminal

The OLS equipment that terminates up to eighty (80) optical line signals.

EQ

Equipped — A memory administrative state for slots.

Erbium

A soft rare earth element used in metallurgy and nuclear research.

Erbium Doped Fiber Amplifier (EDFA)

An amplifier that performs by having a light signal pass through a section of erbium-doped fiber and using the laser pump diode to amplify the signal.

ES

Errored Seconds — A performance monitoring parameter.

ESD

Electrostatic Discharge

ET

End Terminal — Equipment that terminates optical line signals.

Express Traffic

In a WAD site, wavelengths going between two co-located OLS end terminals without going through an LCT.

F   **FE ACTY**

Far-End Activity

FEBE

Far-End-Block Error — An indication returned to the transmitting terminal that an errored block has been detected at the receiving terminal. A block is a specified grouping of bits.

FERF

See RDI.

FIT

Failures in Time — Circuit pack failure rates per 10^9 hours as calculated using the method described in *Reliability Prediction Procedure for Electronic Equipment*, Issue 4, September 1992.

G Gb/s
   Gigabits per second

GHz
   Gigahertz — 10^9 cycles per second

GNE

   Gateway Network Element — A network element that passes information between other
   network elements and operations systems through a data communication network.

H Hazard Level
   Output power level of an OLS system or device that poses safety risks to personnel.
   For 1550 nm wavelengths, hazard levels are defined as follows:
   Level 1= ≤ 10 dBm
   Level 3A= ≤ 17 dBm,
   Level 3B= ≤ 27 dBm
   Level 4 = > 27 dBm.

I IEC
   International Electrotechnology Commission or Interexchange Carrier

IR
   Intermediate Reach

IS
   In Service — A memory administrative state for ports. IS refers to a port that is fully
   monitored and alarmed.

ITCO
   Independent Telephone Company

IXC
   Interexchange Carrier

J Jitter
   Jitter is defined as short-term variations of the significant instants of a digital signal
   from their ideal positions in time.

K   Krypton line

1547.82 nm —wavelength used in a standard laser source.

L   LBC

Laser bias current

LBFC

Laser backface currents

LBO

Lightguide Build-Out — An adapter for the lightguide fiber jumpers between the LGX, OLS, and OT equipment. It is also used on equipment within the network element. It performs signal attenuation and guarantees the proper signal level to OLS and OT equipment.

Lead time

The amount of time that passes between placement of a product order and receipt of the product.

LEC

Local exchange carrier

LED

Light-emitting diode

LGX

Lightguide cross-connect.

Line

1. An optical transmission line. In T1/Bellcore terminology, "line" refers to a transmission medium, together with the associated high speed equipment, required to provide the means of transporting information between two consecutive network elements; one originates the line signal while the other terminates it. **2.** "Line" also indicates a fiber pair. When used in this document, the following is assumed: 1 line = 2 fibers, 4 line = 8 fibers.

Local Traffic

All wavelengths being added/dropped through LCTs or OTs at a WAD site.

LOF

Loss of Frame

Long Reach

The capability to concatenate 7 or 8 spans between end terminals before regeneration is required

Long Span

Single span between terminal sites with a distance greater than 80 km.

LOS

Loss of Signal

M μ**m**

    Micrometer

Menu

    A set of possible values for a parameter.

Midspan Meet

    The capability to interface between two lightwave terminals of different vendors. This applies to high speed optical interfaces.

MJ

    Major (alarm)

MN

    Minor (alarm)

MTBF

    Mean Time Between Failures

MTBMA

    Mean Time Between Maintenance Activities

Multiplexing

    The process of combining several distinct digital signals into a single composite digital signal.

N **NE**

    Network Element

NE ACTY

    Near-End Activity

NEBS

    Network Equipment-Building System

nm

    Nanometer (10^{-9} meters)

NMA

    Network Monitoring and Analysis System

NMON

    Not Monitored — A memory administrative state for ports.

Non-revertive switching

    In non-revertive switching, a working and stand-by line exist on the network. When a protection switch occurs, the standby line is selected to support traffic, thereby becoming the working line. The original working line then becomes the stand-by line. This status remains in effect even when the fault clears. That is, there is no automatic switch back to the original status. Also see **1+1 Line Protection.**

NRZ

Non-return to zero

NSA

Nonservice Affecting

NSAP Address

Network Service Access Point Address — An automatically assigned number that uniquely identifies a Network Element for the purposes of routing DCC messages.

O **O&M**

Operation and Maintenance

OALAN

Overhead Access Local Area Network — The internal local area network that provides communications between the System Controller circuit pack and the Overhead Controller circuit pack.

OAM&P

Operations, Administration, Maintenance, and Provisioning

OC, OC-n

Optical Carrier — The optical signal that results from an optical conversion of an STS signal; that is, OC-1 from STS-1 and OC-n from STS-n.

ODU

Optical Demultiplexer — takes the OLS optical signal and separates it into its component signals; up to eighty (80) discrete signals may be extracted.

OLS End Terminal

Terminal equipment consisting of a co-located Optical Multiplexer Unit (OMU) and Optical Demultiplexer Unit (ODU) for bidirectional transmission, Optical Amplifiers (OA), and OLS Telemetry packs.

OLS Repeater Terminal

Bidirectional terminal consisting of a pair of Optical Amplifiers (OA) and the corresponding OLS telemetry packs.

OLS Subnetwork

All dual-facing end terminals and OLS Repeaters interconnected with each other. The dual-facing shelf feature extends the access domain beyond the end terminals.

OLS System

Two OLS End Terminals and the OLS Repeaters between them.

OMU

Optical Multiplexer Unit— takes up to eighty (80) OC-48/STM-16 signals and combines them into a single signal

OOF

Out-of-Frame

Open Ring Network

Network formed of a point-to-point configuration of systems.

Operations Interface

Any interface providing you with information on the system behavior or control. These include the equipment LEDs, interface strip, CIT, office alarms, and all telemetry interfaces.

Operations Interworking

The capability to access, operate, provision, and administer remote systems through craft interface access from any site in a SONET network or from a centralized operations system.

Optical Channel

An OC-48/STM-16 or OC-192/STM-64 wavelength within an optical line signal. There can be up to eighty (80) such wavelengths, or channels, carried in one line signal.

Optical Line Build-out (LBO)

An attenuator placed between FT-2000 a Lightwave system and the LGX (or equivalent.) It guarantees the optical level will be below the receiving equipment's maximum received power requirements.

Optical Line ID

A portion of the supervisory signal that identifies optical lines to prevent misconnections between sites.

Optical Line Signal

A multiplexed optical signal containing eight wavelengths or channels.

Optical Line System

A lightwave transmission system that multiplexes up to eight wavelengths, transmits the resulting multiplexed signal, and then demultiplexes the signal at the other end.

Optical Section

See Span.

Optical Translator (OT)

A unit that electrically regenerates any incoming OC-48/STM-16 or OC-192/STM-64 wavelength in the 1.3-1.5 micrometer range into a specific outgoing wavelength of the same, respective rate.

Optical WAD

See Wavelength Add/Drop.

Orderwire

A section of the supervisory signal that is used for communication between sites.

Original Value Provisioning

The original values are preprogrammed at the factory. These values can be overridden using local or remote provisioning.

OS

Operations System — A central computer-based system used to provide operations, administration, and maintenance functions.

OTCTL

Optical Translator Controller

OTPM

Optical Translator Port Module

OTU

Optical Translator Unit

P   Parallel Telemetry

A set of alarms and status information reported to an operations center.

Parameter

A characteristic of the system that affects its operation.

Platform

In OLS, a platform is a family of equipment and software configurations designed to support a particular application.

PM

Performance Monitoring — Measures the quality of service and identifies any degrading or marginally operating systems (before an alarm would be generated).

POH

Path Overhead — Overhead assigned to and transported with the payload until the payload is demultiplexed. It is used for functions that are necessary to transport the payload.

Preprovisioning

The capability to provision a slot before installing a circuit pack.

Proactive Maintenance

Refers to the process of detecting degrading conditions not severe enough to initiate protection switching or alarming, but indicative of an impending signal fail or signal degrade defect.

Protection Switching

The switching of traffic from a malfunctioning line to one that is working.

PROTN

Protection

Provisioning

Assigning a value to a system parameter.

PWR

Power

Q

R   RCV

Receive

RDI

Remote defect indicator — [Previously called far-end-receive failure (FERF)] An indication returned to a transmitting terminal that the receiving terminal has detected an incoming section failure.

Repeater Terminal

In OLS, a bidirectional terminal consisting of a pair of optical amplifiers and the corresponding telemetry packs.

Reactive Maintenance

Refers to discovering defects/failures and then clearing them.

Regeneration

The process of reconstructing a digital signal to eliminate the effects of noise and distortion.

RF

Radio Frequency

RFI

Remote failure indication — (Previously called yellow signals.) A signal that alerts upstream STS-1 path terminating equipment that a down stream failure has been alarmed along the STS-1 path. This action prevents multiple alarms from being activated for the same failure and ensures that craft will be dispatched to the correct location of the failure.

RPP

Reliability Prediction Procedure

RT

Remote Terminal

RTAC

Regional Technical Assistance Center

S **SA**

Service Affecting

SD

Signal Degrade

SDH

Synchronous Digital Hierarchy — a European standard

SEFS

Severely Errored Frame Seconds — A performance-monitoring parameter.

SES

Severely Errored Seconds — A performance-monitoring parameter.

SESP

P-bit Severely Errored Seconds — A performance-monitoring parameter.

SF

Signal Fail

Single-ended Operations

The single-ended operations capability provides operations support from a single location to remote network elements (NEs) in the same SONET subnetwork. With this capability you can perform operations, administration, maintenance, and provisioning on a centralized basis. The remote NEs can be those that are specified for the current release.

Site Address

The unique address for each regenerator or terminal in a repeatered span.

SNR

Signal to Noise ratio; the relative strength of signal compared to noise.

SONET

Synchronous Optical Network

Span

An uninterrupted bidirectional fiber section between two network elements.

Span Growth

A type of growth in which one wavelength is added to all lines before the next wavelength is added.

Span Loss

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

SPE

Synchronous Payload Envelope — A 125-microsecond frame structure composed of STS path overhead and bandwidth for the payload.

STM-n

Synchronous Transport Module level n — the basic building block of SDH.

STS, STS-n

Synchronous Transport Signal — The basic logical building block signal with a rate of 51.840 Mb/s for an STS-1 signal and a rate of n times 51.840 Mb/s for an STS-n signal.

STS-1E

Now referred to as EC-1. A signal typically carried by coaxial cables from one equipment location to another. The term EC-1 refers to the organization and data rate of the signal and also to the voltage template the signal must conform to and the impedances for which the voltage template is valid.

STS1E

Interface Circuit Pack — The STS1E Interface circuit pack interfaces with up to three bidirectional STS-1 signals.

Subnetwork

A group of interconnected/interrelated network elements. The most common connotation is a SONET network in which the network elements have data communications channel connectivity.

Supervisory Signal

An optical signal originating with the telemetry circuit pack that is used to communicate maintenance information.

Synchronous

Refers to network elements that are timed from references traceable to a single Stratum-1 source.

Synchronous Network

The synchronization of transmission systems with payloads to a master (network clock that can be traced to a single reference clock).

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T   T1X1 and T1M1

The ANSI committees responsible for telecommunications standards.

TA

Technical Advisory

TABS

Telemetry Asynchronous Byte Serial (Protocol)

TCA

Threshold-Crossing Alert — A condition set when a counter exceeds a user-selected high or low threshold. A TCA does not generate an alarm but is available on demand through the CIT.

THz

Terrahertz (10^{12} Hz)

TID

Target Identifier — A provisionable parameter used to identify an FT-2000 $OC\text{-}48/$ $STM\text{-}16$ Lightwave network element. Typically, the TID is the common language location identifier (CLLI™) of the FT-2000 1x1 End Terminal, FT-2000 Add/Drop-Rings Terminal, and FT-2000 Repeater Bays.

TL1

Transaction Language 1 — A machine-to-machine communications language that is a subset of CCITT's human-machine language.

TrueWave® Fiber

Non–zero dispersion-shifted fiber manufactured by Lucent Technologies (previously referred to as DEB fiber).

TSO

Technical Support Organization

TX

Transmit

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U   UAS

Unavailable Seconds

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Upgrade

An upgrade is the addition of new capabilities (features). This requires new software and may require new hardware.

V   Value

A number, text string, or other menu selection associated with a parameter.

W   Wavelength Add/Drop (WAD)

The process of adding and dropping wavelengths to provide more efficient transmission. For example, a central office contains two or more OLS end terminals, some wavelengths can be added and dropped locally while others go express between the end terminals by means of OTs.

Wavelength Blocking

At a WA/D site with branching, if a wavelength goes express between two co-located OLS end terminals, that wavelength can only be added or dropped at the third co-located end terminal. Wavelength interchange permits the wavelength on the third end terminal to be converted into an available wavelength at the other two end terminals.

Wavelength Growth

A type of growth in which all eight wavelengths are added to a single line before more lines are added.

Wavelength Interchange

The ability to change the wavelength associated with an $OC\text{-}48/STM\text{-}16$ signal into another wavelength.

Wavelength Section

The path followed by an STS48 from its creation to its termination.

Wideband Communications

Voice, data, and/or video communications at digital rates from DS0 to DS1 rates (64Kb/s to 1544Kb/s)

X

Y

Z   Zero Code Suppression

A technique used to reduce the number of consecutive zeros in a line-codes signal (B3ZS for DS3 signals).