SIU 02 / TCU 02 T14 Field Maintenance

STUDENT BOOK
LZT1381346 R1A

DISCLAIMER

This book is a training document and contains simplifications. Therefore, it must not be considered as a specification of the system.

The contents of this document are subject to revision without notice due to ongoing progress in methodology, design and manufacturing.

Ericsson shall have no liability for any error or damage of any kind resulting from the use of this document.

This document is not intended to replace the technical documentation that was shipped with your system. Always refer to that technical documentation during operation and maintenance.

This document was produced by Ericsson.

- The book is to be used for training purposes only and it is strictly prohibited to copy, reproduce, disclose or distribute it in any manner without the express written consent from Ericsson.

This Student Book, LZT1381346, R1A supports course number LZU1089635.

Table of Contents

1 SIU 02 / TCU 02 INTRODUCTION, HARDWARE, FEATURES 5

1 INTRODUCTION 6

2 SIU 02 / TCU 02 OVERVIEW 6

2.1 SIU 02 HARDWARE DETAILS 8

2.2 TCU 02 HARDWARE DETAILS 10

2.3 SIU 02 / TCU 02 INSTALLATION EXAMPLES 11

3 SIU 02 / TCU 02 T13B FEATURES 13

3.1 ABIS OVER IP 13

3.2 IP OVER E1/T1 14

3.3 MULTIPLE UPLINKS 15

3.4 IPV6 16

3.5 FREQUENCY SYNCHRONIZATION 17

3.6 NTP/PTP TIME SERVERS 18

3.7 SYNCHRONOUS ETHERNET 19

3.8 TRANSPARENT CLOCK TIME SYNCHRONIZATION 20

2 SIU 02 / TCU 02 MANAGED OBJECT MODEL 23

1 INTRODUCTION 24

2 MANAGED OBJECT CONCEPT 24

3 MANAGED OBJECT STRUCTURE 25

4 MANAGED OBJECT TYPES 26

5 MANAGED OBJECT RELATIONS 27

6 MANAGED INFORMATION BASE 29

3 SIU 02 / TCU 02 CLI COMMANDS 31

1 INTRODUCTION 32

2 SIU 02 / TCU 02 LOCAL CONNECTION 32

3 SIU 02 / TCU 02 COMMAND LINE 34
4 COMMAND RESPONSE 35
5 SIU 02 / TCU 02 CLI COMMANDS 35
6 GENERIC COMMANDS 36
6.1 GETALARMLIST 36
6.2 GETIRPVERSION 38
6.3 REV 39
6.4 PING 39
6.5 RESTART 40
6.6 GETTEMPERATURE 40
6.7 GETOSMONSESSIONS 40
6.8 TIMESERVERTEST START/RESULT, UPTIME 41
7 BULK CM TRANSACTION COMMANDS 41
7.1 GETCONTAINMENT 41
7.2 GETMOATTRIBUTE 42
7.3 GETCOUNTERS 44
4 SIU 02 / TCU 02 MAINTENANCE PROCEDURES 45
1 INTRODUCTION 46
2 EXTRACT XML FILES 46
3 FORMAT SIU 02 / TCU 02 48
4 RUN XML FILES 49
4.1 DATA COLLECTION GUIDELINE 51

1 SIU 02 / TCU 02 Introduction, Hardware, Features

Objectives

- Explain SIU 02 / TCU 02 introduction, hardware, features.
  - Explain the main SIU 02 / TCU 02 functions.
  - Describe the SIU 02 / TCU 02 hardware details.
  - Show installation examples for SIU 02 / TCU 02.
  - Describe the main features for SIU 02 / TCU 02.

Figure 1-1: Objectives

1 Introduction

The objective is of this chapter is to describe the SIU (Site Integration Unit) 02 / TCU (Transport Connectivity Unit) 02 functions, hardware and T13B features.

During the next sessions in this chapter, the SIU 02/TCU 02 concept, hardware details, installation examples and main T13B features will be explained. For extra information related to SIU 02 / TCU 02, check the SIU 02/ TCU 02 T13B CPI Library.

2 SIU 02 / TCU 02 Overview

The SIU 02 / TCU 02 are the cornerstones of the RBS site in a newly deployed or migrated IP RAN mobile network.

It provides a common interface between RBSs (GSM, WCDMA, CDMA, LTE, single or multi-standard, legacy or 3rd party equipment), and IP/Ethernet over IP over E1/T1 transport networks.

The SIU 02 / TCU 02 can act either as a bridge or a router as needed.

Multiple bridging and routing instances can be configured at the same time.

It facilitates migration from legacy transport (that is E1/T1) to next generation high speed transport (Ethernet), while reducing OPEX through shared transport for 2G, 3G, and 4G radio standards.

It also enables optimized Packet Abis over IP for Ericsson GSM base stations.

The SIU 02 / TCU 02 is an integral part of the multi-standard (GSM/WCDMA/LTE) RBS 6000. Bandwidth is dynamically shared between all radio technologies, optimizing peak capacity for HSPA and LTE services.

Rapid fault detection and failover to an alternative transport is also available.

Full Ericsson RAN integration through the OSS-RC Management System guarantees smooth operations management.

The SIU 02 / TCU 02 provides dynamic aggregation of Radio Access Network (RAN) and site traffic streams:

- Ericsson GSM Packet Abis over IP traffic.
- WCDMA NodeB Iub over IP traffic.
- LTE eNodeB IP (S1, X1) traffic.
- TDM traffic from legacy RBSs through Circuit Emulation Services (CES).
- CDMA.
- IP traffic from other equipment on the RBS site.

The next two figures show the SIU 02 / TCU 02 in a network example.

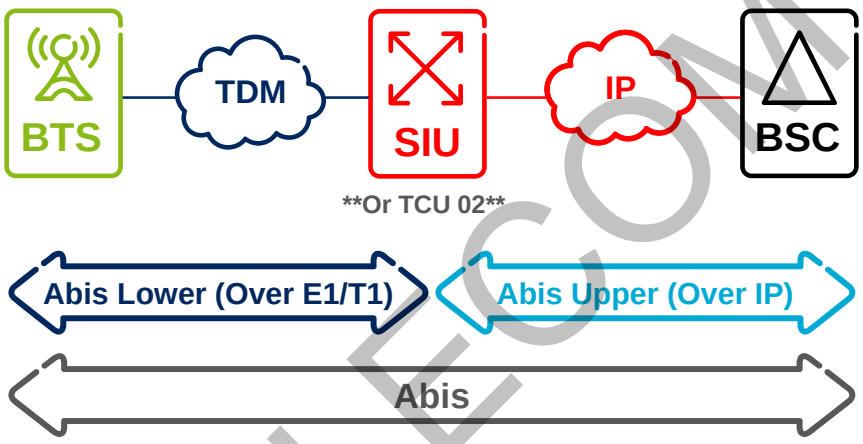


Figure 1-2: SIU 02 / TCU 02 – GSM

With the SIU 02 / TCU 02 as a part of the transport network, the Abis interface is divided into two parts (Abis lower and Abis upper).

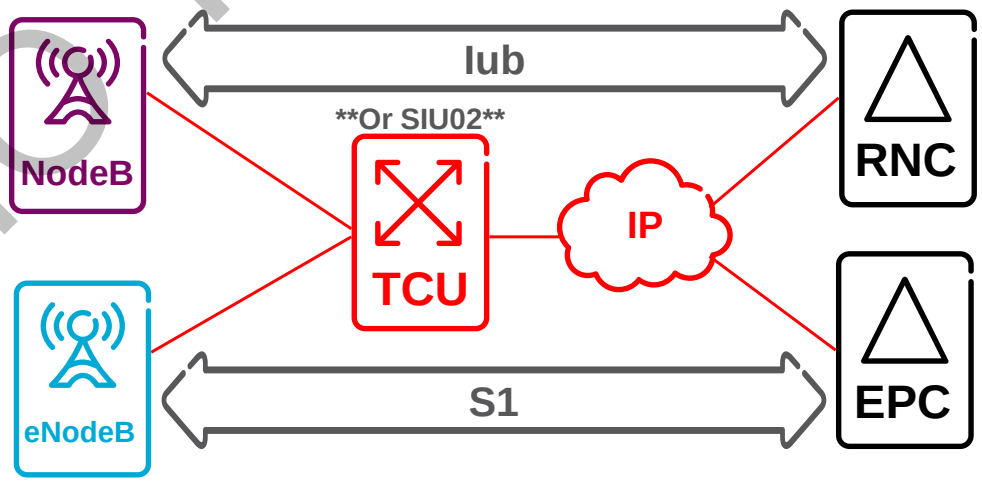


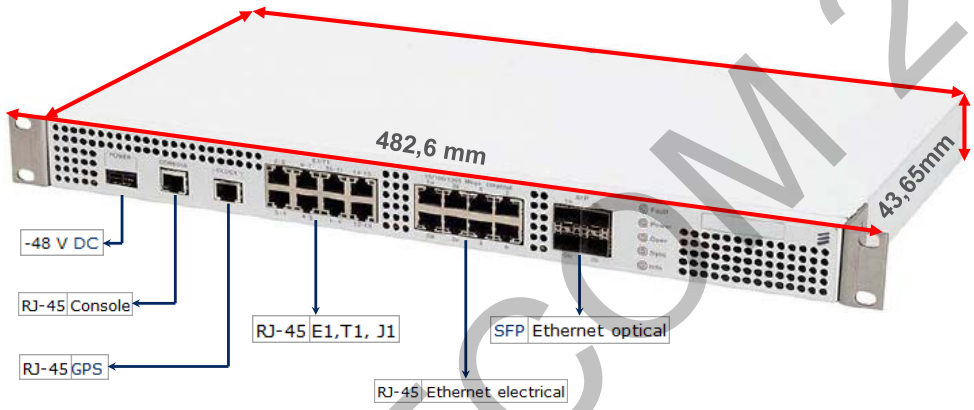
Figure 1-3: SIU 02 / TCU 02 - WCDMA/LTE

2.1 SIU 02 Hardware Details

The SIU 02 is 1U high and designed to fit in a standard 19-inch rack. The unit can also be installed in both indoor and outdoor RBSs (RBS 2000, 3000 or 6000) in the space designed for transmission equipment.

The picture bellow shows the SIU 02 size, ports and requirements for environmental conditions.

The next figure shows the SIU 02 hardware details.



	Temperature	Relative humidity
Normal	+5 - +55°C	5 - 85%
Exceptional/Safe	+/- 0 - +60°C	5 - 90%
Non Destructive	-10 - +65°C	5 - 90%

Figure 1-4: SIU 02 Hardware Details

The SIU 02 can be supplied with power from an RBS or another external power supply delivering -48 or +24 V DC. The socket for power connection is polarity independent. To avoid any safety risk, the power supply should have limited current of 6A, or an extra 6A fuse should be used. The connector on the provided power cable is designed for installation in an RBS 6000. If the SIU 02 is installed in an RBS 2000 or 3000, an adapter (fork contact unit) is also provided. **Connector type: Pin header.** The SIU 02 supports hot swapping, which means it has no power switch and a live power cable can be connected to it or disconnected without disrupting the host system or system power to other RBS modules. The maximum power consumption is 65W and the typical power consumption is 30W.

The **CONSOLE** (Ethernet 10Base-T/100Base-TX) interface is used for connection of a Local Maintenance Terminal (LMT). **Connector type: RJ-45.** The connector has built-in LED indicators. The indicator to the right is lit when a link is established and flashes during activity.

The **CLOCK** interface includes both the clock input and the clock output interfaces. Both interfaces use 1PPS signals with RS-422 electrical levels. **Connector type: Modular 10/10.**

The SIU 02 has eight connectors for the sixteen **E1/T1** transmission interfaces. Each connector supports two E1 or T1 transmission interfaces. Interfaces E1 2048 kBps 120 Ω and T1 1544 kBps 100 Ω are supported. E1 2048 kBps 75 ohm is achieved by adding 120/75 ohm baluns. **Connector type: RJ-45.** The E1/T1 connectors have two built-in LED indicators, one for each interface. The indicator is lit when the transmission path is functioning (no Loss of Signal (LOS) or Loss of Frame alignment (LOF) detected).

There are eight **10/100/1000 Mbps Ethernet** connector positions (numbered 0 through 7) available for Ethernet interfaces. **Connector type: RJ-45.** The connectors marked 0a, 1a, 2a, and 3a are connected to the corresponding SFP connectors (marked 0b, 1b, 2b, and 3b). The combo-interfaces allow for either Ethernet or SFP to be used at a time and which one used is determined by its configuration.The Ethernet connectors have two built-in LED indicators. The indicator to the left is lit when a link is established and the indicator to the right flashes during activity.

Four 100/1000 Mbps **SFP** (Small Form Factor Pluggable) connector positions (numbered 0 through 3) are available. The markings 0b, 1b, 2b, and 3b indicates to which Ethernet connector (0a, 1a, 2a, and 3a) it is connected to.

The combo-interfaces allow for either SFP or Ethernet to be used at a time and which one used is determined by its configuration.

FE SFP modules: 100Base-LX10 (SM, 1310nm, 13dB, 10km) and 100Base-FX (MM, 1310nm, 13dB, 2km).

GE SFP modules: 1000Base-SX (850nm, MM LC-connector), 1000Base-LX (1310nm, MM/SM, LC-connector), 1000Base-LX, 1000Base-ZX (1550nm, SM, LC-connector), and 1000Base-BX10.

The SFP connectors have link LED indicators located between the upper and lower ports. The indicators to the left (pointing to the lower connectors) and to the right (pointing to the upper connectors) are lit when a link is established.

Only SFP modules recommended by Ericsson must be used. Information about recommended SFP modules can be obtained from your Ericsson sales representative.

The SIU 02 has a fan module with two supervised fans on the back of the unit. If a fan fails, the remaining fan speeds up and an alarm is sent to the OSS. Faulty fan modules can be replaced during planned maintenance without disrupting the operation.

The fan module can be seen in the next figure.

Figure 1-5: SIU 02 Hardware Details

2.2 TCU 02 Hardware Details

The TCU 02 has a PWR port, with -48 V DC and follows the same instructions from SIU 02 power port. The TCU 02 has a SYNCH port. This port follows the same instructions for the SIU 02 CLOCK port. The TCU 02 has a LMT port, used to connect any laptop/computer for local access. This port follows the same instructions for the SIU 02 CONSOLE port. The TCU 02 has 4 E1/T1 ports, named ET_A to ET_D. These ports follow the same instructions for the SIU 02 E1/T1 ports. The TCU 02 has 4 Ethernet ports, named TN_A to TN_D. These ports follow the same instructions for the SIU 02 Ethernet ports. The TCU 02 has 4 SFP ports, named TN_E to TN_H. These ports follow the same instructions for the SIU 02 SFP ports. The ports and indicators can be seen in the next figure.

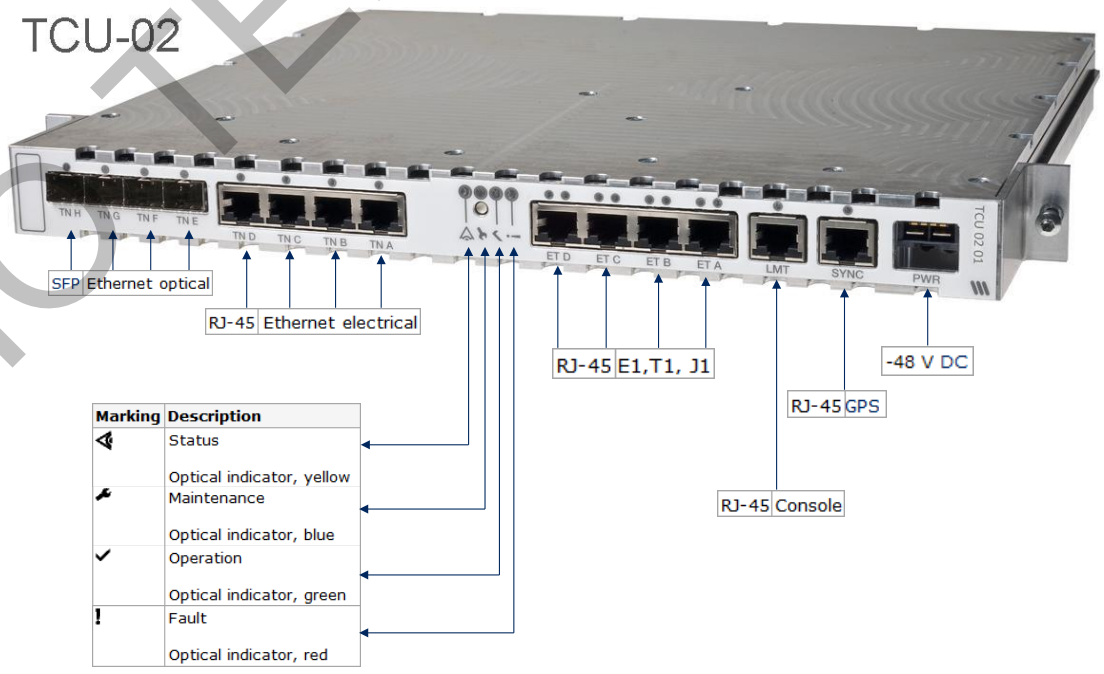


Figure 1-6: TCU-02 Hardware Details

The TCU 02 is a RBS 6000 based board. Because of that, it has the same size as a DUG/DUL. The next figure brings information related to size, power consumption and weight.

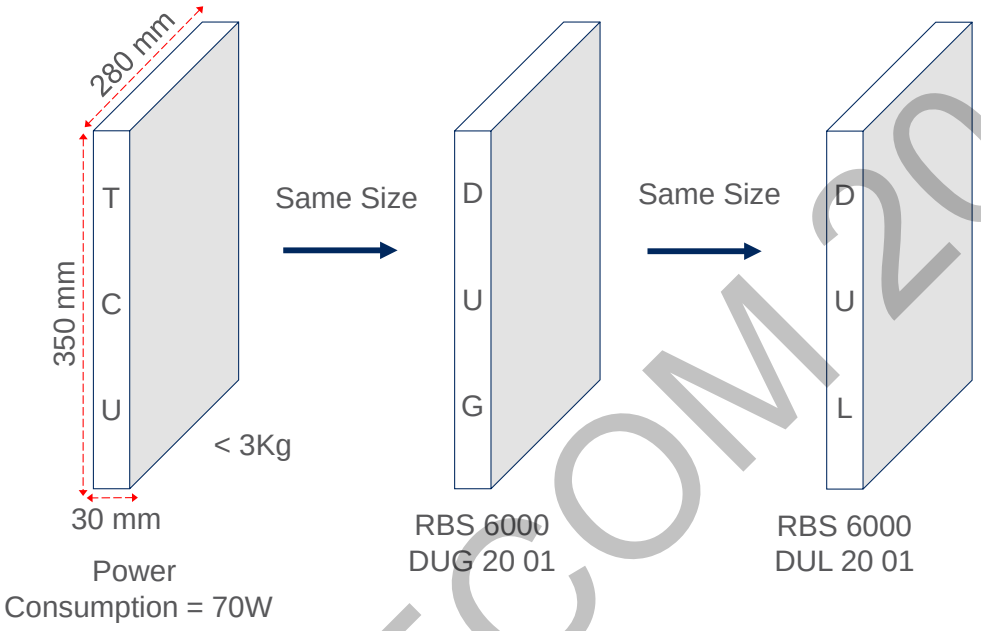


Figure 1-7: TCU 02 Hardware Details

2.3 SIU 02 / TCU 02 Installation Examples

The next figure shows a SIU 02 installed in a 19” subrack together with a WCDMA RBS 6601.

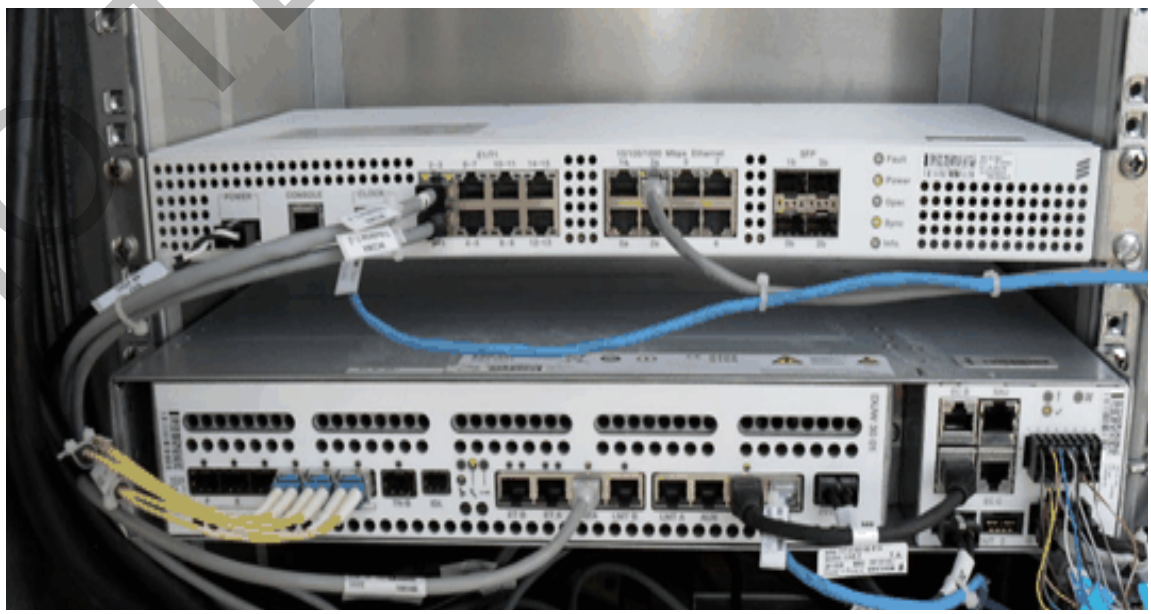


Figure 1-8: Example RBS 6601 / SIU 02

The next figure shows a SIU 02 installed in a 19” subrack together with a RBS 6102/6101/6201.

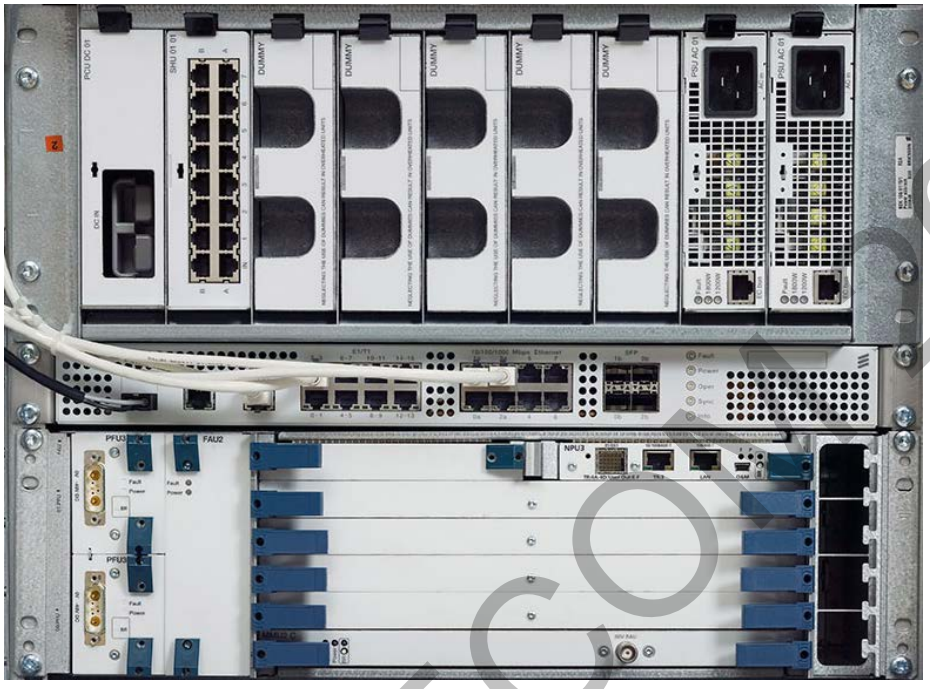


Figure 1-9: Example RBS 6201 / SIU 02

The next figure shows a TCU 02 installed in a RBS 6102. The left radio shelf with TCU, DUG/L and the radios. The right radio shelf with a DUW and the radios.

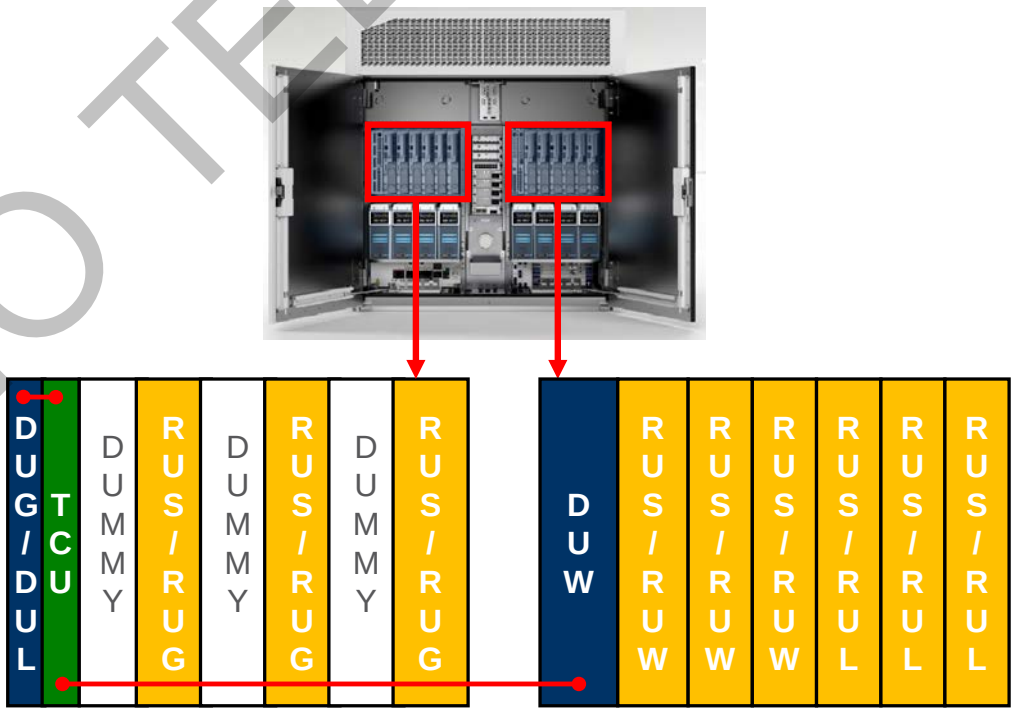


Figure 1-10: Example RBS 6102 / TCU 02

The next figure shows a TCU installed in a RBS 6601, together with a DUG/DUL in the same RBS 6601. In case of using a DUW, the TCU must be installed in another RBS 6601.

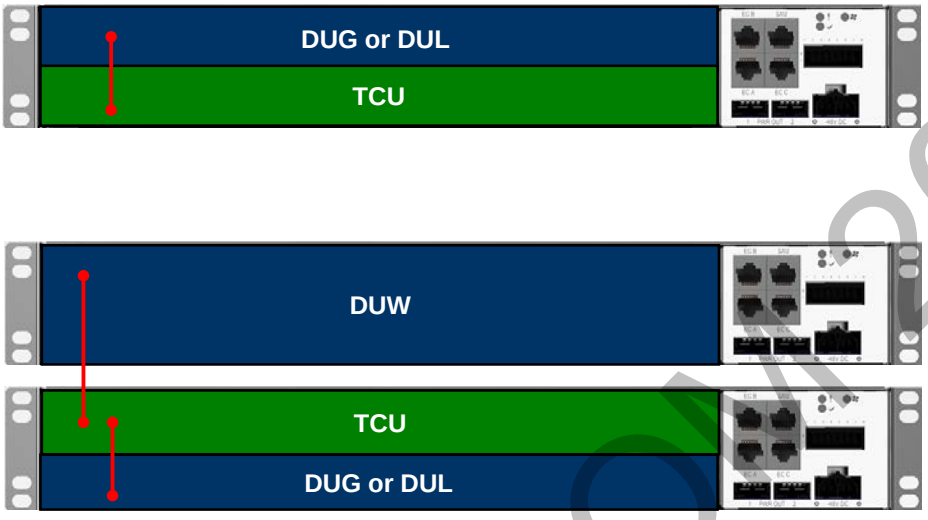


Figure 1-11: Example RBS 6601 / TCU 02

3 SIU 02 / TCU 02 T13B Features

3.1 Abis over IP

The feature Packet Abis over IP is used for transmission between BSC and BTS, instead of a dedicated Time-Division Multiplexing (TDM) network (E1/T1 based transmission). Compared to TDM networks, Packet Abis over IP provides significantly higher transmission capacity per bandwidth resource, since it uses the same packetized framework as the feature Packet Abis over TDM. The bandwidth is utilized more efficiently by letting signaling, speech and data share the same wideband connection. The transmission capacity is used as a pool of resources, and transport sharing with other services (such as 3G) is also possible when using Packet Abis over IP.

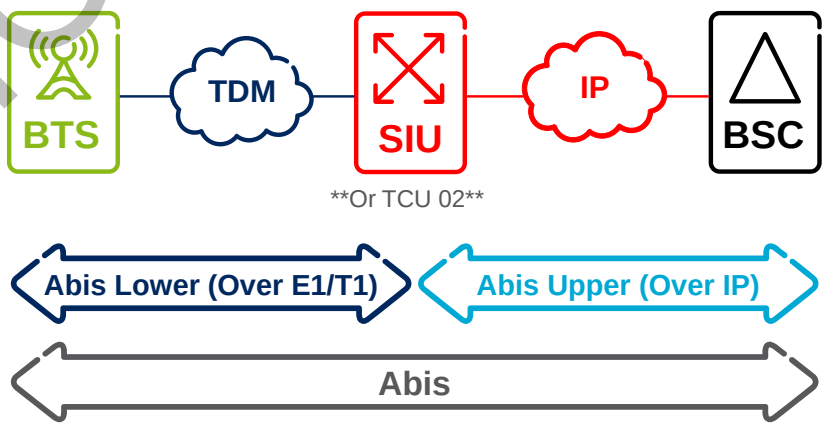


Figure 1-12: Abis over IP

The capacity for the feature Packet Abis over IP in the use of CS (Circuit Switched) voice over Ethernet based Abis Upper is described below:

- Number of simultaneous calls: 920
- CS Signaling (SMS IP) 6.9 kbit/s.
- Codec Enhanced Full Rate (EFR) used for calls: 5%.
- Codec AMR Half Rate (AMRHR) used for calls: 50%
- Codec AMR Full Rate (AMRFR) used for calls: 35%.
- Codec AMR Wide-Band (AMRWB): used for calls: 10%
- Bundling time: 1 and 5 ms.
- Voice Activity Factor (VAF): 60%

The required hardware will depend on which configuration is being used.

The capacity for the Ethernet Bridging feature for bi-directional traffic between two ports is described below:

3.2 Ip over E1/T1

IP over E1/T1 consists of one SIU 02 / TCU 02 on each RBS site and a dedicated MP-router that bridge from ML-PPP to Ethernet on the other end of the transmission part. The recommended MP-router is a SmartEdge.

With the IP over E1/T1 feature, the benefits of IP transport can be realized on sites with TDM-based WAN transmission. Functions like Multi TG, Site LAN, Abis Local Connectivity and Transport sharing are also available over an E1/T1 backhaul network. Multiple ML-PPP instances can be configured so it is possible to use ML-PPP bundels in both CDMA RBS connections and WAN links.

The feature requires the SIU 02 / TCU 02 at the RBS site to provide IP over E1/T1 connections using ML-PPP. The E1/T1 ports on the SIU 02 / TCU 02 are shared completely flexibly between GSM/CDMA RBS connections and the IP over E1/T1 WAN. The E1/T1s may be bundled using ML-PPP, and multiple ML-PPP instances can be configured.

A router at the switch site terminates the ML-PPP bundles and routes the IP packets to the BSC/RNC. The SIU 02 / TCU 02 and the ML-PPP router provides link layer support for transporting packets over E1/T1 circuits baed on the Point-to-Point Protocol (PPP) and Link Control Protocol (LCP). Error detection is performed on individual link, and if a link failure is detected automatic reestablishment is started.

TDM quality path measurements according to the ITU-T G.826 standard as well as remote port loopback activation according to the ANSI T1.403 standard are supported. A CLI command can also be used to put the system in loopback mode for a specific amount

of time in order to be able to measure the OaM connection without locking out the operator.

Synchronization of the SIU 02 / TCU 02 and RBS can be achieved using the clock information from the E1/T1s.

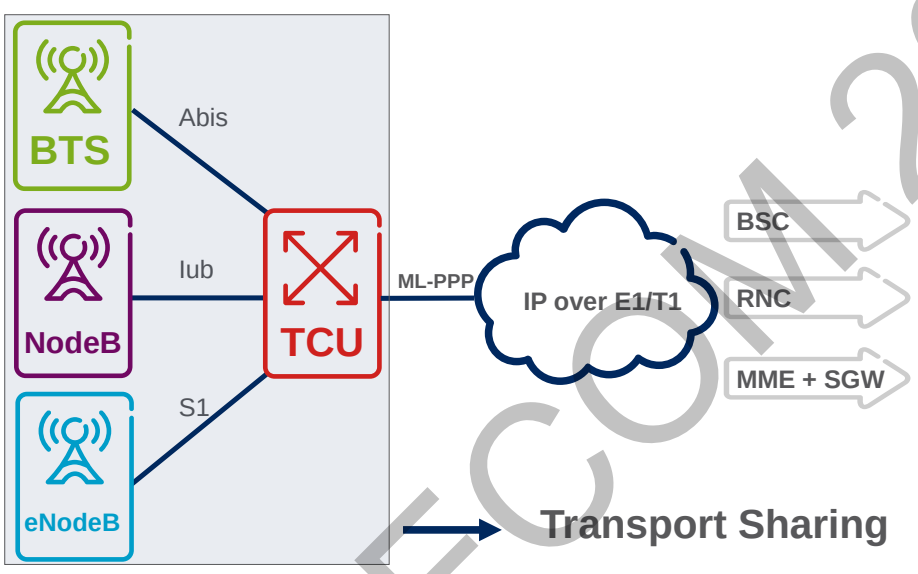


Figure 1-13: IP over E1/T1

3.3 Multiple Uplinks

The Multiple uplinks feature enables several IP/Ethernet connections, or different forms of transport, such as IP over Ethernet and IP over E1/T1, to be used simultaneously between the RBS and the switch site.

The availability of multiple transport links at one RBS site means that operators can deploy additional transport links either using the same or a different transport technology.

This can be used in various ways, for example to implement a high availability service with redundant Ethernet paths between the RBS site and switch site, or to prepare for a smooth transition from IP over E1/T1 to IP/Ethernet.

The E1/T1 and Ethernet/SFP ports on the SIU 02 / TCU 02 can be allocated flexibly between transport network links, connections to RBSs, and Site LAN applications.

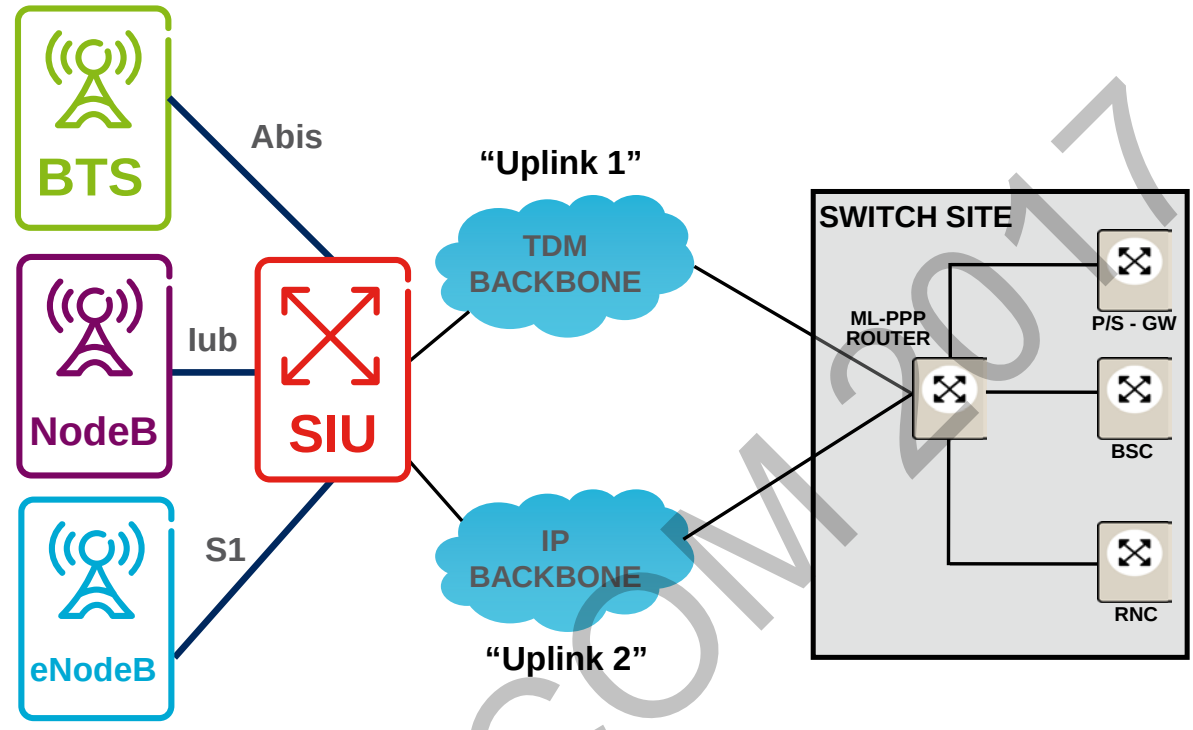


Figure 1-14: Multiple Uplinks

3.4 IPV6

The IPv6 Basic Functionality feature supports transmission of IPv6 packets over Ethernet networks, an IPv6 address architecture, ICMPv6, Neighbor Discovery (ND), and Duplicate Address Detection (DAD).

IP dual stack is supported which is provided as a means to support IPv6 transport, or migration mechanism from IPv4 to IPv6.

The following features, described in this document, support IPv6 in addition to IPv4:

- Site LAN.
- IP Loopback
- Basic Resilience
- Ethernet Bridging
- VLAN
- O&M via CLI of SM, CM and PM

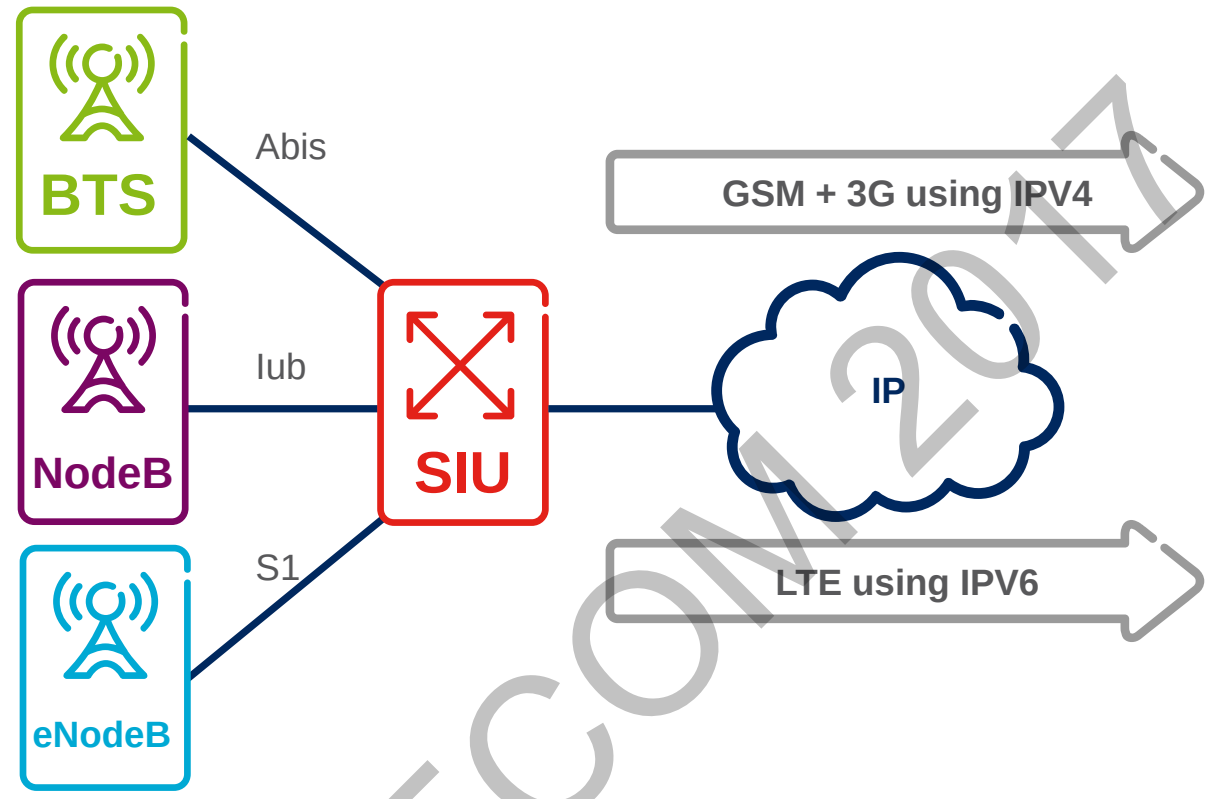


Figure 1-15: IPV6

3.5 Frequency Synchronization

The main purpose of synchronization is to provide the radio parts of the RBSs with an accurate timing and frequency to fulfill 3GPP requirements on the air interface. The access to the IP transport network can be made over Ethernet or E1/T1.

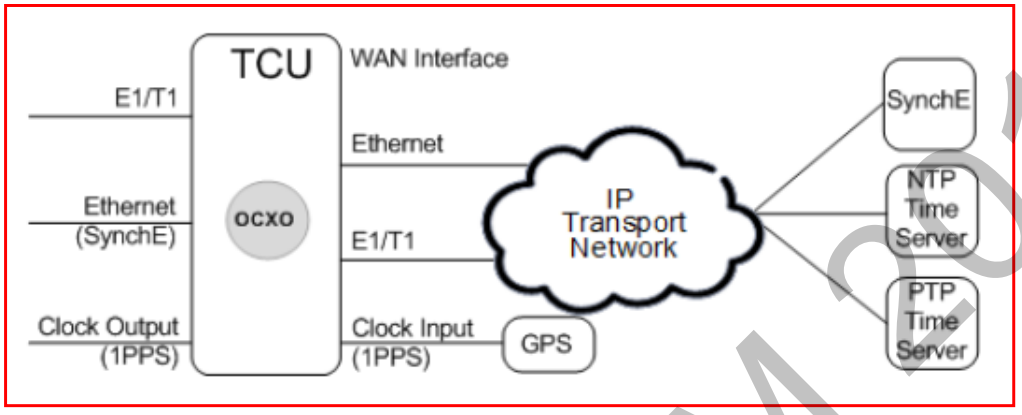
The internal highly stable Oven Controlled Crystal Oscillator (OCXO) of the SIU 02 / TCU 02 maintains the frequency needed to provide the connected RBSs with accurate timing via the E1/T1, Ethernet (SynchE), or Clock Output (1PPS) interface.

During operation, the SIU 02 / TCU 02 automatically calibrates the OCXO using one of the following methods:

- According to the E1/T1 signal at the E1/T1 interface.
- Network Time Protocol (NTP) or Precision Time Protocol (PTP over UDP and PTP over Ethernet; IEEE 1588) time server(s) accessed through the IP transport network.
- According to a SynchE (Synchronous Ethernet) Master reference on an Ethernet interface.

A calibration expiry date is automatically updated during operation but can expire, for example, when the SIU 02 / TCU 02 has been out of operation for a long time or lost connection to its synchronization source. In this case, the OCXO can be locally calibrated through the Clock Input (1PPS) interface.

Frequency Synchronization



- Oven Controlled Crystal Oscillator (OCXO) output:
  - E1/T1, Ethernet (SynchE), or Clock Output (1PPS) interface.
- Oven Controlled Crystal Oscillator (OCXO) input:
  - E1/T1, NTP, PTP, SynchE, or Clock input (1PPS) interface.

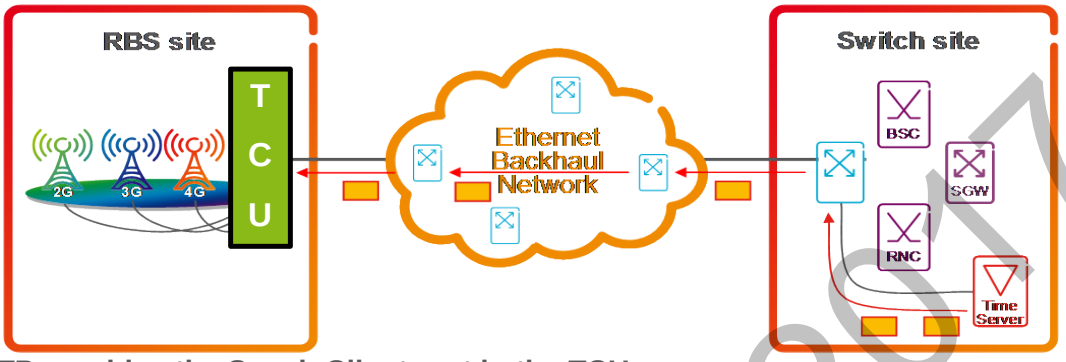
3.6 NTP/PTP Time Servers

The SIU 02 / TCU 02 supports two alternative protocols for getting frequency synchronization information over (non-synchronous) networks; NTP and PTP (IEEE 1588v2). The basic architecture, method and characteristics are similar.

NTP frequency synchronization provides the Synch Client part in the SIU 02 / TCU 02. The Synch Client sets up an association with the Synch Server and requests time stamps. An Ericsson patented algorithm in the Synch Client filters the time stamps and calculates the frequency drift of the RBS clock. The clock is regulated to give < 50 ppb radio transmission frequency deviation.

PTP frequency synchronization provides the Synch Client part in the SIU 02 / TCU 02. When using PTP over UDP, the Synch Client initiates an association with the PTP Master by requesting subscriptions of unicast messages. When the subscription has been granted, the PTP master starts sending Synch messages.

When using PTP over Ethernet no negotiation between the PTP server and the SIU 02 / TCU 02 is required. The PTP master sends multicast PTP over Ethernet messages and the SIU 02 / TCU 02 starts synchronization if the messages belong to the configured PTP domain number.



- **NTP provides the Synch Client part in the TCU.**
  An Ericsson patented algorithm in the Synch Client filters the time stamps and calculates the frequency drift of the RBS clock.
- **PTP provides the Synch Client part in the TCU.**
  Synch Client initiates an association with the PTP Master by requesting subscriptions of unicast messages. When the subscription has been granted, the PTP master starts sending Synch Messages. 'When using PTP over Ethernet no negotiation between the PTP server and the TCU is required. The PTP master sends multicast PTP over Ethernet messages and the TCU starts synchronization.

Figure 1-16: Frequency Synch NTP/PTP

3.7 Synchronous Ethernet

This feature provides support for frequency synchronization of the RBS using Synchronous Ethernet (SynchE).

Synchronization sources are placed within the Ethernet Transport network to support synchronization of RBSs using Transport network links.

The figure above shows how a redundant pair of synchronization servers (Primary Reference Clocks; PRC) may be placed in the Ethernet transport network.

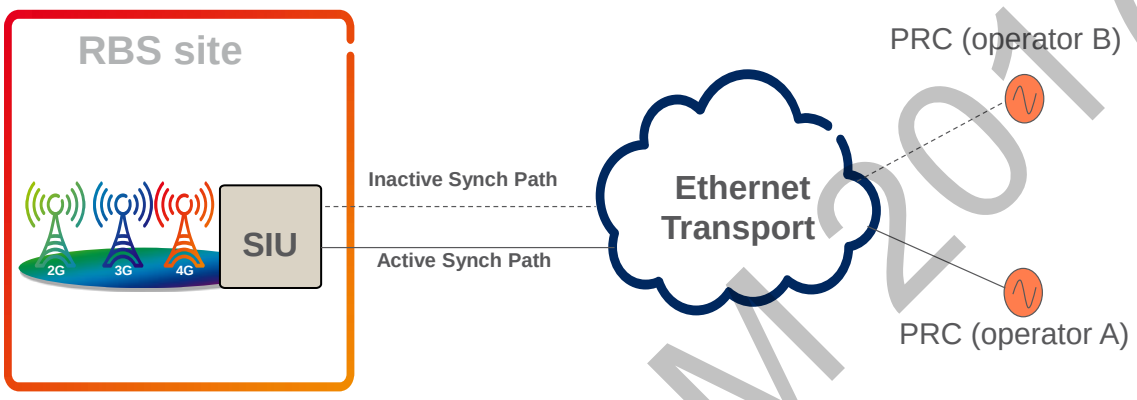
Synchronous Ethernet has been developed to provide physical layer synchronization that is similar to that provided by E1/T1 transport links.

Ethernet ports on the SIU 02 / TCU 02 may be configured as synchronous Ethernet input or output.

SynchE in and out configurations are independent of each other, that is the SIU 02 / TCU 02 may provide SynchE synchronization as master and be itself synchronized using any of the available synchronization methods, including SynchE in.

The Synchronous Status Message (SSM) communicates the clock quality level. In this way the SIU 02 / TCU 02 can select the best available clock source; either one of the two

synch servers in the figure above, or its own internal clock. The lowest acceptable quality level is configurable.



- Ethernet ports on the TCU may be configured as synchronous input or output.
- SynchE in/out configurations are independent of each other.
- The Synchronous Status Message (SSM) communicates the clock quality level.
- 2 clock sources (PRCs) are supported.

Figure 1-17: Synchronous Ethernet

3.8 Transparent Clock Time Synchronization

PTP over Ethernet (multicast) packets can be used for both time and frequency synchronization in RBSs.

Only untagged Ethernet packets are currently supported.

The SIU 02 / TCU 02 acts as a one-step end-to-end Transparent Clock (TC) as illustrated in the figure below:

The time reference is distributed from a PTP server (Grandmaster) via an IP Transport Network that is capable to handle PTP signaling. The PTP over Ethernet packets in the SIU 02 / TCU 02 are multicasted between syncIn port(s) towards GM(s) and syncOut port(s) towards RBS(s).

For PTP event messages, the residence time is measured, that is the time the message takes to traverse the SIU 02 / TCU 02.

These residence times are accumulated in a special field of the PTP event messages.

This correction is based on the difference in the timestamp generated when the event message enters and leaves the SIU 02 / TCU 02.

An ordinary clock and transparent clock in combination is supported. In that case, the transparent clock provides real-time support to the local clock and possible system clock if configured. In practice, the end-to-end transparent and ordinary clock functions would share a common physical clock.

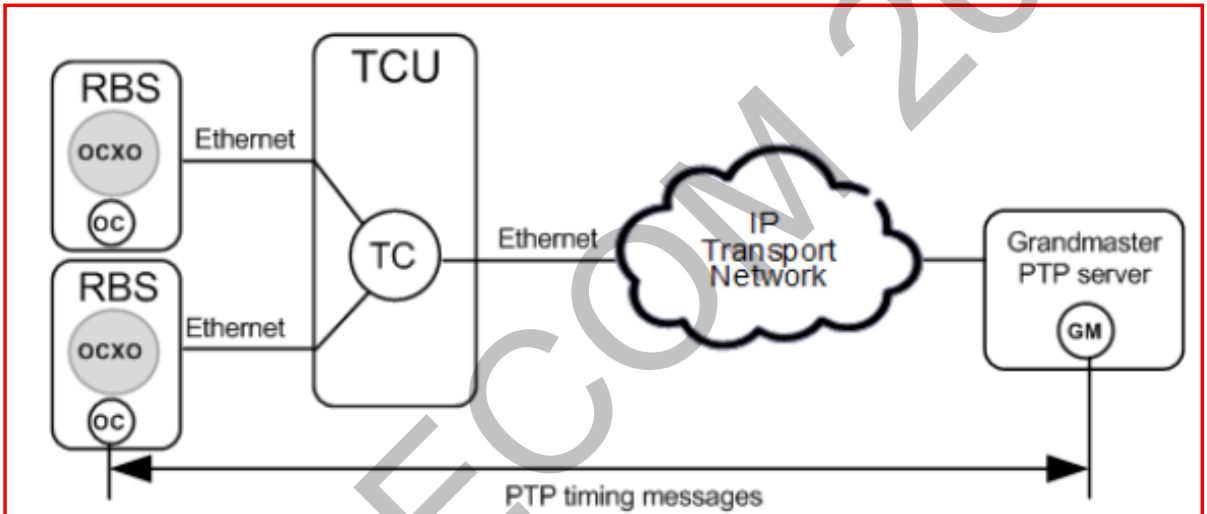


Figure 16 TCU Transparent Clock (TC) for PTP over Ethernet

- The time reference is distributed from a PTP server (Grandmaster).
- High accuracy is achieved by introducing Transparent Clock functionality.

Figure 1-18: Transparent Clock Time Sync

Intentionally Blank

2 SIU 02 / TCU 02 Managed Object Model

Objectives

- Describe SIU 02 / TCU 02 managed object model
  - Describe the Managed Object (MO) concept.
  - Describe the Managed Object (MO structure.
  - Describe the Managed Object (MO) relations
  - Identify an example of the Managed Information Base (MIB)

Figure 2-1: Objectives

1 Introduction

The objective is of this chapter is to describe the Managed Object Model (MOM) for both SIU 02 / TCU 02 hardware's. During the next sessions in this chapter, the Managed Object (MO) concept, MO structure, MO types, MO relations will be explained.

2 Managed Object Concept

The main concept for a MO is: One MO is a hardware or software representation for SIU 02 / TCU 02.

It means that, one MO represents a hardware part of the SIU 02 / TCU 02, or also can represent a software function of both SIU 02 / TCU 02.

The next figure brings more details about the MO concept.

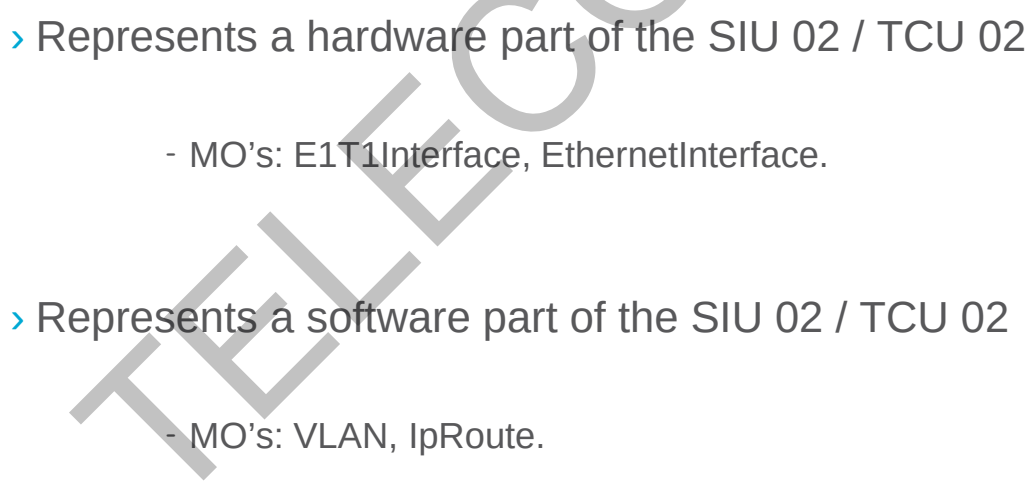


Figure 2-2: Managed Object Concept

The SIU 02 / TCU 02 have one MO named E1T1Interface. This MO represents a hardware part. In this case one of the E1/T1 ports. Another example for this representation is the MO EthernetInterface that represents Ethernet ports.

Also, one MO can represent a software function. The MO IpRoute represents a route used to send packets to the network. Another example is the MO VLAN, an Ethernet Vlan is not physical, but there is also one MO representing this function.

The group of all MO's available in the SIU 02 / TCU 02 is called Managed Object Model (MOM).

3 Managed Object Structure

Each MO has particular characteristics that define how the MO will work and what information this MO can offer.

The next figure shows one MO structure example.

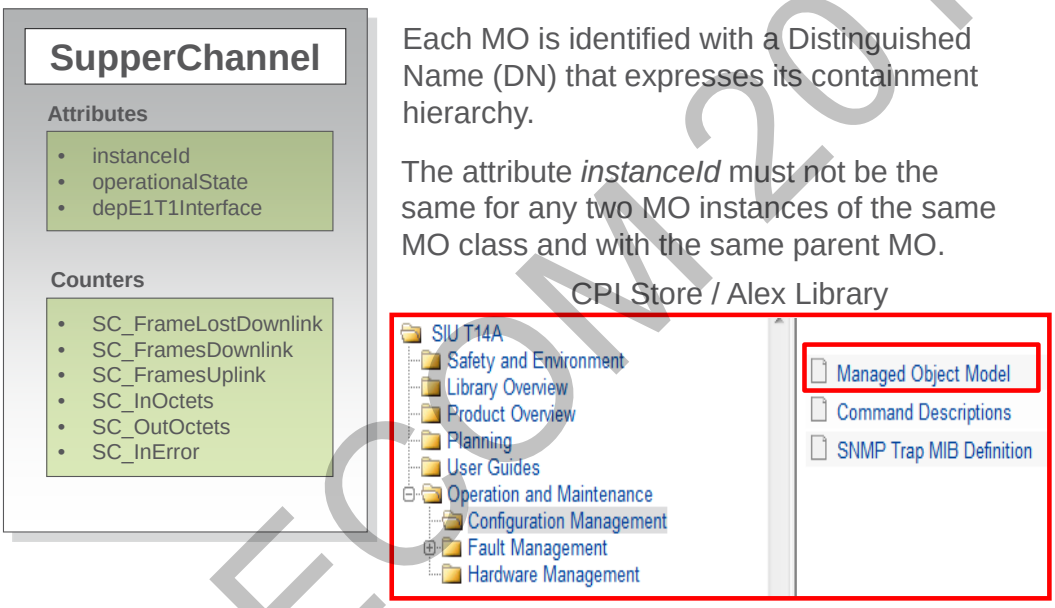


Figure 2-3: Managed Object Structure

The characteristics of each MO are called attributes, and each attribute define how the MO is configured. During configuration procedures, the attributes are changed to different values according to the necessary configuration.

The extra information that the MO can offer are called counters. The counters offer information related to performance. When a performance procedure need to be done in the SIU 02 / TCU 02, the counter are red from specific MO's, in order to identify how one part of the SIU 02 / TCU 02 are working.

For all extra information related to MO attributes and counter, check the SIU T13B and TCU T13B Alex library.

In the session Operation and Maintenance, after select the option Configuration Management, the Managed Object Model Guide can be found. In this guide, all information related to Managed Objects can be found.

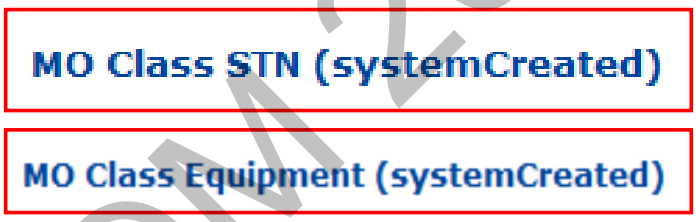
The Managed Object Model Alex Guide is the most complete reference related to Managed Objects in the SIU 02 / TCU 02.

4 Managed Object Types

All MO's in SIU 02 / TCU 02 has an only one type. The types available for each MO can be found in the next figure.

- **SystemCreated**
  Can be created in the start-up phase or can be created dynamically by the site node itself. They cannot be created or deleted by the user (management system).

  Example:



- **ManuallyCreated**
  Are user created and user deleted.

  Example:

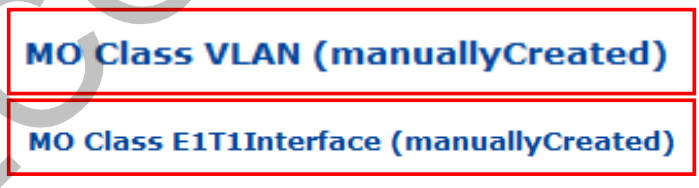


Figure 2-4: Managed Object Types

The MO's that are System Created can be created in the start-up phase. An example of this MO type is the MO STN.

There is also the possibility for a System Created MO creation. This possibility is when some configuration is being done and as part of this configuration, a new MO is created automatically. For example, the MO IpRouteSys is created automatically when the MO IpRoute is created.

The MO's that are manually created can be created or deleted by the user anytime during the configuration procedure. Examples about this MO type are: VLAN, E1T1Interface, EthernetInterface, IpInterface, TGTransport, VirtualIpInterface and many other MO's.

For any extra information related to Managed Object model, check the SIU T13B and TCU T13B Alex library.

In the session Operation and Maintenance, after select the option Configuration Management, the Managed Object Model Guide can be found. In this guide, all information related to Managed Objects can be found.

5 Managed Object Relations

The MOM can have two relations between the MO's. These relations are important during the configuration process and must be known before start any configuration procedure.

The next figure brings an example of both relations found in SIU 02 / TCU 02 Managed Object Model.

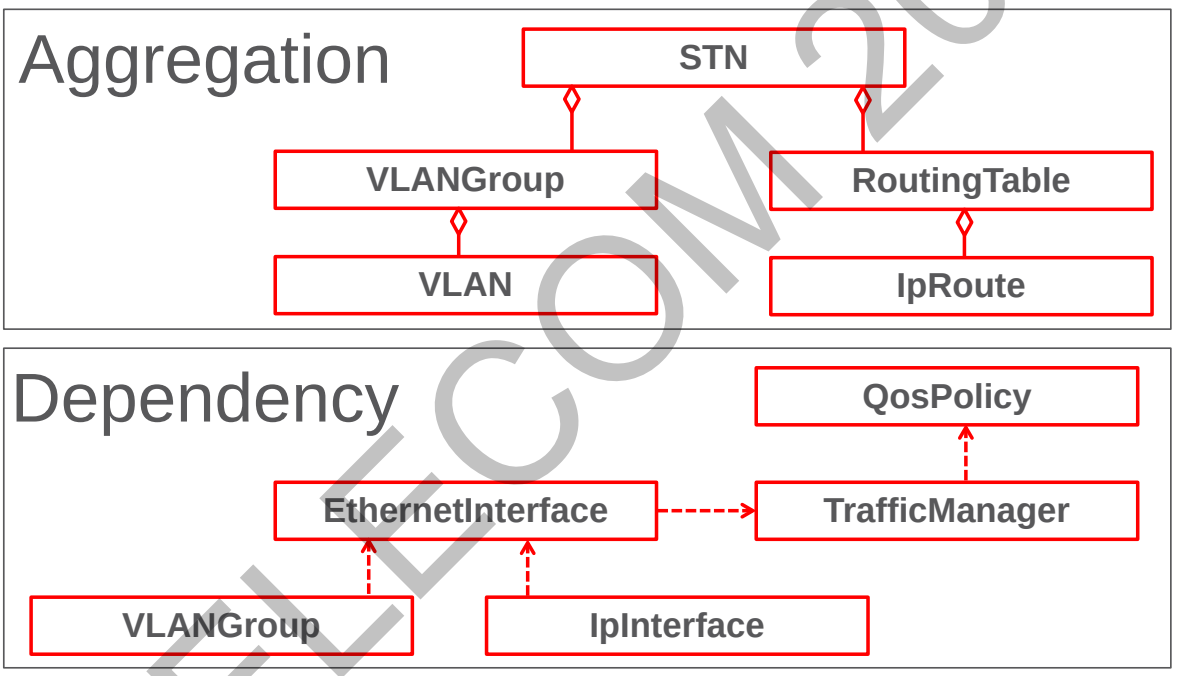


Figure 2-5: Managed Object Relations

The Aggregation relation is used when a new MO is created. In the example above, the MO STN (system created) can aggregate up to 64 MO VLANGroup (manually created), so when the MO VLAN Group is created, automatically the aggregation relation is defined between the MO STN and the MO VLANGroup.

The dependency relation is used when two MO's need to be related in order to provide some configuration requirement. For example, when using IP over Ethernet, the MO IpInterface needs an Ethernet port to send the traffic to the network. The MO that represents an Ethernet port is the MO EthernetInterface. In this case, the relation between the MO's IpInterface and EthernetInterface exist and must be defined. Normally, the MO's that has dependency relations have an attribute with "dep" in their names. For example, the MO EthernetInterface has the attribute depTrafficManager. The MO IpInterface has the attribute depEthernetInterface. The following Figures 1-5 and 1-6 bring the entire Aggregation diagram and Dependency diagram for SIU 02. For information related to TCU 02 diagrams, check the Alex library TCU T13B.

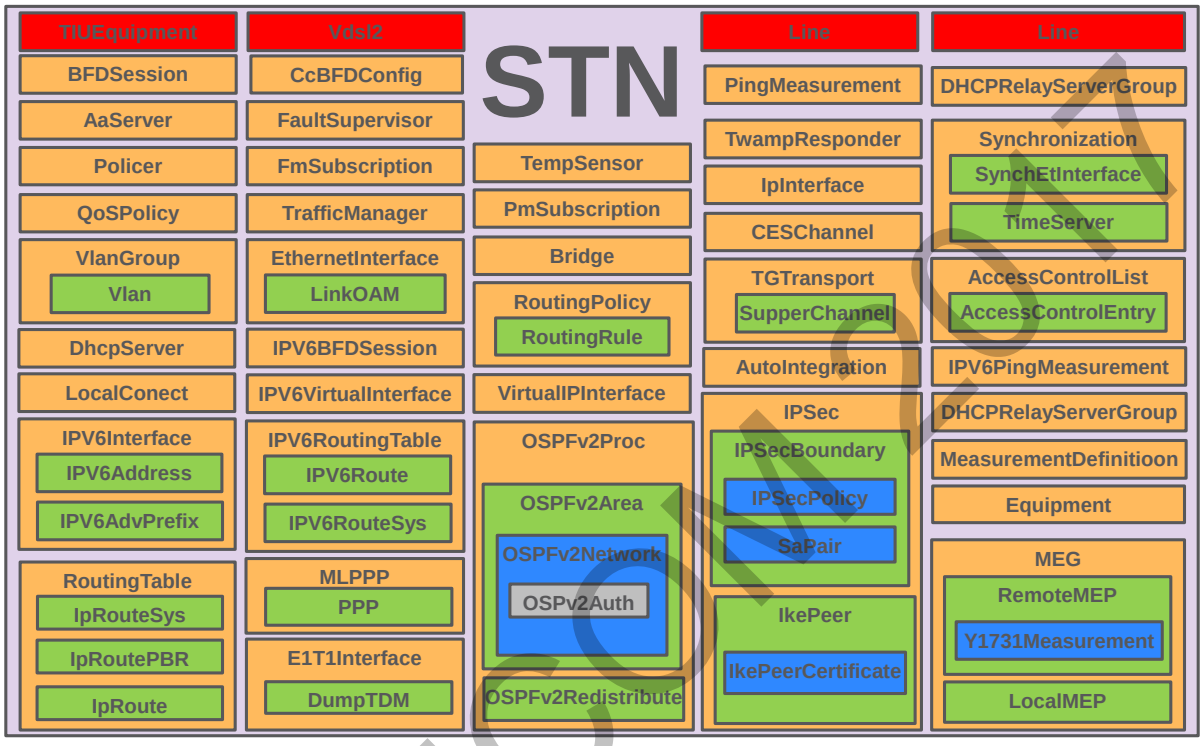


Figure 2-6: MO Relations – Aggregation

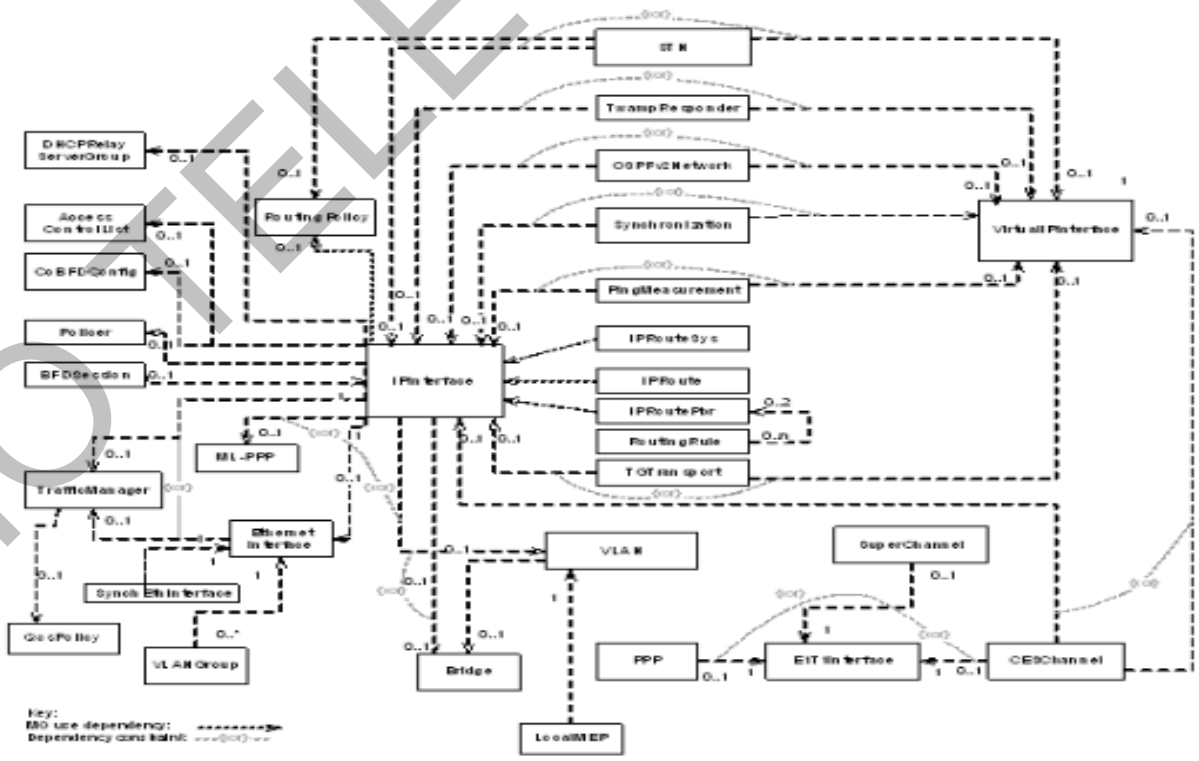


Figure 2-7: MO Relations - Dependency

6 Managed Information Base

During the SIU 02 / TCU 02 configuration procedures, MO's and attributes are configured and this process updates the SIU 02 / TCU 02 Managed Object Model. When the Managed Object Model has MO's configured whit each attribute value, the Management Information Base (MIB) is defined.

The MIB specifies the current instantiation of the Managed Information Model (MIM) in the SIU 02 / TCU 02. It must also be defined to ensure correct functioning of the SIU 02 / TCU 02. System Created MO's are created with default values, some of which must be changed during installation.

The next figure is a print of a SIU 02 MIB.

For any extra information related to Managed Object model, check the SIU T13B and TCU T13B Alex library. In the session Operation and Maintenance, after select the option Configuration Management, the Managed Object Model Guide can be found. In this guide, all information related to Managed Objects can be found.

Command Line Interface

```
OSmon> getcontainment STN=0
STN=0;
STN=0,Equipment=0;
STN=0,EthernetInterface=WAN;
STN=0,EthernetInterface=port2;
STN=0,EthernetInterface=port4;
STN=0,IPInterface=IPsec_1970;
STN=0,IPInterface=port2;
STN=0,IPInterface=port4;
STN=0,IPsec=0;
STN=0,IPsec=0,IPsecBoundary=0;
STN=0,IPsec=0,IPsecBoundary=0,IPsecPolicy=0;
STN=0,IPsec=0,IPsecBoundary=0,SaPair=1;
STN=0,IPsec=0,IkePeer=0;
STN=0,IPv6RoutingTable=0;
STN=0,MeasurementDefinition=0;
STN=0,RoutingTable=0;
STN=0,RoutingTable=0,IpRoute=default;
STN=0,RoutingTable=0,IpRouteSys=IPsec_1970;
STN=0,RoutingTable=0,IpRouteSys=port2;
STN=0,RoutingTable=0,IpRouteSys=port4;
STN=0,Synchronization=0;
STN=0,TempSensor=0;
STN=0,VirtualIPInterface=IPsec;
OperationSucceeded
```

OSS Common Explorer

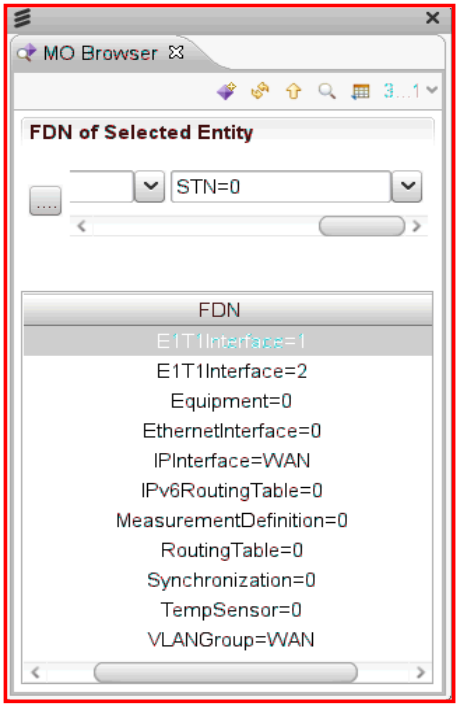


Figure 2-8: MIB Example

Intentionally Blank

3 SIU 02 / TCU 02 CLI Commands

Objectives

- Show SIU 02 / TCU 02 main CLI commands.
  - Explain the SIU 02 / TCU 02 local connection
  - Explain the SIU 02 / TCU 02 command line.
  - Show the main CLI commands.

Figure 3-1: Objectives

1 Introduction

The objective is of this chapter is to describe the SIU 02 / TCU 02 local connection, command line and CLI (Command Line Interface) used to check field maintenance information at the site for both hardware's. During the next sessions in this chapter the local connection, command line and the main CLI commands will be explained.

2 SIU 02 / TCU 02 Local Connection

The SIU 02 / TCU 02 local connection procedure is very simple.

To connect a laptop/computer in the SIU 02 / TCU 02, locate the console port in SIU 02 or LMT (TCU 02) and plug the Ethernet cable.

Configure the laptop/computer with an IP that belongs to the subnet 192.168.1.0/24.

The laptop/computer will need a SSH or TELNET client to connect to the SIU 02 / TCU 02.

Check the Figure 3-2, and 3-3 for more details.

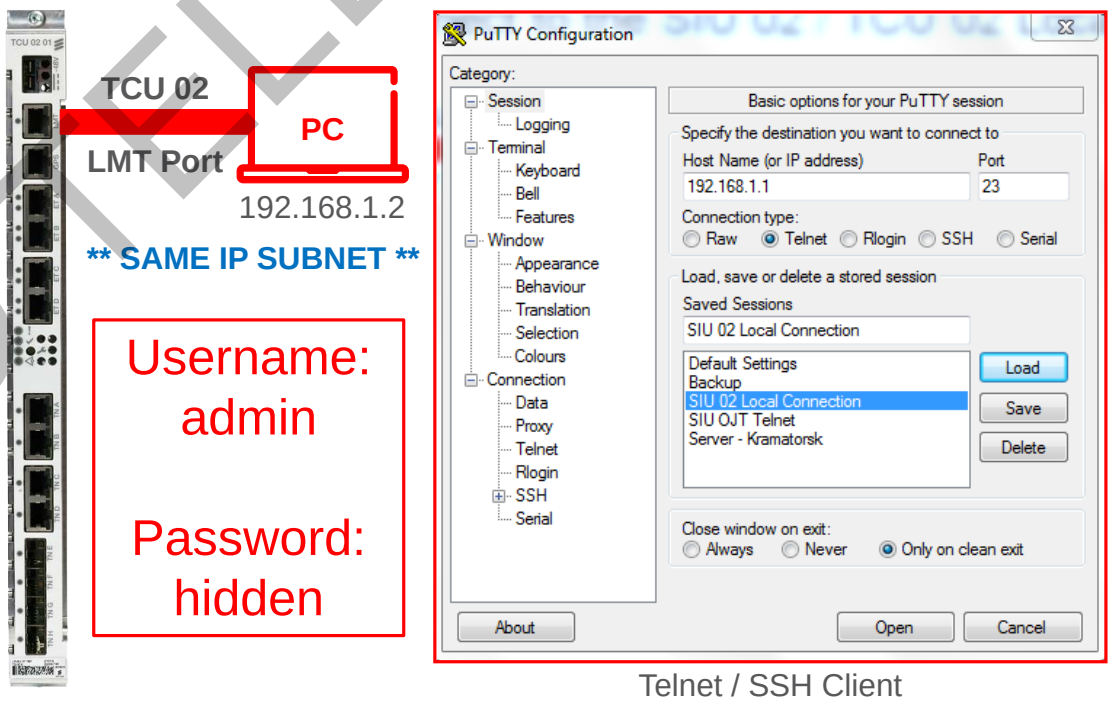


Figure 3-2: Connect to the TCU 02 Locally

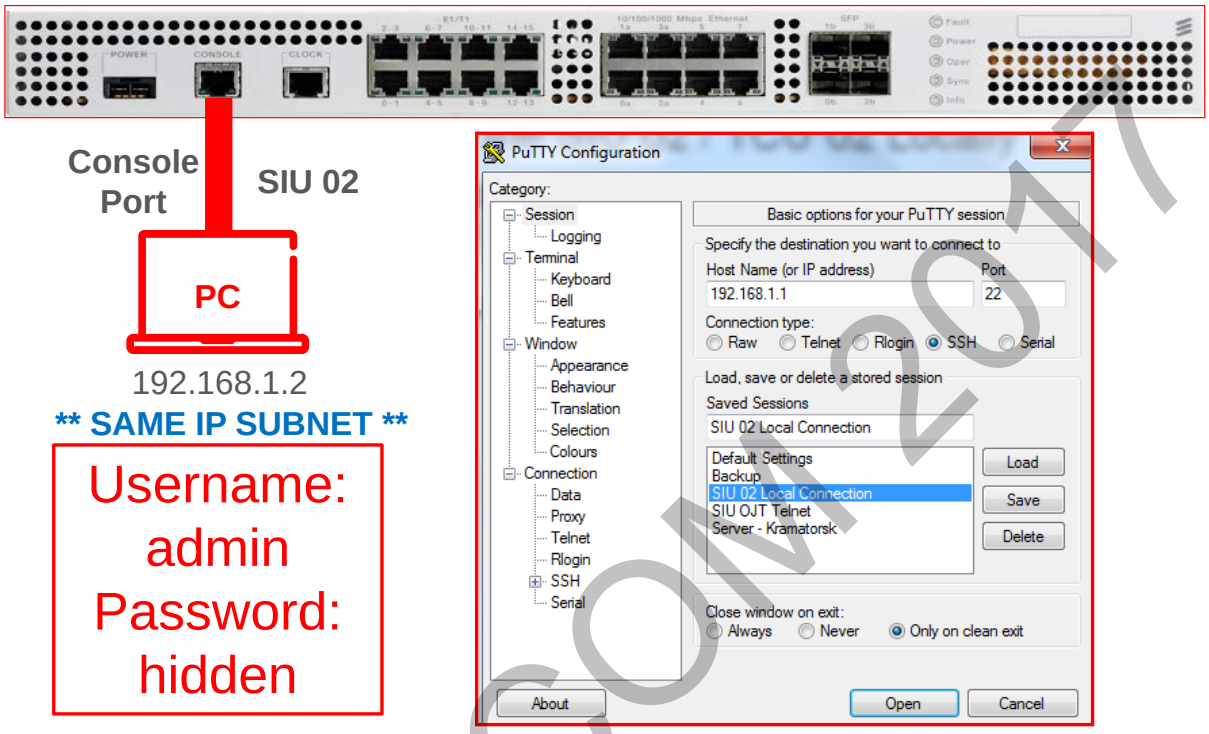


Figure 3-3: Connect to the SIU 02 Locally

After the SSH or Telnet client configuration, click in Open, type the username admin and the password hidden.

The prompt in the Figure 1-4 will appear.

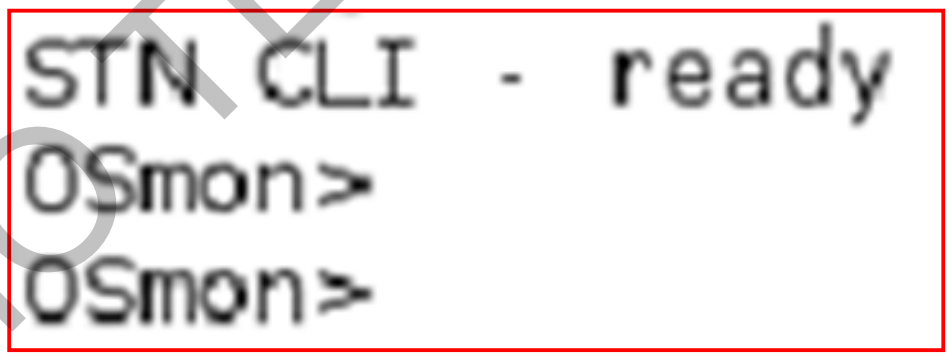


Figure 3-4: SIU 02 / TCU 02 CLI

For more details related to local connection, check the SIU 02 / TCU 02 T13B Installation and Basic Configuration in CPI.

3 SIU 02 / TCU 02 Command Line

The commands specified on the command line have the syntax described in the next Figure, 3-5.

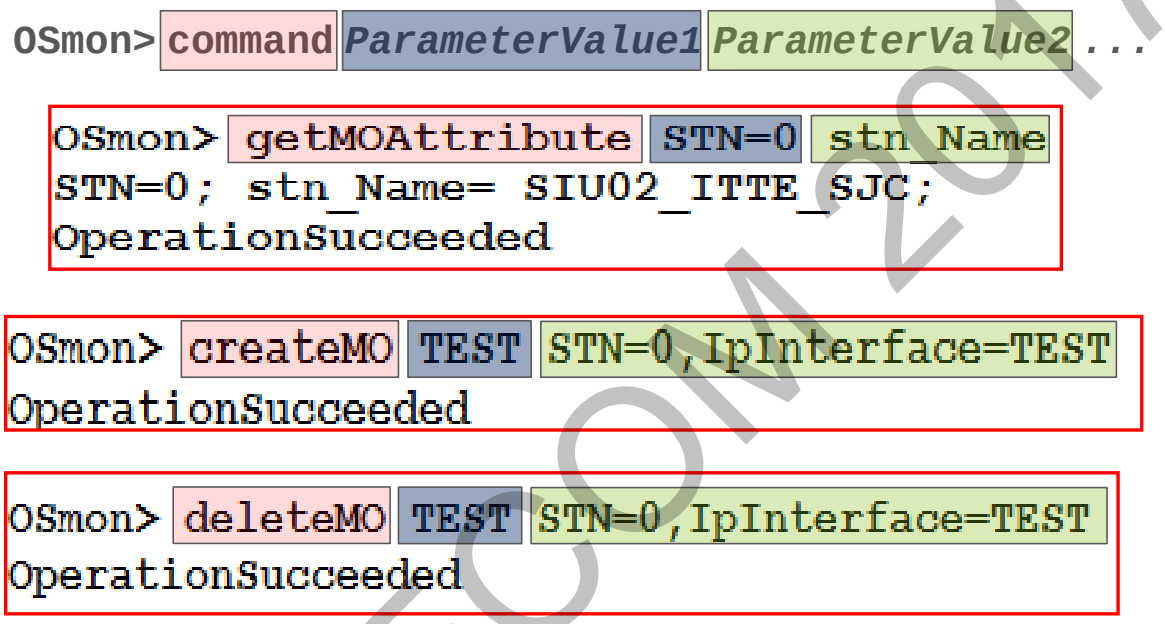


Figure 3-5: Command Line

Entities on the command line are separated from each other by a space. All entities are case insensitive unless otherwise stated for the command. All entities are not used in all commands. Parameter names are not used in the CLI. The values for parameters are given in a specific order. The order defines the parameter for which the value applies. The specific order of parameters for each command corresponds to the order of parameters in the tables of the command descriptions. The maximum number of characters in the command line is 512. To display possible completions of a command or MO instanceId, type the partial command or MO instanceId followed by <tab>. If there is more than one potential match for the issued command or MO instanceId, possible completions are displayed. If the partially typed command uniquely identifies a command, the full command appears. If the partially typed name uniquely identifies a MO-DN, the full name appears. When there are few possibilities passed to partially typed name, common prefix appears and after next <tab> possible full names are listed.

Examples:

OSmon> **getmoattribute** ***STN=0,E***<tab>
STN=0,E1T1Interface= STN=0,Equipment= STN=0,EthernetInterface=

OSmon> **getmoattribute** ***STN=0,EthernetInterface=AutoInt-***<tab>
STN=0,EthernetInterface=AutoInt-1 STN=0,EthernetInterface=AutoInt-2

The up and down arrow keys can be used to scroll through entered commands.

The use of keywords is restricted in the parameters ***transactionId***, ***sessionId***, ***sessionIdSW***, ***instanceId*** and ***password***. These parameters cannot consist of the following restricted keywords:

- Managed Object (MO) names.
- Commands (including commands with the prefix test).
- Defined strings such as, forcedCommit, autoRollback, delayed, useNewConfiguration.
- Constant strings such as, true, false, enable, disable (not case sensitive).

4 Command Response

When a command has been successfully received and syntax verified, a respond is given with the following status:

OperationSucceeded

Some commands result in a response with more parameters. The tables for each command show all output parameters. If a command fails, the below respond is given followed by the specified or unspecified reason:

OperationFailed

5 SIU 02 / TCU 02 CLI Commands

This session describes the main commands available for Field Maintenance procedures in the CLI of the SIU 02 / TCU 02.Operation and Maintenance is controlled from the OSS. Defined CLI commands are available via LMT / Console Port. The generic command **help** lists commands of which some are not described in this document. These commands are not supported for customer use and must only be used by Ericsson personnel. The Figure 3-6 show the CPI path to get more information related to CLI commands.

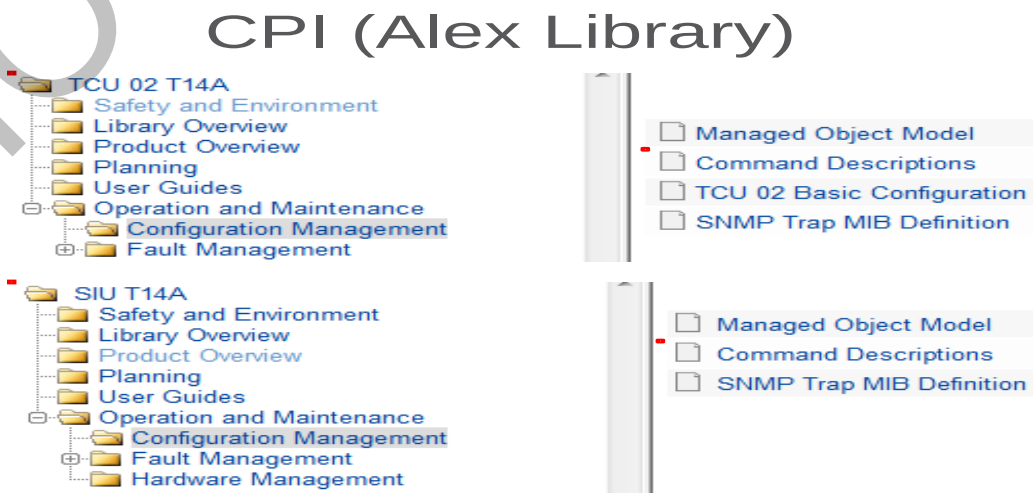


Figure 3-6: SIU 02 / TCU 02 Commands

6 Generic Commands

This session lists commands related to the generic functionality, security and troubleshooting of the SIU 02 / TCU 02.

6.1 Getalarmlist

This command is used to print all active alarms in SIU 02 / TCU 02.

```
OSmon> getalarmlist
STN=0,E1T1Interface=2;
alarmId=              1;
eventTime=            1970-01-01 T00:00:48;
eventType=            "communicationsAlarm(2)";
perceivedSeverity=    "minor(3)";
probableCause=        "x733LossOfSignal(329)";
specificProblem=      "E1/T1 Loss of Signal";
additionalText=       "LOS";

STN=0,E1T1Interface=3;
alarmId=              2;
eventTime=            1970-01-01 T00:00:48;
eventType=            "communicationsAlarm(2)";
perceivedSeverity=    "minor(3)";
probableCause=        "x733LossOfSignal(329)";
specificProblem=      "E1/T1 Loss of Signal";
additionalText=       "LOS";

STN=0,E1T1Interface=4;
alarmId=              3;
eventTime=            1970-01-01 T00:00:48;
eventType=            "communicationsAlarm(2)";
perceivedSeverity=    "minor(3)";
probableCause=        "x733LossOfSignal(329)";
specificProblem=      "E1/T1 Loss of Signal";
additionalText=       "LOS";
```

Specific Problem

Figure 3-7: Generic Commands

The information “Specific Problem” may be used as a reference to retrieve more information for the active alarm. The CPI path described in the next figure (3-8) shows exactly where more information related to any specific alarm can be found.

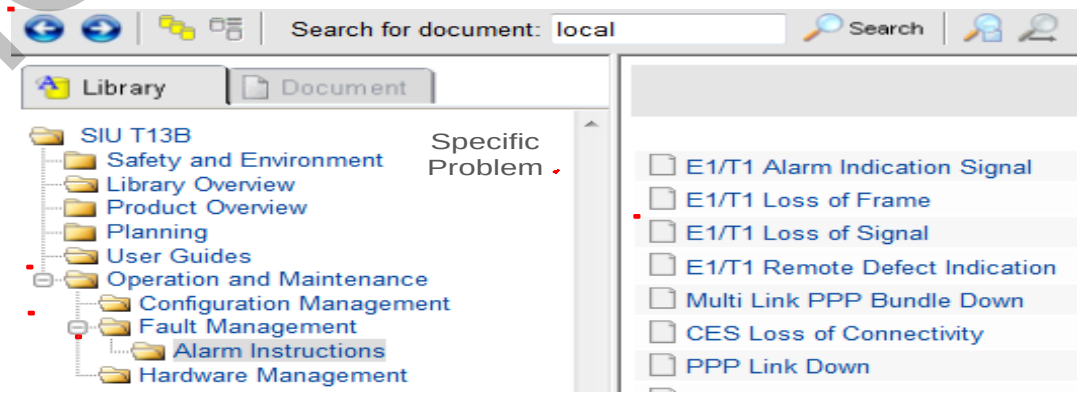


Figure 3-8: CPI – Alarm Instructions

All possible alarms can be found on the CPI list. The figures 3-9 and 3-10 show the complete list for SIU 02 /TCU 02 hardware's.

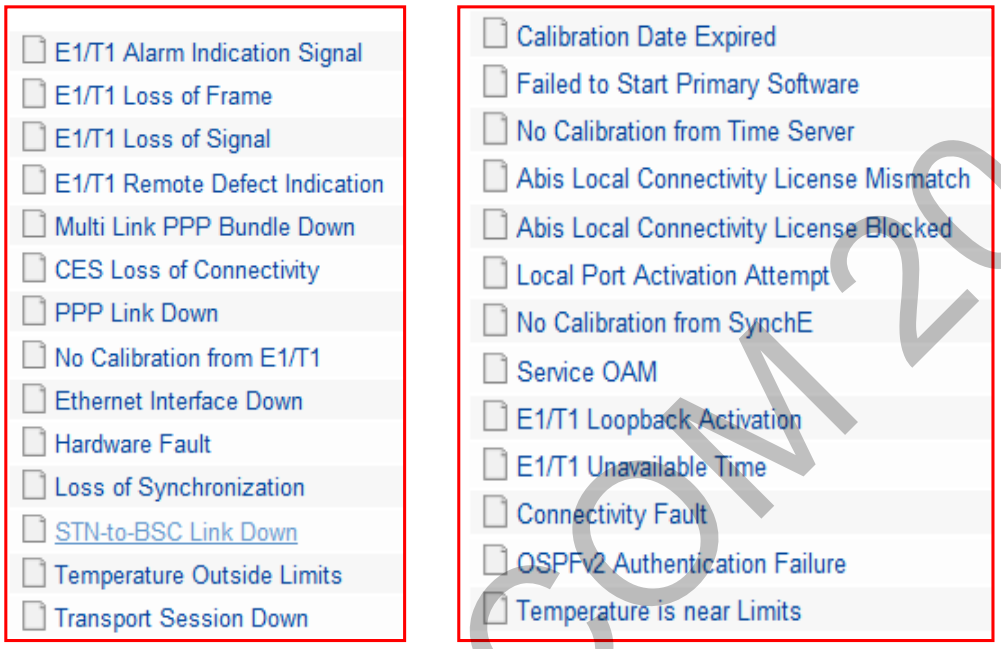


Figure 3-9: SIU 02 Alarms – CPI

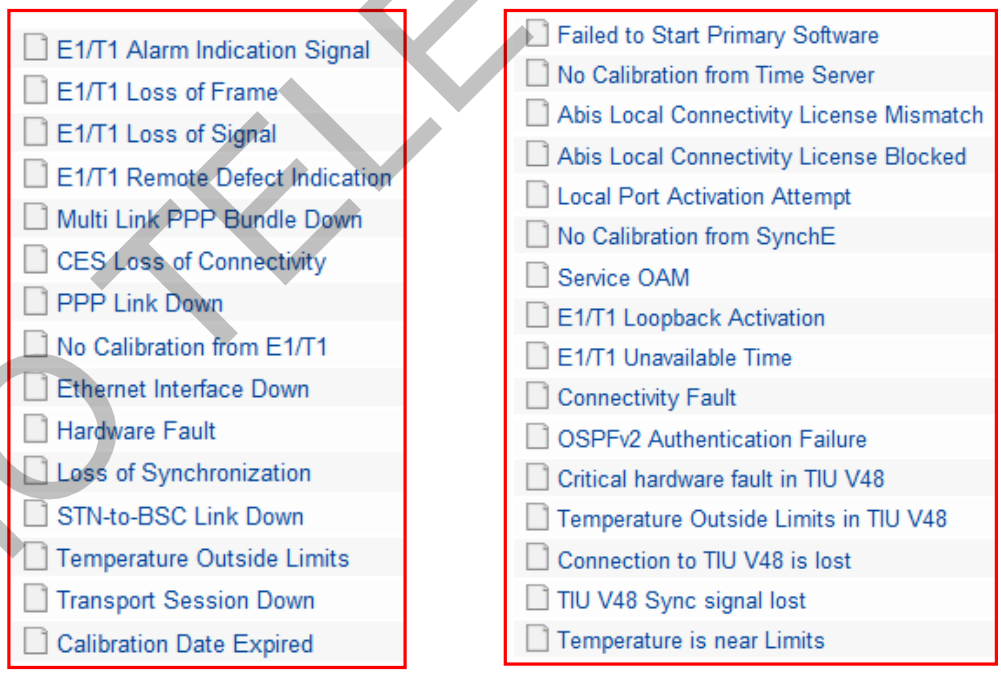


Figure 3-10: TCU 02 Alarms – CPI

For every alarm described above, more information related to Operation Instructions (OPI) can be found.

6.2 GetIRPVersion

This command displays the Integration Reference Point (IRP) version currently used and a list of supported IRP versions.

The IRP number is included in the bulk CM XML configuration file that is uploaded/downloaded from/to the SIU02 and TCU 02 to/from OSS.

This means that the SIU 02 / TCU 02 accepts bulk CM downloads with configurations having any of the versions specified in the *versionNumberSet*.

All bulk CM XML configuration files, exported by the SIU 02 / TCU 02 as a result of the **upload** command, are using the *currentVersionNumber* (the highest supported IRP version in that software version).

The command example is described in the Figure 3-11.

```
OSmon> getIRPVersion
5.20 5.20,5.17,5.14,5.11,5.8,5.5,5.2,5.1,5.0,3.6,3.5,3.4,3.2,3.1,3.0
OperationSucceeded
```

```
OSmon> getIRPVersion
7.20 7.20,7.17,7.14,7.11,7.8,7.5
OperationSucceeded
```

Software Release	SIU IRP Version	TCU IRP Version
T10A	5.0	
T10B	5.1	
T11A	5.2	
T11B	5.5	
T12A	5.8	7.8
T12B	5.11	7.11
T13B	5.17	7.17
T14A	5.20	7.20

Figure 3-11: Generic Commands

6.3 Rev

This command displays revisions of current installed software archives and which one (primary or backup) that is the active software.

Revisions for OSE and firmware modules as also displayed.

```
OSmon> rev
------------------- OSE modules ----------------------------------------
oam.chk             Operation & Maintenance                        R2Y16
secmgrr.chk         Security Manager                               R2Y16
inetr.chk           MLPPP Daemon                                   R2Y16
ltp.chk             Local Terminal Port                            R2Y16
snc.chk             Synchronization                                R2Y16
pd.chk              Packet Distributor                             R2Y16
cesopsn_pwr.chk     Circuit Emulation Service                      R2Y16
hdlc_pwr.chk        HDLC Pseudo-Wire Emulation                     R2Y16
p_relayr.chk        Packet Relay                                   R2Y16
profiler.chk        System Profiler                                R2Y16
hwtest.chk          Hardware Tester                                R2Y16
lcf_cp.chk          Local Connectivity Function                    R1C01
bsp.drv             Board Support Package                          R2Y16
bootstrap.chk       Bootstrap                                      R2Y16
loader.drv          Software Loader                                R2Y16
np_init_app.drv     APP3K Setup                                    R2Y16
linuxload.drv       Linux Loader                                   R2Y16

------------------- Firmware modules -----------------------------------
PBOOT               CXC 112 3777/1                                 R1E01
FPGA                -                                             0x1010

------------------- Software archives ----------------------------------
Primary:
OSE                 CXP102138_1                                    R2Y16
Linux               -                                              R2Y16

Backup:
OSE                 CXP102138_1                                    R2Y16

------------------- Active software ------------------------------------
OSE                                                              Primary
Linux                                                            Primary
```

Figure 3-12: Generic Commands

6.4 Ping

This command can be used to send ICMPv4 echo requests to a remote IPv4 host to test connectivity. Omit the "destination" parameter to list all options available for this command. To stop the ping command, type ctrl + C. The ping command is showed is the Figure 3-13.

6.5 Restart

This command initializes a restart of the unit. Any established traffic connections are closed as part of the operation.

The restart also clears PM data and terminates O&M traffic and Telnet/SSH sessions in progress. If an alarm subscription exists, sending heartbeat notifications is resumed when the restart is completed. A restart maybe can take up to 1 minute and CLI sessions are terminated.

A new login is required when the restart is completed. The restart command is showed in the Figure 3-13.

6.6 GetTemperature

This command displays the temperature from different sources in the unit. The command is showed in the Figure 3-13.

6.7 GetOSmonSessions

This command shows the user(s) currently logged in to the SIU 02 / TCU 02. The command is showed in the Figure 3-13.

```
OSmon> ping 146.250.130.42
PING 146.250.130.42 (146.250.130.42) 56(84) bytes of data.
64 bytes from 146.250.130.42: icmp_seq=1 ttl=64 time=0.326 ms
64 bytes from 146.250.130.42: icmp_seq=2 ttl=64 time=0.316 ms
64 bytes from 146.250.130.42: icmp_seq=3 ttl=64 time=0.330 ms
64 bytes from 146.250.130.42: icmp_seq=4 ttl=64 time=0.343 ms
^C
--- 146.250.130.42 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3043ms
rtt min/avg/max/mdev = 0.316/0.328/0.343/0.024 ms
```

```
OSmon> restart
OperationSucceeded
```

```
OSmon> gettemperature
Network processor:   62 C, 143 F
Temp sensor 1 (near FPGA):   30 C,   86 F
Temp sensor 2 (near OXCO):   31 C,   87 F
OperationSucceeded
```

```
OSmon> getosmonsessions
   ID   type          IP          login time    idle time   last command
 3805    WAN  146.250.169.204     16:49:00      00:00:00    getosmonsessions
```

Figure 3-13: Generic Commands

6.8 TimeServerTest Start/Result, Uptime

This command is used to check the connectivity to and quality on the network towards a time server. If the attribute *synchType* (in MO **Synchronization**) is set to value "timeServer" and calibration is ongoing, the synchronization algorithm will freeze during the test. The Figure 1-12 shows the command.

The result of a test shows the network quality and packet loss and is cleared after the result is reported. The Figure 3-14 shows the command.

For PTP over Ethernet (Multicast) time server test 1 packets)s or more are needed from the PTP server.

If less than 1 packets/s is received the time server test is interrupted and an error message is displayed.

```
OSmon> timeservertest start
Timeserver test started and will take ~0.5min (~5min over satellite or PTP_ETH)

OSmon> timeservertest result
Timeserver with instanceId:AbisNTP1 not reachable.
```

```
OSmon> gettime
Current Time [1970-01-01 00:25:50.916]

OSmon> uptime
Uptime: 0 days, 0 hours, 26 minutes, 22 seconds
```

Figure 3-14: Generic Commands

7 Bulk CM Transaction Commands

This session lists basic Configuration Management (CM) commands. A basic CM transaction is used to change attribute values in the Managed Information Model (MIM) and to ensure that data changes are performed consistently.

7.1 GetContainment

This command retrieves all MO instances in a specific MO containment hierarchy below, and including, the specified *MO-DN*. The Figure 3-15 shows the command example.

```
OSmon> getcontainment STN=0
STN=0;
STN=0,AutoIntegration=0;
STN=0,Equipment=0;
STN=0,EthernetInterface=AutoInt-1;
STN=0,EthernetInterface=AutoInt-2;
STN=0,EthernetInterface=SITE_OAM;
STN=0,IPInterface=0;
STN=0,IPInterface=AutoInt-1;
STN=0,IPInterface=AutoInt-2;
STN=0,IPv6RoutingTable=0;
STN=0,MeasurementDefinition=0;
STN=0,RoutingTable=0;
STN=0,RoutingTable=0,IpRouteSys=0;
STN=0,RoutingTable=0,IpRouteSys=AutoInt-1;
STN=0,RoutingTable=0,IpRouteSys=AutoInt-2;
STN=0,RoutingTable=0,IpRouteSys=DefaultGateway;
STN=0,Synchronization=0;
STN=0,VLANGroup=AutoInt-1;
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1;
STN=0,VLANGroup=AutoInt-2;
STN=0,VLANGroup=AutoInt-2,VLAN=AutoInt-2;
OperationSucceeded
```

Figure 3-15: Basic CM Transaction

7.2 GetMOAttribute

This command displays MO attribute values. The Figure 3-16 shows the command example.

```
OSmon> getmoattribute STN=0,Equipment=0
STN=0,Equipment=0; instanceId= 0;
STN=0,Equipment=0; serialNumber= CB4G758386;
STN=0,Equipment=0; productRevision= R1E;
STN=0,Equipment=0; productNumber= KDU 137 596/2;
STN=0,Equipment=0; manufacturingDate= 20110302;
STN=0,Equipment=0; productName= SIU02;
OperationSucceeded

OSmon> getmoattribute STN=0,VLANGroup=AutoInt-1
STN=0,VLANGroup=AutoInt-1; instanceId= AutoInt-1;
STN=0,VLANGroup=AutoInt-1; operationalState= disabled;
STN=0,VLANGroup=AutoInt-1; depLinkLayer= STN=0,EthernetInterface=AutoInt-1;
OperationSucceeded

OSmon> getmoattribute STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1; instanceId= AutoInt-1;
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1; tagValue= 0;
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1; tagged= true;
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1; depBridge= ;
STN=0,VLANGroup=AutoInt-1,VLAN=AutoInt-1; mode= auto;
OperationSucceeded
```

Figure 3-16: Basic CM Transaction

Another variation for the command getmoattribute can be verified on the pictures 1-17 and 1-18.

The user can print specific attributes from all MO's of the same type. In this case, the word "ALL" must be used, instead of MO Id.

```
OSmon> getmoattribute STN=0,EthernetInterface=ALL portNumber
STN=0,EthernetInterface=SITE_OAM; portNumber= 2;
STN=0,EthernetInterface=AutoInt-1; portNumber= 0;
STN=0,EthernetInterface=AutoInt-2; portNumber= 4;
OperationSucceeded

OSmon> getmoattribute STN=0,EthernetInterface=ALL port
STN=0,EthernetInterface=SITE_OAM; port= Gigabit;
STN=0,EthernetInterface=AutoInt-1; port= SFP;
STN=0,EthernetInterface=AutoInt-2; port= Gigabit;
OperationSucceeded

OSmon> getmoattribute STN=0,EthernetInterface=ALL operationalState
STN=0,EthernetInterface=SITE_OAM; operationalState= enabled;
STN=0,EthernetInterface=AutoInt-1; operationalState= disabled;
STN=0,EthernetInterface=AutoInt-2; operationalState= disabled;
OperationSucceeded
```

Figure 3-17: Basic CM Transaction

The user also can specify what attribute will be showed for all MO's. On the examples, we have only the attributes portnumber, port, operationalstate, intanceid, and type being printed.

```
OSmon> getmoattribute STN=0,E1T1interface=ALL instanceid
STN=0,E1T1Interface=0; instanceid= 0;
STN=0,E1T1Interface=1; instanceid= 1;
STN=0,E1T1Interface=4; instanceid= 4;
STN=0,E1T1Interface=5; instanceid= 5;
OperationSucceeded

OSmon> getmoattribute STN=0,E1T1interface=ALL type
STN=0,E1T1Interface=0; type= T1;
STN=0,E1T1Interface=1; type= T1;
STN=0,E1T1Interface=4; type= E1;
STN=0,E1T1Interface=5; type= E1;
OperationSucceeded

OSmon> getmoattribute STN=0,E1T1interface=ALL operationalstate
STN=0,E1T1Interface=0; operationalstate= disabled;
STN=0,E1T1Interface=1; operationalstate= disabled;
STN=0,E1T1Interface=4; operationalstate= disabled;
STN=0,E1T1Interface=5; operationalstate= disabled;
OperationSucceeded
```

Figure 3-18: Basic CM Transaction

7.3 GetCounters

This command displays counters for the specified MO instance.

The command brings the actual value for each counter (Value) and also brings the variation (Change) of each specific value since the last print was retrieved (4.1s).

The Figure 3-20 shows the command example.

```
OSmon> getcounters STN=0,IpInterface=0
=============================================================================
Counter                        | Value                | Change (4.1s)
=============================================================================
ipIfStatsHCInReceives          | 390318               | +48
ipIfStatsInHdrErrors           | 0                    |
ipIfStatsInAddrErrors          | 0                    |
ipIfStatsInUnknownProtos       | 0                    |
ipIfStatsHCInDelivers          | 391938               | +48
ipIfStatsInDiscards            | 0                    |
ipIfStatsHCOutRequests         | 43543                | +13
ipIfStatsOutDiscards           | 0                    |
ipIfStatsHCInOctets            | 42756836             | 9.79 kbps
ipIfStatsHCOutTransmits        | 43543                | +13
ipIfStatsHCOutOctets           | 5964970              | 5.79 kbps
ipIfStatsHCInForwDatagrams     | 0                    |
ipIfStatsHCOutForwDatagrams    | 0                    |
ipIfStatsInNoRoutes            | 0                    |
=============================================================================
```

Figure 3-19: Bulk CM Transaction

4 SIU 02 / TCU 02 Maintenance Procedures

Objectives

- Describe Maintenance Procedures for SIU 02 / TCU 02.
  - Extract XML Files from SIU 02 / TCU 02.
  - Reset SIU 02 / TCU 02 to factory settings.
  - Run XML files in SOU 02 / TCU 02.
  - Describe how to check the O&M IP.
  - Perform Data Collection Guideline in SIU 02 TCU 02.

Figure 4-1: Objectives

1 Introduction

The objective is of this chapter is to describe the main SIU 02 / TCU 02 Maintenance procedures.

During the next sessions the CLI and CPI will be explained to teach how to proceed with alarms in SIU 02 / TCU 02.

The extract/run XML files procedures also will be explained. In the end of the chapter, the software upgrade/downgrade procedure will be covered.

For any extra information related to the topics bellow, please, check the SIU 02 / TCU 02 T14A Alex Library.

2 Extract XML Files

To extract a **Backup XML File** (next figure) from one SIU 02 / TCU 02, do the following:

1. Enable SFTP on the Console port: OSmon> **uselocalsftp on**
2. Start a bulk CM session: OSmon> **startSession TEST**
3. Prepare the SFTP server in the laptop.
4. Upload the configuration file to an SFTP server using the **backup** command.
5. If the configuration file should be encrypted, include a password (1-20 characters) to the command. If the configuration file should be uploaded as a clear text file, include the **-u** flag instead of a password.

   The addressing of the file destination must follow the syntax: "sftp://username:password@<remotehost>/<filepath>" where <remotehost> specifies either an IPv4 address ("a.b.c.d") or an IPv6 address in square brackets ("[a:b::c]".

6. Check the BCM session status: OSmon> **getSessionStatus TEST**.
7. Find the XML file on laptop's file system.

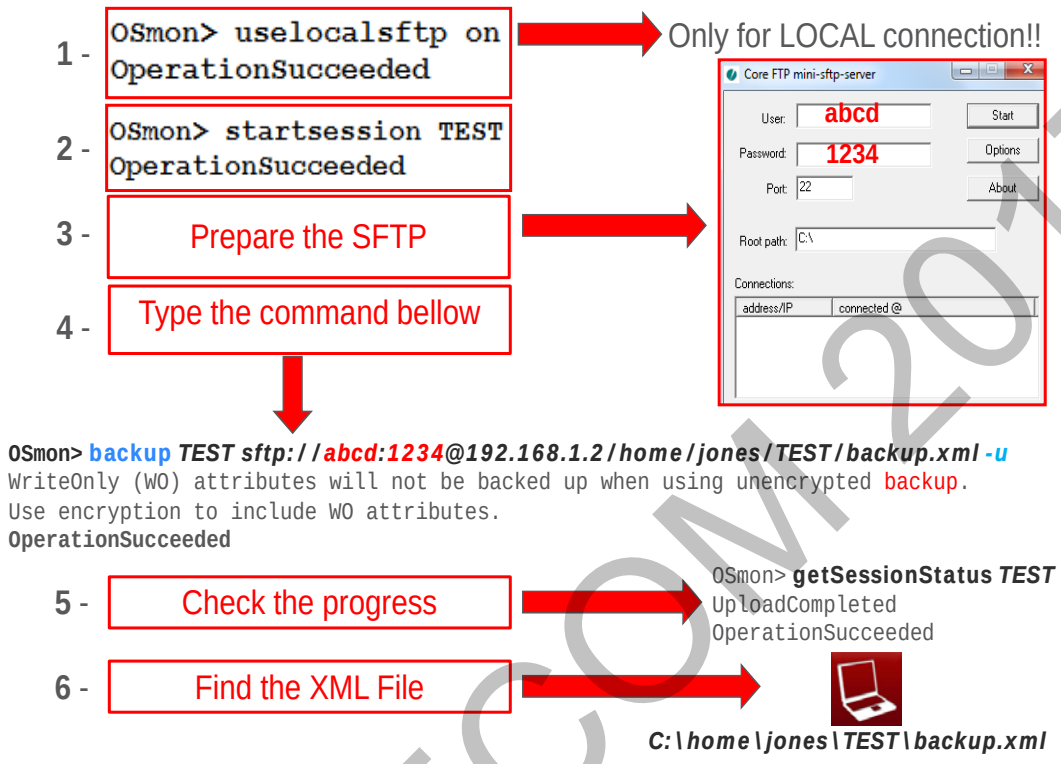


Figure 4-2: Extract XML Backup File

To extract a **Bulk CM XML File** (next figure) from one SIU 02 / TCU 02, do the following:

1. Enable SFTP on the Console port: OSmon> **uselocalsftp on**
2. Start a bulk CM session: OSmon> **startSession TEST**
3. Prepare the SFTP server in the laptop.
4. Upload the configuration file to an SFTP server using the **backup** command. If the configuration file should be encrypted, include a password (1-20 characters) to the command.

   The addressing of the file destination must follow the syntax: "sftp://username:password@<remotehost>/<filepath>" where <remotehost> specifies either an IPv4 address ("a.b.c.d") or an IPv6 address in square brackets ("[a:b::c]".

5. Check the BCM session status: OSmon> **getSessionStatus TEST**.
6. Find the XML file on laptop's file system.

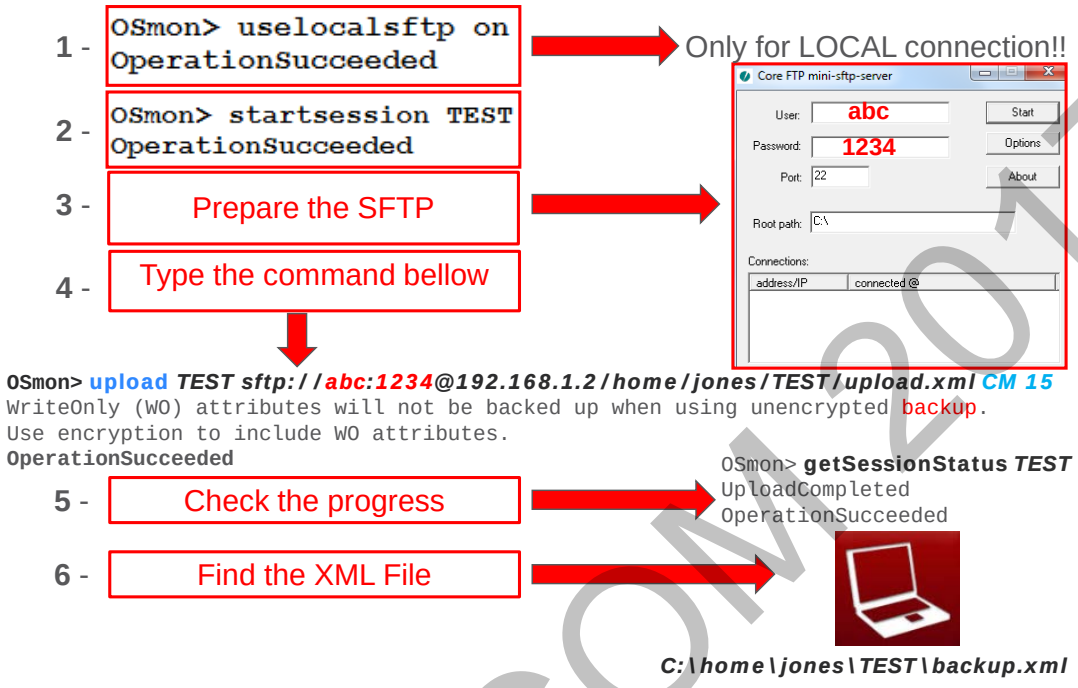


Figure 4-3: Extract XML Bulk CM File

3 Format SIU 02 / TCU 02

To reset the configuration to default factory settings, enter the command **resettofactorysetting**. A warning will appear asking for acknowledge if this command really should be executed. If this command is executed it erases the MIB contents and clears persistent data including security and synchronization data. Software archives are not affected by this command.

Note:

The factory default configuration for the SIU includes MO instances used by the auto integration process. When this command is executed these MO instances are created and the auto integration process is automatically started. To abort the auto integration process, run the CLI command **deleteAiMo**.

```
OSmon> resetToFactorySetting
```

Note:
A warning will appear asking for acknowledge if this command really should be executed.

```
Warning: All user settings will be removed, continue
(ok/cancel)? ok
OperationSucceeded


(ok/cancel)? cancel
OperationFailed - Command interrupted
```

Figure 4-4: Format SIU 02 / TCU 02

4 Run XML Files

To run a **Backup XML File** (Next figure) from one SIU 02 / TCU 02, do the following:

1. Enable SFTP on the Console port: OSmon> **uselocalsftp on**
2. Start a bulk CM session: OSmon> **startSession TEST**
3. Prepare the SFTP in the laptop.
4. Download the backup file from the SFTP path to the TCU 02 / SIU 02 using the **download** command.
5. Check the sesson progress: OSmon> **getsessionstatus TEST**
6. Restore the downloaded backup file using the **restore** command. If the configuration file was encrypted when uploaded, include the same password as used in the **backup** command. If the configuration file was uploaded as a clear text file, include the **-u** flag instead of the password.

   This command restores a clear text backup file: OSmon> **restore TEST -u**

   The **restore** command checks the IRP version of the configuration file and if it is supported by current software, the configuration can be activated immediately with warm restart.If the restored configuration IRP version is not supported by current software, another software version needs to be installed.

7. Terminate the session. OSmon> **endsession TEST**

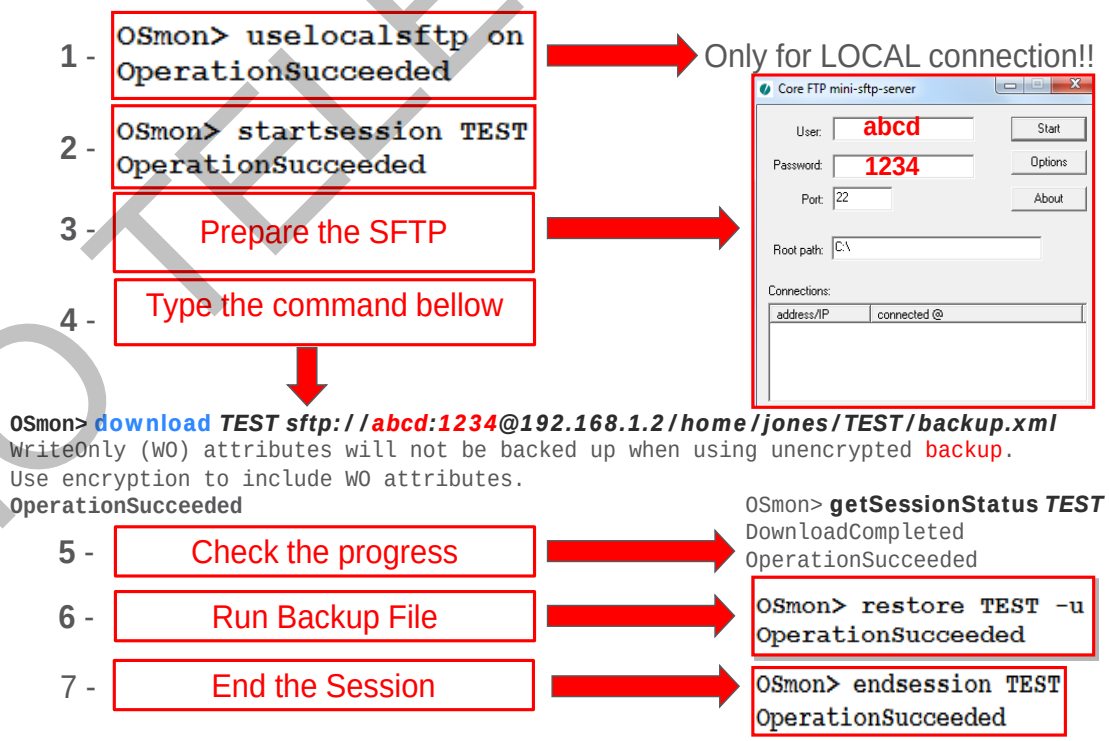


Figure 4-5: Run XML Backup File

To run a Bulk CM XML configuration file (Next figure), do the following:

1. If connected through an LMT, enable SFTP on the console port.
2. Start a bulk CM session: OSmon> **startSession TEST**
3. Prepare the SFTP software in the laptop.
4. Download the configuration file by entering the SFTP URI, including authentication information, to the repository where it is stored. If an IPv6 address is used, it must be enclosed in square brackets.
5. Check if the download is completed: OSmon> **getSessionStatus TEST**
6. When the download is completed, activate the downloaded configuration file: OSmon> **activate bcm1**

   In case any changed attribute requires a restart, any established traffic connections are closed and the unit restarts. The restart also clears PM data and terminates O&M traffic in progress.

7. Log on again and terminate the session: OSmon> **endSession TEST**

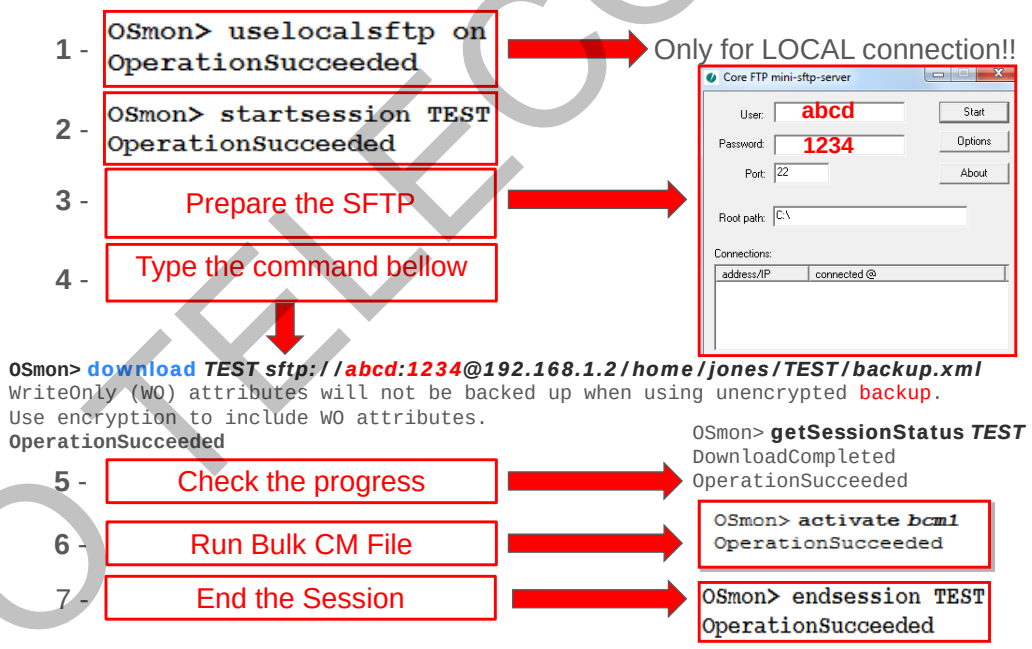


Figure 4-6: Run XML Bulk CM File

4.1 Data Collection Guideline

This section describes how to collect CSR data using the Command Line Interface (CLI).

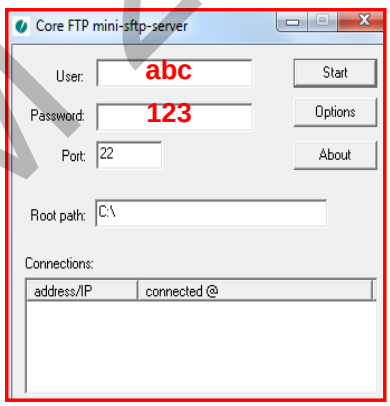
The command **collectDCGInformation** gathers the relevant debug/troubleshooting information and prints it on screen. The content can also be uploaded to an SFTP server as an **tar.gz** file. If the optional **-n** or **--no-dumps** parameter is used, only a list of dumps will be gathered and detailed information about generated dumps will be excluded.

Check the following figure to proceed with the data collection:

1 -

```
OSmon> collectDCGinformation

================ gettime ================

Current Time [1970-01-01 02:36:03.353]


================ caldate ================

20130503
OperationSucceeded


================ calexpdate ================

20120305
OperationSucceeded
```

2 -



3 -

```
OSmon> collectDCGInformation sftp://abc:123@192.168.1.2/home/jones/SIUDCG/siu_dcg.tar.gz
Collecting: gettime
Collecting: caldate
...
...
Collecting information complete - Uploading to SFTP server
Uploading to SFTP server - Done
OperationSucceeded
```

4 - Attach the result (printout or tar.gz file) to the CSR

Figure 4-7: Collect DCG Information

Intentionally Blank