

Scheduled Procedures for Layered Applications

Ericsson Dynamic Activation 1

INTERFACE DESCRIPTION

Copyright

© Ericsson AB 2017. All rights reserved. No part of this document may be reproduced in any form without the written permission of the copyright owner.

Disclaimer

The contents of this document are subject to revision without notice due to continued 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.

Trademark List

All trademarks mentioned herein are the property of their respective owners. These are shown in the document Trademark Information.



Contents

1	Introduction	1
1.1	Purpose and Scope	1
1.2	Target Group	1
1.3	Typographic Conventions	1
1.4	Prerequisites	1
2	Scheduling Procedures	3
2.1	Initiate Scheduled Procedure (PGSPI)	3
2.1.1	PGSPI Request	3
2.2	Print Scheduled Procedure (PGSPP)	4
2.2.1	PGSPP Request	4
2.2.2	PGSPP Result	4
2.3	Change Scheduled Procedure (PGSPC)	5
2.3.1	PGSPC Request	6
2.4	End Scheduled Procedure (PGSPE)	6
2.4.1	PGSPE Request	6
3	Operations and Procedure Types	9
3.1	LOCATION and HESPLSP	9
3.1.1	HESPLSP Request	9
3.1.2	HESPLSP Result File Schema	10
3.2	MMELOCATION and HSSPMLP	11
3.2.1	HSSPMLP Request	11
3.2.2	HSSPMLP Result File Schema	12
4	Faults or Errors	13
4.1	General CLI Errors	13
4.2	Command Mapped Errors	13
4.3	HLR Errors	14
	Reference List	15





1 Introduction

This document covers scheduled procedures in Ericsson™ Dynamic Activation (EDA), as it is used in User Data Consolidation (UDC) R1. The procedures and operations described in this document are available through Dynamic Activation Command Line Interface (CLI). How to use the CLI is covered in *Generic CLI Interface Specification*, Reference [1].

1.1 Purpose and Scope

The purpose of this document is to educate users on how to set up scheduled procedures in Dynamic Activation. This document also supplies specifications for all procedures that can be scheduled.

1.2 Target Group

The target groups for this document are as follows:

- System Administrators

1.3 Typographic Conventions

Typographic conventions are described in *Library Overview*, Reference [2].

In addition, this document uses the following to indicate operations:

C	Create
S	Set
G	Get
D	Delete

1.4 Prerequisites

The following are prerequisites to using this document:

- Knowledge about the Dynamic Activation CLI; refer to the document *Generic CLI Interface Specification*, Reference [1].



2 Scheduling Procedures

This section covers how to schedule procedures. The procedures are then automatically executed at the specified times.

Note: Only one procedure of each procedure type can exist.

2.1 Initiate Scheduled Procedure (PGSPI)

The operation PGSPI initiates a scheduled procedure in Dynamic Activation.

2.1.1 PGSPI Request

Command Description:

```
PGSPI:PROCEDURE=procedure[ ,STARTDATE=startdate,TIME=time,[INTERVAL=interval,STOPDATE=stopdate] ] ;
```

If only PROCEDURE is specified, the procedure starts executing within a minute from the order. The procedure is, in this case, not scheduled to run again.

When the PGSPI command is executed, the cache file is created.

The name of cache file is `location_cache.xml` when PROCEDURE=LOCATION and `mmelocation_cache.xml` when PROCEDURE=MMELOCATION.

The location of the cache file is `/var/dve/cache/`.

The following table explains the attributes that can be used in a PGSPI request.

Table 1 Command Attributes

Attribute	Type	Description
INTERVAL	Text string expressed as <code><value><unit></code> <code><value></code> is an integer specifying a value. <code><unit></code> is the unit and can be one of the following: <ul style="list-style-type: none"> • M for minutes • H for hours • D for days 	The interval between procedure starts ⁽¹⁾ For example, 24H or 1D means that the procedure is run once per day. 10M means that the procedure is started every ten minutes. ⁽²⁾
PROCEDURE	Text string	The procedure to use is LOCATION or MMELOCATION. For more information, see Section 3 on page 9.



Attribute	Type	Description
STARTDATE	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year <code><MM></code> is the month <code><DD></code> is the day	Start date, for example 20090301. The procedure is run for the first time on the given start date.
STOPDATE	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year. <code><MM></code> is the month. <code><DD></code> is the day.	Stop date, for example 20090331. The procedure is run for the last time on the given stop date.
TIME	Text string expressed as <code><HH><MM></code> <code><HH></code> is the hour. <code><MM></code> is the minute.	Time of day, for example 2330. The procedure is run for the first time currently of day. When the procedure is run next depends on the <code>INTERVAL</code> value.

(1) The `INTERVAL` parameter is only valid if it is used together with `STOPDATE` parameter.

(2) If the procedure is still running when the next start is scheduled, the procedure is not started. The schedule will try to start the procedure again after another interval.

2.2 Print Scheduled Procedure (PGSPP)

The operation PGSPP prints a scheduled procedure in Dynamic Activation.

2.2.1 PGSPP Request

Command Description:

```
PGSPP:PROCEDURE=procedure;
```

The following table explains the attributes that can be used in a PGSPP request.

Table 2 Command Attributes

Attribute	Type	Description
PROCEDURE	Text string	The scheduled procedure. See Section 3 on page 9 for procedure names.

2.2.2 PGSPP Result

The `PGSPP` command gives a response including the attributes listed in Table 3. The following is an example of a PGSPP response:

```
72 ORDERED PGSPP
```

```
72 ID=LOCATION StartDate=20090101 Time=01:00 StopDate=20\
090101 Interval=100 Host=node1 Running=false
```




72 COMPLETED

Note: The `Interval` and `Stopdate` attributes is always printed, regardless if they have been initiated or not. The default value for the `Interval` attribute is 100 ms and the default value for the `Stopdate` attribute is the same value as set for the `Startdate` attribute.

Table 3 Result Attributes

Attribute	Type	Description
Host	Text string	The hostname of the host where the procedure is scheduled to run.
ID	Text string	The scheduled procedure. See Section 3 on page 9 for procedure names.
Interval	Text string expressed as <code><value><unit></code> <code><value></code> is an integer specifying a value. <code><unit></code> is the unit and can be one of the following: <ul style="list-style-type: none"> • M for minutes • H for hours • D for days 	The interval between procedure starts. ⁽¹⁾ For example, 24H or 1D means that the procedure is run once per day. 10M means that the procedure is started every ten minutes. ⁽²⁾
Running	Boolean {true, false}	true if the procedure is running. false if the procedure is waiting to be run.
StartDate	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year <code><MM></code> is the month <code><DD></code> is the day	Start date, for example 20090301. The procedure is run for the first time on the given start date.
StopDate	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year. <code><MM></code> is the month. <code><DD></code> is the day.	Stop date, for example 20090331. The procedure is run for the last time on the given stop date.
Time	Text string expressed as <code><HH><MM></code> <code><HH></code> is the hour. <code><MM></code> is the minute.	Time of day, for example 2330. The procedure is always run currently.

(1) The `INTERVAL` parameter is only valid if it is used together with `STOPDATE` parameter.

(2) If the procedure is still running when the next start is scheduled, the procedure is not started. The schedule will try to start the procedure again after another interval.

2.3 Change Scheduled Procedure (PGSPC)

The operation PGSPC changes a scheduled procedure in Dynamic Activation.



2.3.1 PGSPC Request

Command Description:

```
PGSPC:PROCEDURE=procedure[,STARTDATE=date][,TIME=time][,STOPDATE=date][,INTERVAL=interval];
```

The following table explains the attributes that can be used in a PGSPC request.

Table 4 Command Attributes

Attribute	Type	Description
INTERVAL	Text string expressed as <code><value><unit></code> <code><value></code> is an integer specifying a value. <code><unit></code> is the unit and can be one of the following: <ul style="list-style-type: none">• M for minutes• H for hours• D for days	The interval between procedure starts. For example, 24H or 1D means that the procedure is run once per day. 10M means that the procedure is started every ten minutes. ⁽¹⁾
PROCEDURE	Text string	The procedure to schedule. See Section 3 on page 9 for procedure names.
STARTDATE	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year <code><MM></code> is the month <code><DD></code> is the day	Start date, for example 20090301. The procedure is run for the first time on the given start date.
STOPDATE	Text string expressed as <code><YYYY><MM><DD></code> <code><YYYY></code> is the year. <code><MM></code> is the month. <code><DD></code> is the day.	Stop date, for example 20090331. The procedure is run for the last time on the given stop date.
TIME	Text string expressed as <code><HH><MM></code> <code><HH></code> is the hour. <code><MM></code> is the minute.	Time of day, for example 2330. The procedure is run for the first time currently of day. When the procedure is run next depends on the INTERVAL value.

(1) If the procedure is still running when the next start is scheduled, the procedure is not started. The schedule will try to start the procedure again after another interval.

2.4 End Scheduled Procedure (PGSPE)

The operation PGSPE ends a scheduled procedure in Dynamic Activation.

Note: If a procedure is running, it is not ended. Only the scheduling is deleted.

2.4.1 PGSPE Request

Command Description:



PGSPE:PROCEDURE=procedure;

The following table explains the attributes that can be used in a PGSPE request.

Table 5 Command Attributes

Attribute	Type	Description
PROCEDURE	Text string	The scheduled procedure. See Section 3 on page 9 for procedure names.





3 Operations and Procedure Types

This section covers operations connected to procedures that can be scheduled for regular execution. The following procedures are supported:

- Print Mobile Subscriber Location Survey (HESPLSP), which uses the result of the procedure LOCATION.
- Print Mobile Subscriber Location Survey (HSSPMLP), which uses the result of the procedure MMELOCATION.

3.1 LOCATION and HESPLSP

HESPLSP returns the number of subscribers for each Visitor Location Register (VLR) or Serving GPRS Support Node (SGSN) address matching the ADDS and GPRS criteria.

The operation HESPLSP fetches data from the latest completed PGSPI : PROCEDURE=LOCATION search.

The PGSPI command with the procedure LOCATION fetches data from the CUDB. The data, that is stored in Dynamic Activation, can take a long time to fetch.

Note: The PGSPI command with PROCEDURE=LOCATION is to be run before the HESPLSP operation is executed. If not, the operation HESPLSP fails with fault message NO VLR/SGSN CACHE FILE FOUND

3.1.1 HESPLSP Request

Command Description:

$$\text{HESPLSP:ADDS} = \begin{bmatrix} \text{adds} \\ \text{ALL} \end{bmatrix} \text{[,GPRS] [,CHAR] [,OCSI] [,RID=rid...];}$$

The following table explains the attributes that can be used in a HESPLSP request.



Table 6 Command Attributes

Attribute	Type	Description
ADDS	Text String expressed as <na>-<ai>. <na> is the Nature of Address where 3 means National and 4 means International <ai> is address information ADDS can also be set to ALL which return all available addresses.	VLR or SGSN address series
GPRS	This parameter has no value.	If given, only SGSN addresses are returned. Otherwise, only VLR addresses are returned.
CHAR	This parameter has no value.	If given, roaming area characteristics are returned.
OCSI	This parameter has no value.	If given, number of subscribers that is using Originating CAMEL Subscription Information (OCSI) are returned.
RID	Numerical 0-31	Region Identifier If the RID attribute is used, this parameter filters out the given RIDs. To specify several RIDs, use for example RID=1&2.

3.1.2

HESPLSP Result File Schema

The following is the result file schema for HESPLSP:

```
<xsd:element name="MobileSubscriberLocationSurveyData">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:choice minOccurs="0">
        <xsd:element name="VLRAddress" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="vlraddr" type="xsd:string" />
              <xsd:element name="nsub" type="xsd:integer" />
              <xsd:element name="char" type="xsd:string" minOccurs="0" maxOccurs="unbounded" />
              <xsd:element name="rid" type="xsd:integer" minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="SGSNNumber" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="sgsnnum" type="xsd:string" />
              <xsd:element name="nsub" type="xsd:integer" />
              <xsd:element name="char" type="xsd:string" minOccurs="0" maxOccurs="unbounded" />
              <xsd:element name="rid" type="xsd:integer" minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:choice>
      <xsd:element name="OCSI" minOccurs="0">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:element name="nsub" type="xsd:integer" />
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Example 1 HESPLSP Result File Schema



The following table covers the attributes that can be received in a HESPLSP response.

Table 7 Result Attributes

Attribute	Type	Description
CHAR	This parameter has no value.	Roaming area characteristic identifier.
NSUB	Integer	Number of subscribers that is using OCSI.
RID	Integer. Value range is 0–31.	Region ID for the multi region support
SGSNUM	Text String expressed as <na>-<ai>. <na> is the Nature of Address where 3 means National and 4 means International <ai> is address information	SGSN Number (If GPRS search)
VLRADDR	Text String expressed as <na>-<ai>. <na> is the Nature of Address where 3 means National and 4 means International <ai> is address information	VLR Address (If non-GPRS search)

3.2 MMELOCATION and HSSPMLP

HSSPMLP returns the number of subscribers for each Mobility Management Entity (MME) address matching the ADDS criteria and the corresponding realm of the MME.

The operation HSSPMLP fetches data from the latest completed PGSPI : PROCEDURE=MMELOCATION search.

The PGSPI command with the procedure MMELOCATION fetches data from the CUDB. The data, that is stored in Dynamic Activation, can take a long time to fetch.

Note: The PGSPI command with PROCEDURE=MMELOCATION is to be run before the HSSPMLP operation is executed. If not, the operation HSSPMLP fails with fault message NO MME CACHE FILE FOUND.

3.2.1 HSSPMLP Request

Command Description:

$$\text{HSSPMLP : ADDS} = \begin{bmatrix} \text{adds} \\ \text{ALL} \end{bmatrix};$$

The following table explains the attributes that can be used in a HSSPMLP request.

*Table 8 Command Attributes*

Attribute	Type	Description
ADDS	Text String	MME search string (returns information for MMEs that ends with the specified search string).

3.2.2 HSSPMLP Result File Schema

The following is the result file schema for HSSPMLP:

```
<xsd:element name="MobilityManagementEntityLocationData">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:choice minOccurs="0">
        <xsd:element name="MMEAddress" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="mmeaddr" type="xsd:string" />
              <xsd:element name="mmerealm" type="xsd:string" />
              <xsd:element name="nsub" type="xsd:integer" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Example 2 HSSPMLP Result File Schema

The following table covers the attributes that can be received in a HSSPMLP response.

Table 9 Result Attributes

Attribute	Type	Description
MMEADDR	String	Mobility Management Entity (MME) address.
MMEREALEM	String	Indicates the realm of the MME node currently giving the EPS service for the MultiServiceConsumer.
NSUB	Integer	Number of subscribers at the specified address.



4 Faults or Errors

The CLI error codes can appear both directly in the prompt, and in the result files. Besides the generic and common error codes, the CLI commands can also return some more specific error codes.

4.1 General CLI Errors

The following table covers UDC HLR Activation Interface error codes. They can appear in any CLI responses.

Table 10 General UDC HLR/AUC Activation Interface Error Codes

Error Code	Error Message
1001	Invalid resource.
1002	Invalid XPath.
1003	Unrecognized namespace. No data view associated.
1004	Access denied. Invalid principal or credentials.
1005	Not authorized to perform current operation on selected data view.
1006	Invalid parameter.
1007	The XPath failed to match any data in the processed XML.
1008	Failed to provision data.
1009	Unsupported operation.
1093	Could not process request because of limit of maximum number of concurrent ongoing CLI transactions reached.
1095	Communication error while interacting with a data repository.
1096	Time-out expired during wait for answer from data repository.
1097	Failure during processing of the request.
1098	Could not process request because of resource limitation.
1099	System error.
1100	Execution was canceled
1101	External error
1103	License error

4.2 Command Mapped Errors

This section covers UDC HLR/AUC Activation Interface errors that are mapped towards certain commands. The commands listed in this section can be assumed to be stopping, unless "(not stopping)" is stated. They are listed in the following table along with the commands that can return them.

**Table 11** *Command Mapped Errors*

Error Code	Error Message	Command
2001	FORMAT ERROR	All CLI commands
2002	UNREASONABLE VALUE	HESPLSP
		PGSPE
		PGSPI
		HSSPMLP
2003	FUNCTION BUSY	HESPLSP
		PGSPC
		PGSPE
		PGSPI
2005	STORAGE IO FAILURE	HESPLSP
		HSSPMLP
2008	SCHEDULE ALREADY DEFINED	PGSPI
2009	UNKNOWN PROCEDURE	PGSPC
		PGSPE
		PGSPI
2010	NO VLR/SGSN CACHE FILE FOUND	HESPLSP
2011	NO MME CACHE FILE FOUND	HSSPMLP
2014	SCHEDULE NOT DEFINED	PGSPP

4.3 HLR Errors

This section covers HLR errors that can be sent through UDC HLR/AUC Activation Interface. The error codes can only appear in certain commands. The commands listed in this section can be assumed to be stopping, unless “(not stopping)” is stated. The following table lists the HLR error codes for CLI.

Table 12 *HLR Error Codes*

Error Code	Error Message	Command
10069	CHARACTERISTIC NOT RECOGNIZED	HESPLSP



Reference List

Ericsson Documents

- [1] *Generic CLI Interface Specification*, 15/155 19-CSH 109 628 Uen
- [2] *Library Overview*, 18/1553-CSH 109 628 Uen