

Oracle® Communications
ASAP

ERICSSON_FNR_R11_0_SUB_1_0 Cartridge Guide

First Edition

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Cartridge Overview

This guide provides a detailed description of the ERICSSON_FNR_R11_0_SUB_1_0 cartridge. It contains overview and technical information to assist with extending and integrating the cartridge into a customer environment.

The scope of this guide includes Oracle Communications ASAP (ASAP) as it pertains to the use of this cartridge. It is not intended to be a complete ASAP reference guide. For additional information when using this cartridge, refer to the ASAP documentation.

The ERICSSON_FNR_R11_0_SUB_1_0 cartridge provides the ASAP service configuration and network element (NE) interface to activate subscriber services on ERIC-FNR_R11-0-HOST NEs.

Hardware and Software Requirements

The following sections contain the high-level software and hardware environment requirements for provisioning subscriber services on authentication center:

- NE Interface
- ASAP Version

NE Interface

The following database tables in Service Activation Request Manager (SARM) are configured to support the NE configuration:

- tbl_host_clli
- tbl_clli_route
- tbl_comm_param
- tbl_resource_pool
- tbl_ne_config

ASAP Version

This cartridge was developed and tested using ASAP version 7.2.

For more information on the operating environment of this ASAP version, refer to the ASAP version 7.2 Release Notes.

Connecting to the NE

The cartridge uses Telnet/SSH protocol.

Services, Features, and Options

This cartridge supports the following services:

Table 1-1 Supported Services

Service	Description
C_ERIC-FNR_R11-0_ADD_SUB	Creates new SUBSCRIBER.
C_ERIC-FNR_R11-0_DEL_SUB	Removes existing SUBSCRIBER.
C_ERIC-FNR_R11-0_GET_SUB	Retrieves existing SUBSCRIBER.
C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS	Add subscriber number - transaction
C_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS	Remove subscriber number - transaction.
C_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS	Retrieve subscriber number - transaction.
C_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS	Modify subscriber number - transaction.
C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI	Add subscriber number - transaction IMSI.

Communication Parameters

The following is the list of parameters for the sample NE configuration XML used by Service Activation Configuration Tool (SACT).

Table 1-2 Communication Parameters

Parameter Label	Parameter Value	Description
HOST_IPADDR	10.1.50.45	The host name or IP Address of the remote NE.
PORT	23	Port number to connect on remote NE host.
OPEN_TIMEOUT	20	Connection timeout in seconds.
READ_TIMEOUT	30	Read timeout in seconds.
HOST_USERID	userid	Login User Name.
HOST_PASSWORD	passwd	Password for the User.
PROMPT	>	Provisioning prompt.
LOGIN_PROMPT	login:	Login prompt from the NE.
PASSWORD_PROMPT	Password:	Password prompt from the NE.
LOGOFF_CMD	exit;	Logout command.
RESPONSELOG	TRUE	Flag to turn off or on Response log.

Atomic Service Description Layer (ASDL) Commands

ASDL commands represent a set of atomic actions that ASAP can perform on a network element (NE). ASAP can combine ASDLs to create meaningful services (CSDLs) within a cartridge.

This chapter presents detailed information on the ASDL parameters that we provide with this cartridge. The following table lists and describes the type of parameter information that is included.

Table 2-1 ASDL Parameter Information

Item	Description
Parameter Name	Identifies the parameter that is configured for the stated service.
Description	Describes the parameter.
Range	Describes or lists the range of values that can be used to satisfy this parameter.
Default Value	Configures a default value for the parameter so that it is not mandatory for the upstream system to provide a value.
Type	<p>Indicates one of the following parameter types:</p> <ul style="list-style-type: none"> ■ S - Scalar, specifies the parameter label transmitted on the ASDL command. Scalar parameters are conventional name-value pair parameters. ■ C - Compound, specifies the base name of the compound parameter transmitted on the ASDL command. A compound parameter contains structures or arrays of information that are represented by a particular structure name or compound parameter name. Each compound parameter can contain a large number of elements. If you use compound parameters, you only require a single entry in the ASAP translation tables to call the compound parameter and all its associated parameter elements. ■ I - Indexed, identifies a parameter that contains a sequential numerical index value to tell the SARM that it should execute the same operation (for example, an ASDL command) for all occurrences of that index. Consequently, if there are several options on a particular CSDL command (OPT1, OPT2, OPT3, etc.), you can specify the OPT parameter as an indexed parameter. When you specify the OPT parameter as an indexed parameter, the SARM generates several occurrences of that same ASDL command and each command has a different value for the option being transmitted to the NEP. <p>For more information on parameter types, refer to the <i>ASAP Developer's Guide</i>.</p>

Table 2-1 (Cont.) ASDL Parameter Information

Item	Description
Class	Indicates one of the following parameter classifications: <ul style="list-style-type: none"> ■ R - Required scalar parameter ■ O - Optional scalar parameter ■ C - Required compound parameter ■ N - Optional compound parameter ■ M - Mandatory indexed parameter ■ I - Optional indexed parameter ■ S - Parameter count

For a detailed description of the Required and Optional parameter classifications, refer to the *ASAP System Administrator's Guide*.

ASDL Commands

This cartridge provides the following ASDL commands:

- A_ERIC-FNR_R11-0_ADD_SUB
- A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS
- A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI
- A_ERIC-FNR_R11-0_DEL_SUB
- A_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS
- A_ERIC-FNR_R11-0_GET_SUB
- A_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS
- A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS
- A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS-RB

A_ERIC-FNR_R11-0_ADD_SUB

Creates new SUBSCRIBER. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.createSubscriber`.

Table 2-2 A_ERIC-FNR_R11-0_ADD_SUB

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits	N/A	N/A	S	O
IMSI	International mobile subscriber identity of 6 to 15 digits	N/A	N/A	S	O

Table 2-2 (Cont.) A_ERIC-FNR_R11-0_ADD_SUB

Parameter Name	Description	Range	Default Value	Type	Class
PORT	Porting indicator. Only required when MSISDN or MSN is defined. Valid value is Y or N	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O

MML commands**MML Syntax :**

```
public void createSubscriberNumberTranslationImsi()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_ADD_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS

Add subscriber number - transaction. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.createSubscriberNumberTranslation`.

Table 2-3 A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits	N/A	N/A	S	O
IMSI	International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	O
NPREFIX	Network prefix in digits	N/A	N/A	S	O
MSISDNS	MSIDN Series	N/A	N/A	S	O
GIMSI	Generic IMSI	N/A	N/A	S	O

MML commands**MML Syntax :**

```
public void deleteSubscriberNumberTranslation()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_DEL_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI

Add subscriber number - transaction IMSI. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.createSubscriberNumberTranslationImsi`.

Table 2-4 A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits	N/A	N/A	S	R
IMSI	International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	R

MML commands

MML Syntax :

```
public void createSubscriberNumberTranslationImsi()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_ADD_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_DEL_SUB

Removes existing SUBSCRIBER. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.deleteSubscriber`.

Table 2-5 A_ERIC-FNR_R11-0_DEL_SUB

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O

MML commands

MML Syntax :

```
public void createSubscriberNumberTranslationImsi()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_DEL_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS

Remove subscriber number - transaction. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.deleteSubscriberNumberTranslation`.

Table 2-6 A_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O

MML commands**MML Syntax :**

```
public void deleteSubscriberNumberTranslation()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_DEL_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_GET_SUB

Retrieves existing SUBSCRIBER. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.getSubscriber`.

Table 2-7 A_ERIC-FNR_R11-0_GET_SUB

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
IMSI	International mobile subscriber identity	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits or string ALL	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits or string ALL	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O

MML commands

MML Syntax :

```
public void getSubscriberNumberTranslation()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_QUERY_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS

Retrieve subscriber number - transaction. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.getSubscriberNumberTranslation`.

Table 2-8 A_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNL	Mobile station ISDN list	N/A	N/A	S	O
MSISDNS	Mobile station ISDN series.	N/A	N/A	S	O
IMSI	International mobile subscriber identity of 6 to 15 digits	N/A	N/A	S	O
GIMSI	Generic IMSI	N/A	N/A	S	O
NPREFIX	Network Prefix	N/A	N/A	S	O

MML commands

MML Syntax :

```
public void getSubscriberNumberTranslation()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_QUERY_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

Modify subscriber number - transaction. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.modifySubscriberNumberTranslation`.

Table 2-9 A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	R
IMSI	New International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	O
NPREFIX	New Network prefix in digits	N/A	N/A	S	O

MML commands**MML Syntax :**

```
public void deleteSubscriberNumberTranslation()
```

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = ERFNR_MOD_ERR_CODE, and value = UserType from tbl_user_err.

A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS-RB

Rollback service for Modify subscriber number - transaction. It is implemented by the Java method `com.metasolv.cartridge.oss.eric_fnr_r11_0.prov.FNRProvisioning.modifySubscriberNumberTranslationRB`.

Table 2-10 A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS-RB

Parameter Name	Description	Range	Default Value	Type	Class
MCLI	The remote network element name.	N/A	N/A	S	R
OLD_MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	R
OLD_IMSI	Old International mobile subscriber identity of 6 to 15 digits (used for rollback only).	N/A	N/A	S	O
OLD_NPREFIX	Old Network prefix in digits (used for rollback only).	N/A	N/A	S	O

MML commands**MML Syntax :**

N/A

Output Parameters

If exit type is other than SUCCEED, CSDL parameter is returned indicating the error type.

CSDL label = UserType, and value = UserType from tbl_user_err.

User Exit Types

User exit types allow cartridge developers and systems administrators to map ASDL exit codes to one of the predefined base exit types. Base exit types determine the product behavior. Cartridges map return codes and status values from a network element to a user defined exit type.

Regular expressions (regex) are used to perform pattern searches on responses from network elements. The pattern is stored in "tbl_user_err" in the SARM database. The user exit type contains a regex pattern that is applied at runtime.

Regular expressions enable users to associate a series of responses to a specific base type. For example, a regular expression "6." can identify a pattern where any response with the character "6" followed by any number of characters will translate to base type of FAIL.

Regular expressions can also allow very specific searches within a response from a network element. Regular expressions are typically compiled before being executed. Compilation produces a binary version of the expression and ensures that the syntax of the regular expression is correct. This compilation occurs using SACT\SADT when user exit types are deployed into ASAP. If the syntax is deemed to be incorrect during compilation, SADT displays an error message and the deployment of the user exit type will fail.

For more information on pattern matching, refer to the *ASAP Developer's Guide* and the *ASAP System Administrator's Guide*.

Understanding User Exit Type XML Files

```

...
<userDefinedExitType>
<neDescriptor>
<softwareLoad>DYNAMIC_SL</softwareLoad>
<technology>DYNAMIC_VENDOR-DYNAMIC_TECH</technology>
</neDescriptor>
<searchPattern>SUCCESS.</searchPattern>...1
<userType>U_SUCCEED</userType>...2
<baseType>SUCCEED</baseType>...3
<description>The ASDL provisioning was successful</description>
</userDefinedExitType>
<userDefinedExitType>
<searchPattern>90.</searchPattern>
<userType>U_FAIL</userType>
<baseType>FAIL</baseType>
<description>The ASDL failed - fail the current order and stop
processing.</description>
</userDefinedExitType>
<userDefinedExitType>
<searchPattern>101-110[201-215]</searchPattern>...4
<userType>U_SOFT_FAIL</userType>
<baseType>SOFT_FAIL</baseType>
<description>The ASDL has encountered a soft failure. Processing will
continue.</description>
</userDefinedExitType>
<userDefinedExitType>
<searchPattern>801-850</searchPattern>...5
<userType>U_MINOR_ERROR</userType>
<baseType>SOFT_FAIL</baseType>
<description>The ASDL has encountered a soft failure. Processing will
continue.</description>

```

```

</userDefinedExitType>
<userDefinedExitType>
<b><searchPattern>251-275&&[^261-265]</searchPattern>...6</b>
<b><userType>U_DELAYED_FAIL</userType></b>
<baseType>DELAYED_FAIL</baseType>
<description>The ASDL has failed during provisioning.</description>
</userDefinedExitType>
<userDefinedExitType>
<neDescriptor>
<softwareLoad>BCS36</softwareLoad>
<technology>NORTEL_DMS</technology>
<neVendor>Nortel</neVendor>
</neDescriptor>
<searchPattern>*.</searchPattern>
<userType>U_MAINTAIN</userType>
<baseType>MAINTENANCE</baseType>
<description>The ASDL will Wait until the NE comes out of Maintenance
Mode</description>
</userDefinedExitType>

```

The numbered elements highlighted in bold in the previous code sample are explained as follows:

1. Pattern searches accommodate situations in which responses from the device contain small variants that represent the same meaning. The user type contains an associated search pattern that is applied at runtime. Using regular expressions, you can default a series of responses. For example a regular expression "90." can specify a pattern where any response with the character "90" followed by any character will translate to base type of FAIL. If the regular expression is defined as "90*", then any response with the character "90" followed by any number of characters will translate to base type of FAIL.
2. The user type that the search pattern maps to.
3. The base type that maps to the user type.
4. 101 to 110 and 201 to 215 will translate to a base type of SOFT_FAIL
5. 801-850 will translate to a base type of SOFT_FAIL. Note that the user type differs from the previous range.
6. 251 to 275 but not 261 to 265 will translate to a base type of DELAYED_FAILURE.

The previous code sample shows some typical search pattern examples. Some additional examples follow:

- `^.*\b(one | two | three)\b.*$` = matches a complete line of text that contains any of the words "one", "two" or "three"
- `^(?=.*?\bone\b)(?=.*?\btwo\b)(?=.*?\bthree\b).*$` matches a complete line of text that contains all of the words "one", "two" and "three"
- `"[^\r\n]*"` matches a single-line string that does not allow the quote character to appear inside the string.
- `\b\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}\b` matches any IP address.

For more information on search patterns, refer to

<http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html>.

For more information on user exit types, refer to the *ASAP Developer's Guide*.

User Defined ASDL Exit Types

The following table lists the user defined ASDL exit types.

Table 2–11 User Defined ASDL Exit Types

Search Pattern	User Type	Base Type	Description
((?s).)*EXECUTED((?s).)*	ERFNR_EXECUTED	SUCCEED	Provisioning success
((?s).)*END((?s).)*	ERFNR_END	SUCCEED	FNR end of output
<	ERFNR_LOOPBACK_OK	SUCCEED	Loopback succeed prompt
((?s).)*ANSWER PRINTOUT((?s).)*	ERFNR_ANSWER_PRNTOUT	SUCCEED	FNR answer printout
((?s).)*FUNCTION BUSY((?s).)*	ERFNR_FUNCTION_BUSY	SOFT_FAIL	FNR Function Busy
((?s).)*NOT EXECUTED((?s).)*	ERFNR_NOT_EXECUTED	FAIL	FNR not executed
((?s).)*PARTLY EXECUTED((?s).)*	ERFNR_PART_EXECUTED	FAIL	FNR partly executed
((?s).)*ORDERED((?s).)*	ERFNR_ORDERED	FAIL	FNR ordered
((?s).)*FORMAT ERROR((?s).)*	ERFNR_FORMAT_ERROR	FAIL	FNR Format Error
((?s).)*UNREASONABLE VALUE((?s).)*	ERFNR_UNREASON_VALUE	FAIL	FNR Unreasonable Error
((?s).)*ProvCartridgeException((? s).)*	ERFNR_PROV_EXCPTION	FAIL	The NE command was denied due to provisioning cartridge exception.
((?s).)*IOException((?s).)*	ERFNR_IO_EXCPTION	RETRY_ DIS	The NE command was denied due to IO exception.
((?s).)*TelnetException((?s).)*	ERFNR_TLNET_EXCPTION	RETRY_ DIS	The NE command was denied due to telnet exception.
((?s).)*Generic Exception((?s).)*	ERFNR_GEN_EXCPTION	FAIL	The NE command was denied due to general exception.
((?s).)*((?s).)*FAULT CODE 1((?s).)*	ERFNR_FCODE_1	FAIL	FNR Fault Code 1
((?s).)*((?s).)*FAULT CODE 2((?s).)*	ERFNR_FCODE_2	FAIL	FNR Fault Code 2
((?s).)*((?s).)*FAULT CODE 3((?s).)*	ERFNR_FCODE_3	FAIL	FNR Fault Code 3
((?s).)*FAULT CODE 4((?s).)*	ERFNR_FCODE_4	FAIL	FNR Fault Code 4
((?s).)*FAULT CODE 5((?s).)*	ERFNR_FCODE_5	FAIL	FNR Fault Code 5
((?s).)*FAULT CODE 6((?s).)*	ERFNR_FCODE_6	FAIL	FNR Fault Code 6
((?s).)*FAULT CODE 7((?s).)*	ERFNR_FCODE_7	FAIL	FNR Fault Code 7
((?s).)*FAULT CODE 8((?s).)*	ERFNR_FCODE_8	FAIL	FNR Fault Code 8
((?s).)*FAULT CODE 9((?s).)*	ERFNR_FCODE_9	FAIL	FNR Fault Code 9
((?s).)*FAULT CODE 10((?s).)*	ERFNR_FCODE_10	FAIL	FNR Fault Code 10
((?s).)*FAULT CODE 11((?s).)*	ERFNR_FCODE_11	FAIL	FNR Fault Code 11
((?s).)*FAULT CODE 12((?s).)*	ERFNR_FCODE_12	FAIL	FNR Fault Code 12
((?s).)*FAULT CODE 13((?s).)*	ERFNR_FCODE_13	FAIL	FNR Fault Code 13
((?s).)*FAULT CODE 14((?s).)*	ERFNR_FCODE_14	FAIL	FNR Fault Code 14

Table 2–11 (Cont.) User Defined ASDL Exit Types

Search Pattern	User Type	Base Type	Description
((?s).)*FAULT CODE 15((?s).)*	ERFNR_FCODE_15	FAIL	FNR Fault Code 15
((?s).)*FAULT CODE 16((?s).)*	ERFNR_FCODE_16	FAIL	FNR Fault Code 16
((?s).)*FAULT CODE 17((?s).)*	ERFNR_FCODE_17	FAIL	FNR Fault Code 17
((?s).)*FAULT CODE 18((?s).)*	ERFNR_FCODE_18	FAIL	FNR Fault Code 18
((?s).)*FAULT CODE 19((?s).)*	ERFNR_FCODE_19	FAIL	FNR Fault Code 19
((?s).)*FAULT CODE 20((?s).)*	ERFNR_FCODE_20	FAIL	FNR Fault Code 20
((?s).)*FAULT CODE 21((?s).)*	ERFNR_FCODE_21	FAIL	FNR Fault Code 21
((?s).)*FAULT CODE 22((?s).)*	ERFNR_FCODE_22	FAIL	FNR Fault Code 22
((?s).)*FAULT CODE 23((?s).)*	ERFNR_FCODE_23	FAIL	FNR Fault Code 23
((?s).)*FAULT CODE 24((?s).)*	ERFNR_FCODE_24	FAIL	FNR Fault Code 24
((?s).)*FAULT CODE 25((?s).)*	ERFNR_FCODE_25	FAIL	FNR Fault Code 25
((?s).)*FAULT CODE 26((?s).)*	ERFNR_FCODE_26	FAIL	FNR Fault Code 26
((?s).)*FAULT CODE 27((?s).)*	ERFNR_FCODE_27	FAIL	FNR Fault Code 27
((?s).)*FAULT CODE 28((?s).)*	ERFNR_FCODE_28	FAIL	FNR Fault Code 28
((?s).)*FAULT CODE 29((?s).)*	ERFNR_FCODE_20	FAIL	FNR Fault Code 29
((?s).)*FAULT CODE 30((?s).)*	ERFNR_FCODE_30	FAIL	FNR Fault Code 30
((?s).)*FAULT CODE 31((?s).)*	ERFNR_FCODE_31	FAIL	FNR Fault Code 31
((?s).)*FAULT CODE 32((?s).)*	ERFNR_FCODE_32	FAIL	FNR Fault Code 32
((?s).)*FAULT CODE 33((?s).)*	ERFNR_FCODE_33	FAIL	FNR Fault Code 33
((?s).)*FAULT CODE 34((?s).)*	ERFNR_FCODE_34	FAIL	FNR Fault Code 34
((?s).)*FAULT CODE 35((?s).)*	ERFNR_FCODE_35	FAIL	FNR Fault Code 35
((?s).)*FAULT CODE 36((?s).)*	ERFNR_FCODE_36	FAIL	FNR Fault Code 36
((?s).)*FAULT CODE 37((?s).)*	ERFNR_FCODE_37	FAIL	FNR Fault Code 37
((?s).)*FAULT CODE 38((?s).)*	ERFNR_FCODE_38	FAIL	FNR Fault Code 38
((?s).)*FAULT CODE 39((?s).)*	ERFNR_FCODE_39	FAIL	FNR Fault Code 39
((?s).)*FAULT CODE 40((?s).)*	ERFNR_FCODE_40	FAIL	FNR Fault Code 40
((?s).)*FAULT CODE 270((?s).)*	ERFNR_FCODE_270	FAIL	FNR Fault Code 270
((?s).)*FAULT CODE 317((?s).)*	ERFNR_FCODE_317	FAIL	FNR Fault Code 317
((?s).)*FAULT CODE 318((?s).)*	ERFNR_FCODE_318	FAIL	FNR Fault Code 318

UserExitType.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<serviceModel xmlns="http://www.metasolv.com/ServiceActivation/2003/ServiceModel">
  <userDefinedExitType>
    <neDescriptor>
      <softwareLoad>R11-0</softwareLoad>
      <technology>FNR</technology>
      <neVendor>ERIC</neVendor>
    </neDescriptor>
    <searchPattern>((?s).)*EXECUTED((?s).)*</searchPattern>
  </userDefinedExitType>
</serviceModel>

```

```
    <userType>ERFNR_EXECUTED</userType>
    <baseType>SUCCEED</baseType>
    <description>Provisioning success</description>
</userDefinedExitType>
.....
</serviceModel >
```

Service Definition

The ERICSSON_FNR_R11_0_SUB_1_0 Cartridge cartridge contains a set of CSDLs that map to one or more ASDL commands. You can also create additional CSDLs that map to existing and newly-created ASDLs. An upstream system can assemble any of these CSDL commands onto a work order for provisioning.

This chapter presents detailed information about the CSDL parameters in this cartridge. The following table lists and describes the type of parameter information that is included.

Table 3-1 ASDL Parameter Information

Item	Description
Parameter Name	Identifies the parameter that is configured for the stated service.
Description	Describes the parameter.
Range	Describes or lists the range of values that can be used to satisfy this parameter.
Default Value	Configures a default value for the parameter so that it is not mandatory for the upstream system to provide a value.
Type	<p>Indicates one of the following parameter types:</p> <ul style="list-style-type: none"> ■ S - Scalar, specifies the parameter label transmitted on the ASDL command. Scalar parameters are conventional name-value pair parameters. ■ C - Compound, specifies the base name of the compound parameter transmitted on the ASDL command. A compound parameter contains structures or arrays of information that are represented by a particular structure name or compound parameter name. Each compound parameter can contain a large number of elements. If you use compound parameters, you only require a single entry in the ASAP translation tables to call the compound parameter and all its associated parameter elements. ■ I - Indexed, identifies a parameter that contains a sequential numerical index value to tell the SARM that it should execute the same operation (for example, an ASDL command) for all occurrences of that index. Consequently, if there are several options on a particular CSDL command (OPT1, OPT2, OPT3, etc.), you can specify the OPT parameter as an indexed parameter. When you specify the OPT parameter as an indexed parameter, the SARM generates several occurrences of that same ASDL command and each command has a different value for the option being transmitted to the NEP. <p>For more information on parameter types, refer to the <i>ASAP Developer's Guide</i>.</p>

Table 3-1 (Cont.) ASDL Parameter Information

Item	Description
Class	<p>Indicates one of the following parameter classifications:</p> <ul style="list-style-type: none"> ■ R - Required scalar parameter ■ O - Optional scalar parameter ■ C - Required compound parameter ■ N - Optional compound parameter ■ M - Mandatory indexed parameter ■ I - Optional indexed parameter ■ S - Parameter count

For a detailed description of the Required and Optional parameter classifications, refer to the *ASAP System Administrator's Guide*.

CSDL Commands

This cartridge provides the following CSDL commands:

- C_ERIC-FNR_R11-0_ADD_SUB
- C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS
- C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI
- C_ERIC-FNR_R11-0_DEL_SUB
- C_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS
- C_ERIC-FNR_R11-0_GET_SUB
- C_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS
- C_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

C_ERIC-FNR_R11-0_ADD_SUB

Creates new SUBSCRIBER.

Table 3-2 C_ERIC-FNR_R11-0_ADD_SUB

Parameter Name	Description	Range	Default Value	Type	Class
IMSI	International mobile subscriber identity of 6 to 15 digits	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R
PORT	Porting indicator. Only required when MSISDN or MSN is defined. Valid value is Y or N	N/A	N/A	S	O

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-3 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_ADD_SUB	A_ERIC-FNR_R11-0_ADD_SUB

C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS

Add subscriber number - transaction.

Table 3-4 C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
GIMSI	Generic IMSI	N/A	N/A	S	O
IMSI	International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits	N/A	N/A	S	O
MSISDNS	MSIDN Series	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R
NPREFIX	Network prefix in digits	N/A	N/A	S	O

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-5 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS	A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS

C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI

Add subscriber number - transaction IMSI.

Table 3-6 C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI

Parameter Name	Description	Range	Default Value	Type	Class
IMSI	International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	R
MSISDN	Mobile station ISDN number of 5 to 15 digits	N/A	N/A	S	R
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-7 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI	A_ERIC-FNR_R11-0_ADD_SUB-NUM-TRANS-IMSI

C_ERIC-FNR_R11-0_DEL_SUB

Removes existing SUBSCRIBER.

Table 3-8 C_ERIC-FNR_R11-0_DEL_SUB

Parameter Name	Description	Range	Default Value	Type	Class
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-9 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_DEL_SUB	A_ERIC-FNR_R11-0_DEL_SUB

C_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS

Remove subscriber number - transaction.

Table 3-10 C_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-11 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS	A_ERIC-FNR_R11-0_DEL_SUB-NUM-TRANS

C_ERIC-FNR_R11-0_GET_SUB

Retrieves existing SUBSCRIBER.

Table 3-12 C_ERIC-FNR_R11-0_GET_SUB

Parameter Name	Description	Range	Default Value	Type	Class
IMSI	International mobile subscriber identity	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits or string ALL	N/A	N/A	S	O
MSISDNS	MSISDN Series	N/A	N/A	S	O
MSN	Mobile subscriber number of 5 to 15 digits or string ALL	N/A	N/A	S	O
MSNS	MSN Series	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-13 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_GET_SUB	A_ERIC-FNR_R11-0_GET_SUB

C_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS

Retrieve subscriber number - transaction.

Table 3-14 C_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
GIMSI	Generic IMSI	N/A	N/A	S	O
IMSI	International mobile subscriber identity of 6 to 15 digits	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	O
MSISDNL	Mobile station ISDN list	N/A	N/A	S	O
MSISDNS	Mobile station ISDN series.	N/A	N/A	S	O
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R
NPREFIX	Network Prefix	N/A	N/A	S	O

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-15 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS	A_ERIC-FNR_R11-0_GET_SUB-NUM-TRANS

C_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

Modify subscriber number - transaction.

Table 3-16 C_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

Parameter Name	Description	Range	Default Value	Type	Class
IMSI	New International mobile subscriber identity of 6 to 15 digits.	N/A	N/A	S	O
MSISDN	Mobile station ISDN number of 5 to 15 digits.	N/A	N/A	S	R
NE_ID_ERIC-FNR	The remote network element name.	N/A	N/A	S	R
NPREFIX	New Network prefix in digits	N/A	N/A	S	O

Mapping to ASDLs

The following table illustrates the CSDL to ASDL mapping for this service.

Table 3-17 CSDL to ASDL Mapping

CSDL	ASDL
C_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS	A_ERIC-FNR_R11-0_MOD_SUB-NUM-TRANS

Configuring ASAP to Support Additional NE Instances

You can configure Oracle Communications ASAP (ASAP) to support the ERIC-FNR_R11-0-HOST - NEP configuration using the Service Activation Configuration Tool (SACT). Refer to the *ASAP System Administrator's Guide* for more information.

Extracting Source Files

Before you can access an XML file to modify it, you must extract it from the .sar file. Use the following procedure to extract source files from the sar file.

To extract source files:

1. If necessary, create a repository directory, copy the .sar file to the new directory and un-jar the sar file.
2. After you un-jar the sar file, you can access the XML files.

Loading a New XML File

When you finish modifying an XML file, you must create a new sar file, then restart the cartridge using the new file.

Configuration XML File

Below is an example of the Activation.Configuration.XML file for the ERICSSON_FNR_R11_0_SUB_1_0 Cartridge cartridge.

```
<?xml version="1.0" encoding="UTF-8"?>
<activationConfig
xmlns="http://www.metasolv.com/ServiceActivation/2003/ActivationConfig"
xmlns:cfg="http://www.mslv.com/studio/activation/model/config"
xmlns:route="http://www.mslv.com/studio/activation/model/routing"
xmlns:sm="http://www.metasolv.com/ServiceActivation/2003/ServiceModel"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <connectionPool name="ERFNRPOL">
    <device name="ericsson_fnr_r11_0_telnet_dev1">
      <environment>DEVELOPMENT</environment>
      <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev2">
      <environment>DEVELOPMENT</environment>
      <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev3">
```

```
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev4">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev5">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev6">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev7">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev8">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev9">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev10">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev11">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev12">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev13">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev14">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev15">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
    <device name="ericsson_fnr_r11_0_telnet_dev16">
        <environment>DEVELOPMENT</environment>
        <lineType>TELNET_CONNECTION</lineType>
    </device>
</connectionPool>
<element name="ERIC-FNR_R11-0-HOST">
    <vendor>ERIC</vendor>
    <technology>FNR</technology>
    <softwareLoad>R11-0</softwareLoad>
```

```

<nepServerName>$NEP</nepServerName>
<primaryPool>ERFNRPOL</primaryPool>
<maximumConnections>16</maximumConnections>
<dropTimeout>2</dropTimeout>
<spawnThreshold>10</spawnThreshold>
<killThreshold>8</killThreshold>
<routingElement name="ERIC-FNR_R11-0-HOST" />
<communicationParameter>
  <label>HOST_IPADDR</label>
  <value>
    <value>10.1.50.45</value>
  </value>
  <description>The host name or IP Address of the remote
NE.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>PORT</label>
  <value>
    <value>23</value>
  </value>
  <description>Port number to connect on remote NE
host.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>OPEN_TIMEOUT</label>
  <value>
    <value>20</value>
  </value>
  <description>Connection timeout in seconds.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>READ_TIMEOUT</label>
  <value>
    <value>30</value>
  </value>
  <description>Read timeout in seconds.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>HOST_USERID</label>
  <value>
    <value>userid</value>
  </value>
  <description>Login User Name.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>HOST_PASSWORD</label>
  <value>
    <value>passwd</value>
  </value>
  <description>Password for the User.</description>
  <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
  <label>PROMPT</label>
  <value>

```

```
        <value>></value>
    </value>
    <description>Provisioning prompt.</description>
    <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
    <label>LOGIN_PROMPT</label>
    <value>
        <value>login:</value>
    </value>
    <description>Login prompt from the NE.</description>
    <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
    <label>PASSWORD_PROMPT</label>
    <value>
        <value>Password:</value>
    </value>
    <description>Password prompt from the NE.</description>
    <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
    <label>LOGOFF_CMD</label>
    <value>
        <value>exit;</value>
    </value>
    <description>Logout command.</description>
    <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
<communicationParameter>
    <label>RESPONSELOG</label>
    <value>
        <value>TRUE</value>
    </value>
    <description>Flag to turn off or on Response log.</description>
    <lineType>TELNET_CONNECTION</lineType>
</communicationParameter>
</element>
</activationConfig>
```