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| **InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version>** |
| **<Release x.y>** |
| **Functional Description** |
|  |

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Document Version History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Changed by | Date | Description | Checked by Accepted by |
| 1.0 |  |  | *Original version* |  |
| 1.1 |  |  | *Example*: ISS1234567 Changes to chapter 3: Modify added |  |

Designated Access

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| --- | --- |
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Replace all texts written inside brackets (< and >) with relevant information.

Name the document as follows:

InstantLink NEI for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> [for <Customer>] <SW release version> <Document Type> <Document Version>

1. Example starts

InstantLink NEI for Nokia HLR DX200 M13 Rel 1.1 Functional Description V1.0.doc

1. Example ends

**Note:** The text inside the square brackets [] is optional

**Note:** Do not use the abbreviation NEI for NE Interface in the document itself but only in the document name.

# About This Document

1. In this section, describe the purpose of the document and give a brief overview of the product as in the example below. If you do not want to say anything about MDS/SAS, remove that sentence.

This document describes the InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> which is compatible with all versions of InstantLink.

## Audience

1. In this section, describe the audience of the document by identifying the audience characteristics and audience objectives and needs.

This document is intended for the switch engineers, customer care staff and systems analysts who need to understand how this NE Interface works in the customer’s provisioning system.

## Terms and Concepts

The following sections list the abbreviations, terms and concepts used in the document.

1. List here all abbreviations found in the document and all terms that need clarification.

|  |  |
| --- | --- |
| Application Programming Interface; API | A language and message format used by an application program to communicate with a program that provides services for it  API can also be used to access other services, for example, a communications protocol, or control programs, such as a database management system (DBMS).  APIs are implemented by writing function calls in the program, which provide the linkage to the required subroutine for execution. Thus, an API implies that some program module is available in the computer to perform the operation or that it must be linked into the existing program to perform the tasks. |
| Application Protocol Interface; API | Rules governing transmitting and receiving of data between two systems. In telecommunications, an API consists of a formalised set of software calls and routines that can be referenced by an application program in order to access supporting network services. |
| InstantLink | A component used by Provisioning and Activation and Order Management for subscriber provisioning and service activation from OSS/BSS to the communications network.  InstantLink receives requests from OSS/BSS, translates the requests to network-element-specific commands and executes these commands. After execution of a request, InstantLink sends a response to OSS/BSS. |
| M/O/C | Mandatory/Optional/Conditional parameter |
| Macro Server | A module of InstantLink that executes Macro Sets with a synchronous connection. |
| MML | Man Machine Language |
| N/A | Not applicable |
| Network Element Interface; NEI | A communication channel to a network element. NEI is an interface module in a Nokia product. Through a NEI, Nokia software can, for example, operate a network element, collect usage information from it or send control commands to it. |
| Network Element; NE | A piece of communications equipment, such as a switch, a Home Location Register (HLR) or a Voice Mail System (VMS) or an element management system, that provides support or services to the subscriber. |
| OSS/BSS | Operations and Business Support System |

## Related Documentation

1. In the list below, add all customer documents that belong to the same set with the one you're currently writing.

The following documents give you additional information about this InstantLink NE Interface:

* InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> Release Notes
* InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> Installation Guide

For more information on InstantLink, see InstantLink documentation.

1. In the list below, add documents that give additional information about the subject matter, but which are not documents. Remove the list if such documents do not exist.

The following documents give you information about related issues:

* Nokia Oyj, MA – Authentication Data Handling, DN986094 Issue 10V en
* Nokia Oyj, MB – Basic Service Handling, DN986101 Issue 11-0 en

# System Overview

This chapter provides general information about the NE Interface and the environment in which the NE Interface is used.

## Introduction to <NE>

1. In this section, describe the NE as a part of the whole network system.
2. Example starts

Nokia Profile Server is a centralised ‘subscriber personalisation engine’ that allows the operator easily and cost effectively manage subscriber profiles for multimedia messaging environment and mobile internet services. Profile Server ensures the consistency of the data, since the profile information is stored in a single place and only active copies of the profiles reside on the network element.

Profile Server is part of larger mobile internet architecture. It provides access control for subscribers to services, a subscriber personalisation service, and mobile terminal capability information for other mobile internet services. It enables a mobile operator to provide personalised, location-based services, to easily manage access control of these services, and to control which origin servers are allowed to receive sensitive subscriber data such as an MSISDN number or location information.

1. Insert here a Visio, Word or PowerPoint image describing the network system. To modify the image below, use the Introduction\_to\_NEI.ppt image located at V:\Templates\Image library\Delivery\Provisioning\InstantLink NEI templates and copy-paste the image content (Ctrl + A) to your document as Bitmap image (Edit -> Paste Special -> Bitmap). The PowerPoint symbols are located at V:\Templates\Image library\Presentation Symbols.

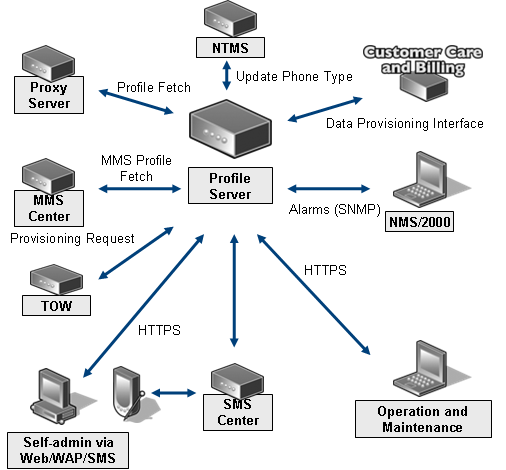


Figure 1. Profile Server interfaces to other network elements and systems

*Figure 1* illustrates the Profile Server interfaces to other network elements and systems, as well its own user interfaces. Network elements, such as MMS Centers and WAP Gateways (which connect through the Proxy Server), use the Profile Fetch Interface to communicate with Profile Server.

Profile Server includes both an XML-based data provisioning interface as well as file-based interfaces to Customer Care and Billing (CCB) systems. Using these interfaces, the operator can easily initialise the Profile Server database to host all network subscribers, or a selected subset of the subscribers. The Data Provisioning Interface, Subscriber Data Import Interface, and the Comma Separated Value Interface can also be used to update the subscriber data from the CCB while Profile Server is running.

1. Example ends

## Introduction to InstantLink NE Interface

1. Describe the NEI. Include the technical description of the interface and the used interface technologies, if necessary. Also, include the functional coverage that the NEI provides.
2. Example starts

The InstantLink NE Interface for NPS uses the XML based provisioning interface. The provisioning commands are embedded to XML messages, which are transferred to the NPS over a CORBA connection (see Figure 2). The NE interface uses Borland Visibroker 5.0 CORBA implementation for communication.

1. Insert here a Visio, Word or PowerPoint flowchart describing the network system. To modify the Word image below, click it and modify it using the Drawing toolbar.

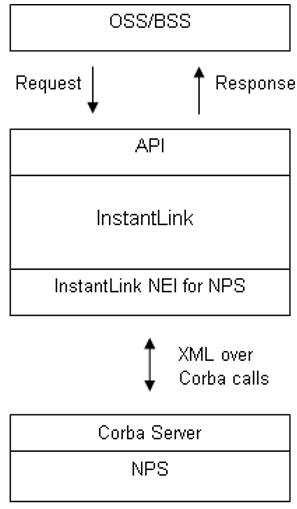


Figure 2. InstantLink NEI for NPS in the provisioning system.

The InstantLink NE interface for NPS supports the following operations:

* Generic Profile Fetch API: Fetching subscriber’s profiles.
* Generic Data Provisioning API: Create/modify/remove subscriber, identity profiles and MMS profiles.

1. Example ends

# Login and Logout Descriptions

1. Give here a detailed information about login and logout procedures. For example, you can provide information about which login and logout functions the interface has, or with http, login is performed each time when a command is sent to InstantLink.

# Provisioning Task Descriptions

This chapter describes the tasks supported by the <NE name>.

The tasks implemented for the <NE name> are as follows:

* Create
* Modify
* Delete
* Display

1. Each of the sections described in this chapter should contain:

* A description of the procedure
* Command syntax (comprising XML or MML commands) which outlines the command and parameters sent to the switch.
* A table which lists all request parameters required or supported by the procedure. The M/O/C column describes whether the parameter is Mandatory (M), Optional (O) or Conditional (C).
* A flowchart or a similar formal and widely understood representation of the functionality of procedure (use Visio 2003 or Word)  
    
  Where appropriate, use the table structure below. Insert new Table caption by selecting Insert - Reference - Caption and then choosing Table from the Label pop-up menu. This ensures automatic updating of Table numbers in case you should delete/add new tables in the document.

1. Example starts

Table 1. <table name>

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Description | Values | M/O/C |
| <parameter\_name> | Parameter description. | **Value type**: string  **Fixed value**: 1 (create)  **Default value**: 0  **Value example**: 0  **Value length**: 1-20 characters  **Possible values**:  0 (disabled)  1 (enabled) |  |

1. Example ends

## Create

1. Give here a short description of the create task type.
2. Example starts

Use the Create task type to create a new subscriber or a new basic service and provision and activate supplementary services for them.

*Figure 3* illustrates the process:

1. Insert here a Visio, Word or PowerPoint flowchart describing the network system. To modify the Word image below, click it and modify it using the Drawing toolbar.



Figure 3. Create procedure

1. Example ends
2. After the main section, describe all create tasks in their own subsections below.
3. Example starts

### <Example: Create Subscriber to HLR>

1. Give here a short description of this Create task.

Use this command to create a subscriber in a Home Location Register (HLR).

You can create an activated subscriber by giving both the International Mobile Subscriber Identity (IMSI) and the Mobile Subscriber International ISDN Number (MSISDN).

Use the other parameters to define the subscriber’s primary basic service, primary basic service code index, and some other basic specifications. You do not have to give any of these parameters, in which case the subscriber is created with default values. Create the subscriber’s other basic services with the MBC command from the Basic Service Handling command group.

**Command syntax**

1. In the syntax, do not use any brackets for mandatory parameters and use ‘[]’ for optional and’ |’ for alternative parameters.

ZMIC:IMSI=<IMSI1>[,MSISDN=<MSISDN1>]:[,CAT=<CATEGORY>]  
[,ROU=<ROUTINGCAT>][,ADDROU=<ADDROUTINGCAT>][,SAM=<SERVAREA>][,PBS=<BASIC1>][,NBR=<BASICINDEX>][,RP=<ROAMINGPI>]  
[,ZC=<ZONECODES>][,OCCBS=<ORGCCBS>][,TCCBS=<TERMCCBS>]  
[,FP=<FP>][,CLIE=<CLIE>][,NBRSB=<NBRSB>][,NBRUSER=<NBRUSER>];

Table 2. Task parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Task Parameter | Description | Values | M/O/C |
| REQ\_TYPE | Defines the request type. | **Fixed value**: 1 (create) | M |
| REQ\_OBJ | Defines the type of object that is created. | **Fixed value:** 1 (subscriber) | M |
| IMSI1 | The international mobile subscriber identity. | **Value length:** max 15 decimal digits | M |
| MSISDN1 | The mobile subscriber international ISDN number. | **Value length**: max 15 decimal digits | O |
| NBRUSER | Specifies the maximum number of simultaneous CS bearers allowed, defined by the user in the Multicall subscription. | **Value range:** 1-7 | O |

### <Example: Create Subscriber by Profile>

1. Give here a short description of this Create task.

Use this command to create a new subscriber in the HLR using an existing subscriber profile.

Use this command to create a new subscriber with basic and supplementary services. The new subscriber receives the values and services in the subscriber profile.

**Command syntax**

1. In the syntax, do not use any brackets for mandatory parameters and use ‘[]’ for optional and’ |’ for alternative parameters.

ZMIR:IMSI=<IMSI1>,MSISDN=<MSISDN1>,INDEX=<SUBS\_PROFILE>;

Table 3. Task parameters

| Task Parameter | Description | Values | M/O/C |
| --- | --- | --- | --- |
| REQ\_TYPE | Defines the request type. | **Fixed value**: 1 (create) | M |
| REQ\_OBJ | Defines the type of object that is created. | **Fixed value:** 1 (subscriber) | M |
| IMSI1 | The international mobile subscriber identity. | **Value length:** max 15 decimal digits | M |
| MSISDN1 | The mobile subscriber international ISDN number. | **Value length**: max 15 decimal digits | O |
| SUBS\_PROFILE | Specifies the subscriber profile to be used for creating a subscriber in the HLR. | **Value range:** 0-99 | M |
| ACTSTAT | Specifies the activation status of subscriber. | **Possible values:**  1 (activate)  2 (deactivate)  **Default value:** 1 | O |

1. Example ends

## Modify

1. Give here a short description of the modify task type and provide the command syntax.
2. Example starts

Use the **Modify** task type to modify subscriber, basic service and/or supplementary service information in the HLR.

<*Figure and number*> illustrates the process:

1. Draw here a flowchart describing the modify process with Visio 2003 or Word.

**Command syntax**

1. <In the syntax, do not use any brackets for mandatory parameters and use ‘[]’ for optional and’ |’ for alternative parameters.>

ZMIM:IMSI=<IMSI1>:[IMSI=<IMSI2>][,MSISDN=<MSISDN2>]  
[,AIMSI=AIMSI>][,CAT=<CATEGORY>][,ROU=<ROUTINGCAT>]  
[,ADDROU=<ADDROUTINGCAT>][,SAM=<SERVAREA>][,ACT=<ACTSTAT>]  
[,VLR=<VLR>][,MSC=<MSC>][,RP=<ROAMINGPI>][,ZC=<ZONECODES>]  
[,OCCBS=<ORGCCBS>][,TCCBS=<TERMCCBS>][,FP=<FP>][,CLIE=<CLIE>]  
[,NBRSB=<NBRSB>][,NBRUSER=<NBRUSER>]:OUT=N;

Table 4. Task parameters

| Task Parameter | Description | Values | M/O/C |
| --- | --- | --- | --- |
| REQ\_TYPE | Defines the request type. | **Fixed value**: 2 (modify) | M |
| REQ\_OBJ | Defines the type of object that is modified. | **Fixed value:** 1 (subscriber) | M |
| NBRUSER | Specifies the maximum number of simultaneous CS bearers allowed, defined by the user in the Multicall subscription. | **Value range:** 1-7 | O |
| IMSI1 | The international mobile subscriber identity. | **Value length**: max 15 decimal digits | M |
| IMSI2 | Use this parameter to change subscriber’s IMSI. | **Value length**: max 15 decimal digits | O |

1. Example ends

## Delete

1. Give here a short description of the delete procedure.
2. Example starts

Use the **Delete** task type to delete a subscriber (that is, IMSI), an attached IMSI or subscriber basic service information from the HLR.

<*Figure and number*> describes the process:

1. Draw here a flowchart describing the delete process with Visio 2003 or Word.

**Command** syntax

1. In the syntax, do not use any brackets for mandatory parameters and use ‘[]’ for optional and’ |’ for alternative parameters.

Example:

ZMID:AIMSI=<IMSI1>;

Table 5. Task parameters

| Task Parameter | Description | Values | M/O/C |
| --- | --- | --- | --- |
| REQ\_TYPE | Defines the request type. | **Fixed value**: 3 (delete) | M |
| REQ\_OBJ | Defines the type of object that is deleted. | **Fixed value:** 4 (attached  IMSI) | M |
| IMSI1 | The international mobile subscriber identity. | **Value length**: max 15 decimal digits | M |

1. Example ends

## Display

1. Give here a short description of the display procedure, especially describe the response parameters sent to InstantLink by the NE Interface.
2. Example starts

Use the **Display** task type to query the subscriber, basic service and supplementary service information from the HLR.

<*Figure and number*> describes the process:

1. Draw here a flowchart describing the display process with Visio 2003 or Word. Don’t forget to include a caption!

**Command syntax**

ZMIO:(IMSI=<IMSI1> | MSISDN=<MSISDN1>);

Table 6. Task parameters

| Task Parameter | Description | Values | M/O/C |
| --- | --- | --- | --- |
| REQ\_TYPE | Defines the request type. | **Fixed value**: 4 (display) | M |
| REQ\_OBJ | Defines the type of object that is displayed. | **Fixed value:** 1(subscriper) | M |
| IMSI1 | The international mobile subscriber identity. | **Value length**: max 15 decimal digits | C |
| MSISDN1 | The mobile subscriber international ISDN number. | **Value length**: max 15 decimal digits | C |

Table 7. Response parameters

| Parameter | Description |
| --- | --- |
| CATEGORY | Contains the mobile station category.  If SAS3 is used, the parameter is returned as decimal numbers.  If SAS4 is used, the parameter is returned as alphabetical letters. |
| ROUNTINGCAT | Contains the subscriber’s routing category. |
| ADDROUTINGCAT | Contains the subscriber’s additional routing category or information that the routing category is not used. |
| SERVAREA | Contains the service area of the primary MSISDN.  If SAS3 is used, the parameter is returned as decimal numbers.  If SAS4 is used, parameter is returned as alphabetical letters. |

1. Example ends

Appendix A: Additional Information

1. Use this chapter for additional information presented in tables, etc.