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

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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>] <Comptel SW release version> <Document Type> <Document Version>

1. Example starts

InstantLink NEI for Nokia HLR DX200 M13 Rel 1.1 Installation Guide 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.

This document gives instructions on how to install the InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> and the configuration procedures that must be performed before using it. This Network Element (NE) Interface 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 engineers responsible for installing and maintaining this InstantLink NE Interface.

## 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.

|  |  |
| --- | --- |
| GRC | Global Resource Configuration |
| installation directory, <installdir> | A directory where the product is installed and executed. |
| Installer | A tool for installing, uninstalling and managing FlowOne software manually. With Installer the user can install or uninstall release packages, patches and upgrades, view the status of installed components and manage the release area. |
| 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. |
| manage\_releases | An Installer command for performing various operations in the release area.  The manage\_releases script is used, for example, to create the release area, install Installer and the script itself in the release area, and to install the product to the installation directory. |
| Network Element Interface; NEI | A communication channel to a network element. 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. |
| package directory, <packagedir> | A directory that is used to temporarily store the product release package, Installer package and the manage\_releases script used during product installation. |
| release area, <release\_area> | A directory, preferably a dedicated file system with ample capacity at customer premises where all FlowOne product installation packages are stored and managed.  This area contains the permanent Installer installation. During product updates, the old version of the product remains in the release area and can be restored to the installation directory if needed. |
| script directory,  **<scriptdir>** | A directory that contains the auto-configuration script which can be used by the user to automatically set up the network model configurations for the NEI in InstantLink |

## Related Documentation

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

For more information on InstantLink NE Interface, see the following documents:

* 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> Functional Description

For more information on InstantLink, see InstantLink documentation.

For more information on Installer, see *Installer User’s Guide*. The document is available in the <release\_area>/docs/<Installer\_release\_number> directory after you have created the release area or upgraded to a Installer version 5.0.11 or above.

1. The user’s guide will be included in <release\_area> in releases above 5.0.10. For releases 5.0.10 or earlier, delete the above note.
2. If there are other non-confidential documents that give additional information on the subject matter but which are not documents, list them in the functional description document.
3. For more information on <a third party product>, see <the respective company’s web pages> (<http://such.such.com>).
4. If the hyperlink is a real www page that the user can enter, mark it with blue underlined font by pressing Enter. The style of the hyperlink is the same as in Body text, NOT ‘Hyperlink’, ‘FollowedHyperlink’, or any other such font.

# Prerequisites for Installation

1. Modify the required software and the version numbers given here as necessary.

This chapter describes the prerequisites that must be met before this NE Interface can be installed.

1. Example starts

Before installing the NEI, ensure that the following software has already been installed and properly configured:

* InstantLink <x.y>
* InstantLink <Expect/Java> Macro Server release <x.y.z>
* Installer release <x.y.z>

If you are unsure of the Installer version installed in your system, see Section 3.2 *Checking and Upgrading Installer Version* for instructions on how to check the version installed on your system.

1. Example ends

## Supported UNIX Shell

1. This section gives the location of the command execution program. For example, the Korn shell (ksh). It interprets the commands that a user enters to the system.
2. Example starts

The supported shell in this NE Interface is ksh. The location of the shell is /usr/bin/ksh.

1. Example ends

## Supported Java Version

1. Name the supported Java version here.

This NE Interface supports Java 2 Runtime Environment (JRE) 1.8.0.

## Prerequisites for Installation Directories

1. In this section, describe the directories used during the installation.

Table *1* describes the directories that are used when installing this NE Interface and the prerequisites related to them.

Table 1. Installation directories

|  |  |
| --- | --- |
| Directory | Description |
| <packagedir> | A UNIX directory where the release package is located.  <packagedir> can also store the Installer package and the manage\_releases script which is to be used for creating the release area or for upgrading Installer.  <packagedir> and its contents can be removed after the installation, if needed. |
| <release\_area> | The release area directory is where you unpack the release packages during the installation, and where the installation control information is stored. The directory is also used for permanently storing the release subdirectories and managing the installed products (for example, upgrading and downgrading).  Before installing this NE Interface, the release area must be created and Installer and the manage\_releases script must be available in the release area. For instructions, see Chapter 3 *Installer and Release Area*.  It is recommended that the release area be located in the /nokia directory.   1. <release\_area> is a permanent directory and its contents must not be modified or removed except with the manage\_releases script. For more information on release area management, see Installer User’s Guide. |
| <installdir> | The directory to which this NE Interface is installed, for example, /nokia/ilink.  It is recommended that <installdir> be located in the /nokia directory. |

## Prerequisites for Running JDK6 or Below NEI in IL8.2 or Above

InstantLink 8.2 and above uses Installer 5.4 and comes with Java Macro Server 7 which uses JDK 7. InstantLink 9.0 and above uses Installer 5.5 and comes with Java Macro Server 8 which uses JDK 8. InstantLink 19 and above uses Installer 5.6 and comes with Java Macro Server 8 which uses JDK 8. In order to run JDK 6 or below NE Interface in IL8.2 and above, two legacy components need to be installed.

You are required to install legacy Common Tools with the correct Java version that corresponds to Java Macro Server version that the NE Interface will be used.

# Installer

## Checking and Upgrading Installer Version

1. In this section, name the required Installer version for the installation of the product, and give instructions on how to upgrade Installer. Modify the version numbers in the examples as necessary.
2. Example starts:

Before starting <Product Name> installation, check which version of Installer is currently installed in the release area and upgrade to version <x.y.z> if needed.

The Installer upgrade requires that the INSTALLER-<x.y.z>.cpio.Z package has been stored to <packagedir>.

To check the current Installer version

1. Go to the release area directory by giving the following command:

cd <release\_area>

1. Example starts

cd /nokia/releases

1. Example ends
2. Check the version number of Installer with the following command:  
   ./manage\_releases ––version

The command displays the version number, build of the currently installed Installer and the version number of the currently installed manage\_releases script.

**If the installed version of Installer is earlier than <x.y.z>, an upgrade is required and you will need to go through the following steps:**

1. Store the INSTALLER-<version>.cpio.Z package and the GET\_MANAGE\_RELEASES-1.1.0.ksh script into a directory. This directory is later referred to as the package directory. Ensure that there are no other Installer packages in the same directory
2. Extract the manage\_releases script from the Installer package with the GET\_MANAGE\_RELEASES-1.1.0.ksh script.

The script does not accept any arguments. Execute the script from the directory where the Installer cpio package is located. The manage\_releases script is extracted to the directory where the script is executed.

Example:

$ ./GET\_MANAGE\_RELEASES-1.1.0.ksh

Finding the latest Installer package from the current directory...

Found: <package\_dir>/INSTALLER-5.6.0.cpio.Z

Uncompressing INSTALLER package in directory <package\_dir>//get\_man\_rel\_tmp

Extracting manage\_releases script from INSTALLER package...

Extracted manage\_releases

Cleaning up resources...

Script successfully completed!

Depending on the existing Installer version, the messages displayed during the installation may differ from the examples above.

1. Verify that the upgrade was successful with the following command:

./manage\_releases ––version

If the upgrade was successful, the message displays the Installer version upgraded, for example:

Installer 5.6.0

RELEASE BUILD 5.6.0

The correct version of Installer is now installed in the release area and can be used for installing <Product Name>.

# Installation

Follow the work order presented in this chapter to install this NE Interface.

## Release Media

1. In this section, give the name for the release package and table of contents.
2. Example starts

InstantLink NE Interface for <NE Vendor> <NE Type> <NE Product Name> <NE Product Version> is available in one Installer compatible, compressed cpio archive:

JAVA\_HLR\_DX200\_M13-<x.y.z>-<platform>.cpio.Z

1. Example ends

## Installing NE Interface

In the following instructions:

* <packagedir> is where the NE Interface release package must be located.
* <release\_area> is the directory where you unpack the release package from <packagedir> and where the installation information is stored.
* <installdir> is the installation directory to which you install the NE Interface.

For a more detailed description of the installation directories, see Section 2.3 *Prerequisites for Installation Directories.*

### Installing a Release with Installer Version 5.6 and Above

### To install a release with Installer Version 5.6

1. Ensure the Installer version 5.6 package and above and manage\_releases script is available in the same <packagedir> before the installation.
2. Create a solution configuration file for installer parameters configuration, if it does not exist.
3. Example Starts

nei.solution

1. Example ends
2. Add new section with package parameter into the configuration file:
3. Example starts

[NEI\_HLR\_DX200\_SAMPLE]

package=NEI\_HLR\_DX200\_SAMPLE-1.0.0.cpio.Z

1. Example ends
2. Section name must be the same as the product name
3. Source the .profile file with the following command:

. <installdir>/sas/.profile

1. Example starts

. /nokia/ilink/sas/.profile

1. Example ends
2. Change your working directory using the following command:

cd <release\_area>

1. Example starts

cd /nokia/releases

1. Example ends
2. Install the release package to the installation directory with the following command:

./manage\_releases –-hot –r <release\_area> -s <solution\_spec> -i <installdir> -p <packagedir>

1. Example starts

./manage\_releases --hot –r /nokia/releases –s nei.solution -i /nokia/ilink –p /nokia/packages

1. Example ends

As a result:

The release package will be unpacked to the release area.

The release will be installed to the <installdir> directory, where the NE Interface software is available.

# Configuration

After the installation, the product must be configured into production use. Follow the instructions given in the following sections.

1. If you are upgrading the system, you do not need to configure the system unless there are new configurable GRC parameters.

## Defining GRC Parameters

1. In this section, list and describe the GRC parameters which need to be verified or changed before the system can be deployed. These parameters must be modified manually because they are not included in the standard installation package. Use the table below to describe the parameters.

Follow the following naming standard for the GRC file sections:   
macro\_<NE Type>\_<NE Vendor>\_<NE Product Name>.

GRC parameters are variables that configure the behaviour of the NE Interface. Parameter values must be set during the installation. The parameters are stored in a GRC file. The absolute path and file name of the GRC file are defined by the RCFILE environment variable. Typically the file is the .mds.rc file in the InstantLink user’s home directory.

The definition and administration of GRC parameters in the GRC file is done with a UNIX text editor.

The installation adds the <GRC section name> section to the GRC file.

To see the contents of the GRC file

1. Enter the following command:

more $RCFILE

Before you can start using the system, you must verify the following GRC parameters in the <GRC section name> section:

1. Example starts
2. *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*.

Table 2. GRC parameters in the <GRC section name> section

|  |  |  |  |
| --- | --- | --- | --- |
| GRC Parameter | Values | Description | M/O/C |
| backup\_  directory | Default value: <installdir>/sas/logdir/ne\_logs/nsm\_backup | Directory where the processed provisioning and response files are stored for backup. | M |
| backup\_tasks | Value format:  Possible values:  0 (no)  1 (yes)  Default value: 0 | Specifies whether closed provisioning files are backed up. | M |
| max\_file\_age | Possible values:  1 – 3600 time in minutes  1 – 216000 time in seconds  Default value: 15 | Maximum time after an open provisioning file can be closed and moved to the send directory. The value can be either in minutes or in seconds specified by the max\_file\_age\_format GRC parameter. | M |

1. Example ends

## Network Model Configuration (Manual)

The network model is configured in the InstantLink user interface and it consists of the following tasks:

* configuring network element type
* configuring network element interface type
* configuring network element
* configuring network connection

### Network Element Type

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

You need to add a new network element type with the following settings if not already included:

|  |  |
| --- | --- |
| NE type | POC |
| Primary subscriber ID | MSISDN1 |
| Secondary subscriber ID | IMSI1 |
| Description | Push to Talk over Cellular |

1. Example ends

### Network Element Interface Type

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

You need to specify the interface type and the command if not already specified:

|  |  |
| --- | --- |
| Interface type | java |
| Command | installdir>/ilink/bin/  macro\_server/java/POC/NOKIA\_HTTP  /C1.0/java\_poc\_nokia\_http.ksh |

1. Replace <installdir> with the appropriate directory.
2. Example ends

### Network Element

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

When configuring this InstantLink NE Interface to the network model, use the following settings:

|  |  |
| --- | --- |
| NE type | POC |
| Product name | POCHTTP |
| Product version | C10 |
| Max connection wait time | 60 (seconds) |

1. Example ends

### Network Connection

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

The connection to Nokia PoC C1.0 NE is established using HTTP. For configuring the connection to NE, use the following settings:

|  |  |
| --- | --- |
| NE interface type | java\_poc\_nokia\_http |
| Connection type | sh |
| Login retry sleep | 60 |
| Logout linger | 60 |
| Address | <host>.<company.com>:<port> |
| Command arguments | <if\_version> <api\_type> |
| User ID | <Management User username> |
| Password | <Management User password> |

1. Example ends

### Additional Configuration

## Network Model Configuration (Auto)

### Setup Configuration

In the following instructions:

* <installdir> is the installation directory to which you install the NE Interface.
* <scriptdir> is the directory where the auto-configuration script is located.

For a more detailed description of the installation directories, see Section 2.3 *Prerequisites for Installation Directories.*

The network model auto-configuration script, nemo\_setup.ksh can be found under the script folder in the product folder.

**Example:**

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

<installdir>/sas/bin/macro\_server/java/<NE Type>/<NE Product Name>/<NE Product Version>/script

1. Example ends

To execute the auto-configuration script

1. Check that you have the same UNIX group ID and user ID as in InstantLink
2. Source the .profile file withe following command:

. <installdir>/sas/.profile

**Example:**

. /nokia/ilink/sas/.profile

1. Change to the script directory using the following command:

cd <scriptdir>

**Example:**

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

cd /nokia/ilink/sas/bin/macro\_server/java/<NE Type>/<NE Product Name>/<NE Product Version>/script

1. Example ends
2. Open the nemo\_parameters.properties file to verify or change the values of the parameters that will be used to setup the network model configurations. For more information, see Section 5.3.3 Configurable Parameters for the list of configurable parameters and their default values. Ensure that the available parameters are set according to Section 5.2 Network Model Configuration (Manual).
3. Execute the network model auto-configuration script using the following command:

./nemo\_setup.ksh

1. The script will display information on the settings which is about to be configured into InstantLink. User can verify the settings and enter yes at the prompt to proceed with the setup.

As a result:

The network configuration for the NEI has been automatically set up into InstantLink

The log file, nemo\_setup.log is updated with the execution of the script

nemo\_info.txt is updated with the information of the configured network model

### Removing Configuration

The network configurations, which is setup by the network model auto-configuration script, can be undone by executing the removal script, drop\_nemo.ksh.

To execute the configuration removal script

1. Check that you have the same UNIX group ID and user ID as in InstantLink.
2. Source the .profile file with the following command:

. <installdir>/sas/.profile

**Example:**

. /nokia/ilink/sas/.profile

1. Change to the script directory using the following command:

cd <scriptdir>

**Example:**

1. Modify the values in the example below and provide additional information if necessary
2. Example starts

cd /nokia/ilink/sas/bin/macro\_server/java/<NE Type>/<NE Product Name>/<NE Product Version>/script

1. Example ends

1. Execute the network model configuration removal script using the following command and follow the script instructions:

./drop\_nemo.ksh

1. Select from the list, a previously auto-configured network model configuration to be removed and enter yes at the prompt to begin the removal. Enter 0 to exit the script.

As a result:

The previously setup network model configuration for the NEI has been removed

The log file, nemo\_setup.log is updated with the execution of the script

nemo\_info.txt is updated with the information of the configured network model

1. In both setup and removal using the script, the changes will only take effect in InstantLink upon restart.
2. The scripts will prompt the user to perform the refresh or the user can manually trigger it. For instructions on how to perform a refresh manually, see *InstantLink Operation and Maintenance Guide*.
3. When a network model is setup using the script, an entry is recorded in the nemo\_info.txt file, which will be used and removed by the drop\_nemo.ksh script. If the network model is removed manually from InstantLink GUI, the entry in the nemo\_info.txt will need to be manually removed in order to prevent running the drop\_nemo.ksh from listing out the network model which was already removed using the GUI.

### Configurable Parameters

Here lists the configurable parameters found in nemo\_parameters.properties and their default values.

Table 3. NE type parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Values | InstantLink Corresponding Parameter | M/O |
| ne\_primary\_target\_id | **Value format:** String  **Default value:** MSISDN1 | Primary subscriber ID. | M |
| ne\_secondary\_target\_id | **Value format**: String  **Default value:** “” | Secondary subscriber ID. | O |
| ne\_type\_desc | **Value format:** String  **Default value:** “ ”   1. If no value is given, at least a space needs to be provided for this parameter | Description. | O |

Table 4. NE parameters

| Parameter | Values | InstantLink Corresponding Parameter | M/O |
| --- | --- | --- | --- |
| ne\_desc | **Value format:** String  **Default value:** “ ”   1. If no value is given, at least a space needs to be provided for this parameter | Description. | O |
| ne\_category | **Value format:** Numerical  **Possible values:**   * 2 – Intermediate NE * 3 – Managed NE * 4 – Virtual NE   Default value: 3 | Category. | M |
| max\_connection\_wait\_time | Value format: Numerical  Default value: 60 | Max connection wait time (s). | M |

Table 5. Network Model Connection’s Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Values | InstantLink’s Corresponding Parameter | M/O |
| priority | **Value format:** Numerical  **Default value:** 2 | Priority. | M |
| max\_channels | **Value format:** Numerical  **Default value:** 5 | Maximum channels. | M |
| login\_retry\_sleep | **Value format:** Numerical  **Default value:** 60 | Login retry sleep. | M |
| login\_retry\_max | **Value format:** Numerical  **Default value:** 1 | Maximum login retries. | M |
| logout\_linger | **Value format:** Numerical  **Default value:** 60 | Logour linger. | M |
| connection\_type | **Value format:** String  **Possible values:**   * sh * telnet * x25   Default value: sh | Connection type. | M |
| cmd\_address | **Value format:** String  **Default value:** “” | Address. | O |
| cmd\_arguments | **Value format:** String  **Default value:** “” | Command arguments. | O |
| user\_id | **Value format:** String  **Default value:** “” | User ID. | O |
| user\_passwd | **Value format:** String  **Default value:** “” | Password. | O |

For more information, see *InstantLink Online Help* for the detailed description of these parameters.

## Removing Package Directory

After you have verified that the installation was successful, you may want to remove <packagedir> and its contents to save disk space. Removing the package directory is not obligatory.

To remove <packagedir>

1. Enter the following command:

rm –rf <packagedir>

## Configuring Java Heap Size

Java heap size can be configured in the NEI startup script. Typically, the startup script is the java\_<neType>\_<neProdName>\_<neProdVersion>.ksh file under <installdir>/sas/bin/macro\_server/java/. User can update the default value if needed.

The value for the minimum and maximum heap size can be configured by the following parameters in the script file.

Table 6. Heap size parameters in java\_<neType>\_<neProdName>\_<neProdVersion>.ksh

|  |  |  |
| --- | --- | --- |
| Parameter | Description | Default Value |
| MIN\_HEAP\_SIZE | Minimum heap size. | 16m |
| MAX\_HEAP\_SIZE | Maximum heap size. | 64m |

*Table 7* shows the accepted size units:

Table 7. Accepted size units

|  |  |
| --- | --- |
| Unit | Description |
| none | byte |
| k | kilobyte |
| m | megabyte |
| g | gigabyte |

# Uninstallation

Uninstalling this NE Interface release removes the release-related files. It also updates the install status information.

1. Back up all important files and directories prior to uninstallation to ensure that no valuable data is lost during the uninstallation procedure.
2. This step only applicable to INSTALLER-5.0.x and lower

To uninstall a NE Interface release

1. Check that the group ID and the user ID are the same as when installing the release package.
2. Change to the release area directory by giving the following command:

cd <release\_area>

1. Example starts

cd /nokia/releases/

1. Example ends
2. If required, list the installed programs with the following command:

./manage\_releases –status

Depending on the installed programs, the following message is displayed:

Installed releases  
--------------------  
In install area /nokia/ilink:  
Product   
JAVA\_HLR\_DX200\_M13\_REL\_1.0.0

1. Uninstall the release package files by giving the following command:

./manage\_releases –uninstall <release\_subdirectory\_name>\_<x.y.z>

1. Example starts

./manage\_releases –uninstall l JAVA\_HLR\_DX200\_M13\_REL  
\_1.0.0

1. Example ends

The release package has now been uninstalled from <installdir>.