NOKIA

Nokia Lawful Interception Gateway

Upgrade Instructions

From Release 3 to Release 4

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Contents

1 Changes in upgrade instructions

1.1 Changes to previous upgrade instructions

- IPSO can now be upgraded directly from Voyager.
- The LIG configuration must be manually deleted before installing LIG Release 4.
- LIG Release 4 license key installation instructions have been added.

2 Purpose of this document

This document describes the process and provides instructions for upgrading Nokia Lawful Interception Gateway (LIG) Release 3 to Release 4. These instructions are for both the Lawful Interception Controller (LIC) and Lawful Interception Browser (LIB).

3 General principles for upgrading

This chapter explains the principles of performing upgrades and includes the following:

- General phases
- Downtime
- Order of upgrades
- Disconnecting LIG
- Upgrading hardware
- Possible rollback

3.1 Phases for upgrading the LIG

Upgrading the LIG (the LIC or LIB) consists of the following phases:

- Taking a backup of Release 3 configurations
- Documenting IPSO configurations
- Disconnecting LIG
- Upgrading IPSO
- Deleting old LIG Release 3 configuration files
- Installing LIG Release 4 software
- Converting LIG configuration files
- Rebooting first LIB, then LIC
- Adding license key to LIC
- Creating statistics collection configuration, if needed.
- Checking that the configuration is transferred correctly

The boot manager is upgraded automatically by the IPSO installation.

The conversion tool is used to convert LIG Release 3 configuration files to LIG Release 4 format. The conversion tool is started from Voyager after the LIG 4 software has been installed. The conversion tool uses Release 3 backup files.

3.2 Downtime

Upgrading the LIG takes approximately 1 hour. If both elements are upgraded at the same time, the minimum downtime of the LIG is about 15 minutes.

3.3 Order of upgrades

Both network elements have to be upgraded to the same level before taking them into use. Nokia LIG Release 3 and Release 4 software have not been designed to interoperate.

3.4 Disconnecting LIG

Before installing the new IPSO, set packet processing to the disabled state in LIB Release 3 to avoid receiving any new interception data. After that, all interception data will be sent to the LEA user. Also the LIC and LIB applications must be disabled.

3.5 Hardware and software upgrades

LIG Release 3 supports the following hardware platforms: IP650 and IP740. LIG Release 4 supports the IP740 and IP1260 platforms.

The supported hardware upgrade paths are as follows:

LIG Rel 3 IP650 -> LIG Rel 4 IP740
LIG Rel 3 IP650 -> LIG Rel 4 IP1260
LIG Rel 3 IP740 -> LIG Rel 4 IP1260

The new hardware is installed in a separate network first. Next, the IPSO is installed and manually configured. LIC/LIB release 4 packages are then installed. The configuration is transferred from the active LIC/LIB using backups and the conversion tool. After the configuration has been successfully

transferred, the old hardware is swapped with the new hardware based LIG. For more information about the hardware upgrade, see Chapter 11.

3.6 Possible downgrading

Rollback (downgrading to Release 3) requires a clean installation of IPSO 3.6 and the LIG Release 3 software. In addition, restoring the backup files is necessary.

In case of a hardware upgrade, the system can be downgraded by replacing the new hardware-based LIG with the previously used old hardware-based LIG.

4 Requirements for upgrade

You need the following accessories, software, and instructions for performing upgrades:

- Before starting the upgrade, check that the LIG is running on the required software level, LIG Release 3.
- LIG Release 4 software, IPSO 3.8NET, license key, and related documentation
- LIG Release 3 software and IPSO 3.6NET (for a possible rollback)
- Full documentation (printouts of Voyager sheets) about running LIG 3 and IPSO configurations. These are needed for checking release 4 configurations after upgrade.
- Check the LIG Release 4 and relevant network elements' software compatibility according to the Compatibility Matrix.

5 Preparing for the upgrade

This chapter explains the preparations for upgrades and includes the following:

- Taking a backup of LIG 3 software
- Documenting current IPSO configurations
- Performing an IPSO backup
- Copying software packages

5.1 Taking a backup of the active LIG Release 3 software

Use the Voyager interface to take backups of the LIG Release 3 software.

To take a backup of the active software build:

1. Open a connection to the network element using Voyager.
2. Select **Config**.
3. Go to the LIC or LIB main page.
4. Select **Backup**.
5. Fill in the backup configuration page (Figure 1) with the following:
   - File transfer host IP address
   - File transfer path
   - File transfer account
   - File transfer method
   - SCP destination host key (only if SCP is used)
   - File transfer password
6. Click the radio button **Make backup now**.

7. Click the **Save** button.

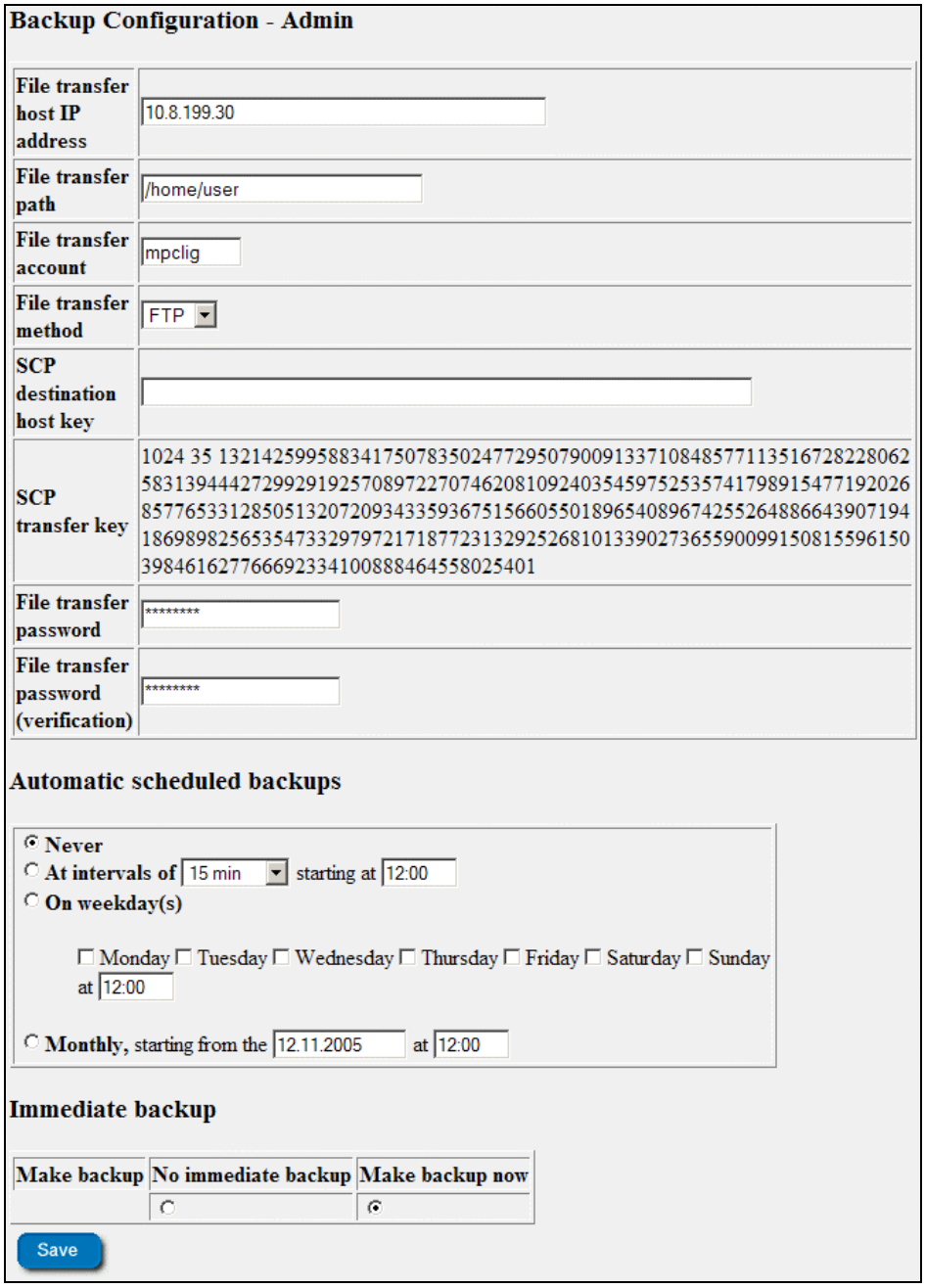

Figure 1. LIG backup configuration page in Voyager

8. Make sure that the current backup package is transferred correctly to the FTP server. *Write down the name and the path of the backup file* for later use with the conversion tool.

5.2 Documenting current IPSO and LIG configurations

Document all current IPSO and LIG configurations carefully. For example, print out all the configuration pages. These are needed for checking the configuration after the upgrade.

The LIG software handles the Command Line Interface (CLI) users.

5.3 Taking an IPSO backup

Take an IPSO backup from the LIC and LIB for a possible rollback.

Create the IPSO backup (Home Directories, Logs, and Package Configuration) using the Voyager interface. Backup files are stored in the `/var/backup` directory.

To create backups via IPSO:

1. Click **Config** on the home page.
2. Click the **Configuration Backup and Restore** link in the System Configuration section.
3. Enter a file name for your backup file in the **Backup File Name** field.
4. (Optional) Click the related YES radio button if you want to include home directories in the backup.
5. (Optional) Click the related YES radio button if you want to include your log files in the backup.

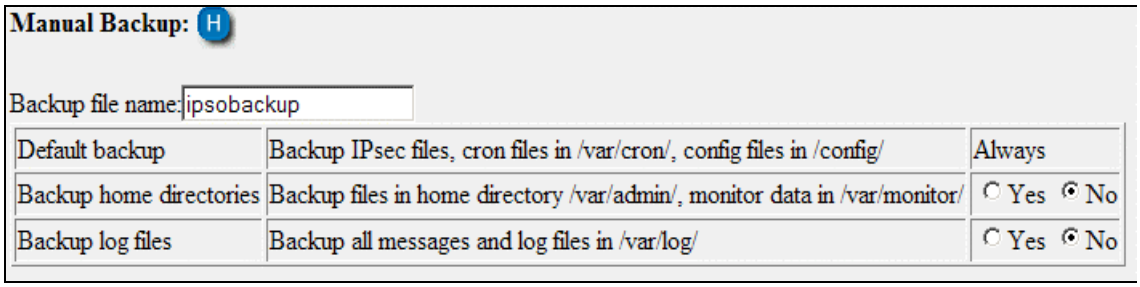

Figure 2. IPSO backup and restore page in Voyager

6. Click **Apply**.
7. Click **Save**.
8. Retrieve backup file to FTP server in **Backup and Restore Configuration page** via Voyager or copy it from the `/var/backup` directory to the FTP server.

5.4 Copying software packages

Copy the IPSO 3.8NET and LIG Release 4 software packages to the FTP server.

6 Disconnecting LIG

This chapter explains issues about disconnecting the LIG and includes the following:

- Disabling packet processing in LIB
- Checking interception data sent to the LEA user

6.1 Disabling the packet processing in LIB

Disable the packet processing in the LIB so that the LIB does not receive any new interception data.

To disable packet processing:

1. Connect to the LIB with a web browser.
2. Select **Config**.
3. Go to the **Lawful Interception Browser** selection.
4. Select **General Configuration**.
5. From the **Inbound traffic,** set **Packet processing** to **Disabled** state and click **Save** (Figure 3).

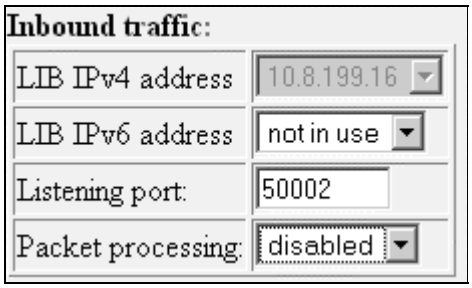

Figure 3. Packet processing in LIB in Voyager

Note

The LIG downtime starts when inbound traffic packet processing is set to disabled.

6.2 Checking the interception data sent to the LEA users

To check that all interception data is sent to LEA users in the LIB:

1. Connect to the LIB using a console or telnet.
2. Check the subdirectories under directories `/var/mfs_forward` and `/var/ufs_forward` in the LIB. Use the following command:

   ls –laR /var/mfs_forward

If there are only files ending with `*.last` and `*.lock`, or files named `ft.check` or `ft.lock` in the subdirectories, then all the interception data has been sent to the LEA users.

7 Upgrading the IPSO operating system

This chapter explains how to prepare for an IPSO upgrade and how to upgrade the operating system.

Note

Optional IPSO clean installation.

If for some reason you need to make a clean installation of IPSO 3.8NET, please see Appendix A. A sample installation can be found there. If a clean installation of IPSO is done, it has to be manually configured before the LIG Release 4 packages can be installed. The IPSO configuration should be identical to the LIG Release 3 IPSO configuration. When the IPSO has been clean installed and configured, continue from Chapter 8.4.

7.1 Preparing for IPSO upgrade

To prepare for the IPSO upgrade:

1. Collect the system information needed during the upgrade procedure:
   - the IP address of the FTP server
   - the path to the IPSO file on the FTP server
2. Copy the IPSO image from the CD-ROM to the FTP server.
3. Transfer the IPSO image from the FTP server to the LIC/LIB disk (to the `/opt/packages` directory) using FTP.
4. Check the checksum of the IPSO image to ensure that the IPSO image has been correctly transferred from the FTP server. Compare the checksum with the one provided on the CD-ROM.

   ```
   md5 /opt/packages/ipso.tgz
   ```

5. Check that there is enough free space available for the new IPSO under /image. IPSO-3.8NET requires about 140000 blocks of free space. You can check the available space with the following command:

```
df /image
```

7.2 Upgrading the IPSO operating system

IPSO upgrades the boot manager automatically.

To upgrade the IPSO operating system

1. Connect to the LIC/LIB using Voyager.
2. Select **Config**.
3. Go to the **Install New IPSO Image (Upgrade)** menu under **System Configuration**.
4. Enter the URL (`file:///opt/packages/ipso.tgz`).
5. Select **New Image** to be the image for next boot.
6. Select **Yes** to **De-activate the Installed Packages After Upgrade**.

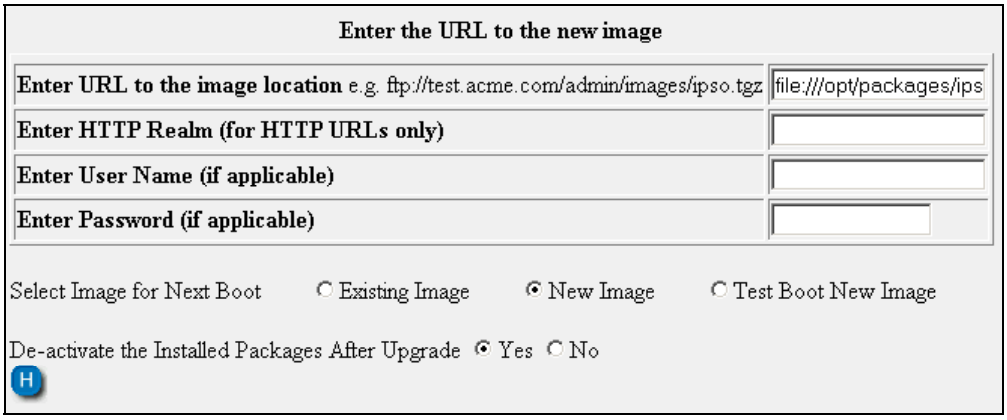

Figure 4. IPSO upgrade

7. Click **Apply**.
8. Click **Apply** again when you can see the confirmation for the IPSO upgrade.

9. Click the link **Newimage installation status** to get the status of the IPSO upgrade.
10. Wait until the IPSO upgrade has finished.

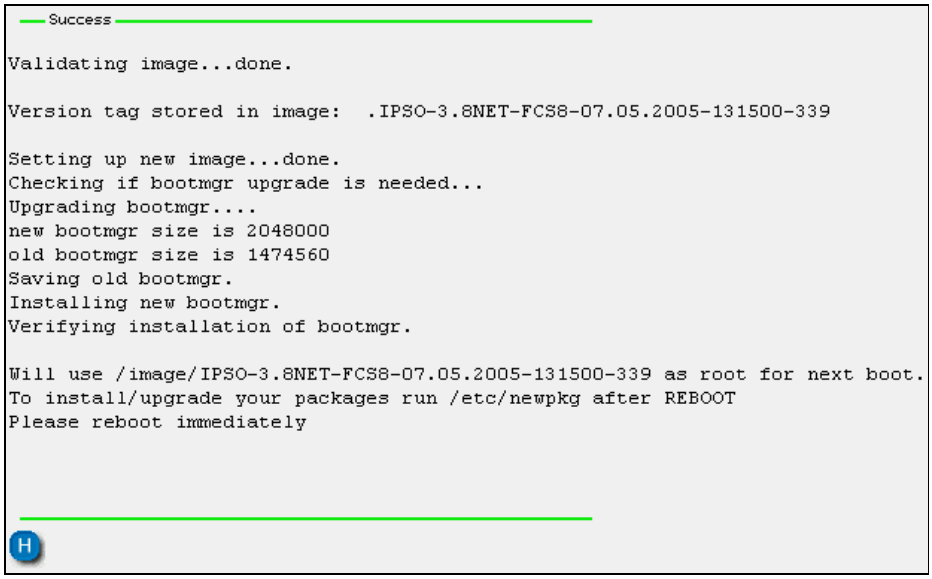

Figure 5. IPSO upgrade finished

11. Go to the **Manage IPSO images (including REBOOT)**.
12. Click **Reboot** and wait until the system is running again.

8 Installing the LIG Release 4 package

This chapter explains the installation of the LIG Release 4 packages and includes the following:

- Deleting the old LIB/LIC packages
- Deleting old LIG Release 3 configuration files
- Installing new LIB/LIC packages
- Installing online documentation

8.1 Deleting the old LIB/LIC Release 3 package

To delete the old LIB/LIC software package:

1. Connect to the LIC/LIB with a web browser.
2. Select **Config**.
3. Go to the **Manage Installed Packages** menu under **System Configuration**.
4. Go to the **Delete Packages** menu to delete the previous LIB/LIC release.
5. Click **Delete**.
6. Click **Apply**, **Save**, and **Top**.

8.2 Deleting old LIC Release 3 configuration files

Old LIC Release 3 configuration files and directories must be manually deleted before the LIC Release 4 package can be installed.

To delete the old LIC Release 3 configuration files and directories:

1. Log in to the LIC console as admin user.
2. Change the directory to `/var`.

   `cd /var`
3. Delete the following LIC Release 3 configuration directories: `ligdb`, `ligft`.

   `rm -rf ligdb ligft`
4. Also delete the old `upgrade.log` file, if it exists.

   `rm /var/admin/upgrade.log`

8.3 Deleting old LIB Release 3 configuration files

Also the old LIB Release 3 configuration files and directories must be deleted before the LIB Release 4 package can be installed.

To delete old LIB Release 3 configuration files and directories:

1. Log in to the LIB console as an admin user.
2. Change the directory to `/var`.

   `cd /var`
3. Delete the following LIB Release 3 configuration files and directories: `ligdb`, `ligft`, `ufs_forward`, `mfs_forward`.

   `rm –rf ligdb ligft ufs_forward mfs_forward`
4. Also delete the old `upgrade.log` file, if it exists.

   `rm /var/admin/upgrade.log`

8.4 Installing LIG Release 4 (LIC/LIB)

To install the LIG Release 4 SW package:

1. Connect to the LIC/LIB using Voyager.
2. Click **Config**.
3. Click **Manage Installed Packages** in the System Configuration section.
4. Click **FTP and Install Packages**.

5. Enter the **FTP Site** and **FTP Dir** of your FTP server and enter the **FTP user** and **FTP password** and click **Apply**.

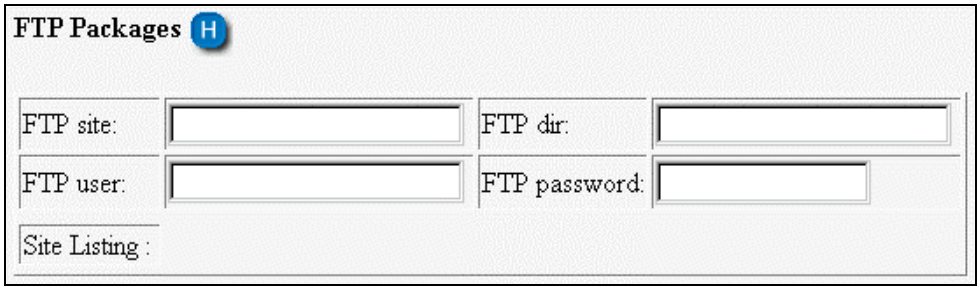

Figure 6. FTP site

6. Click the correct LIC or LIB package in the **Site Listing** box and click **Apply**.

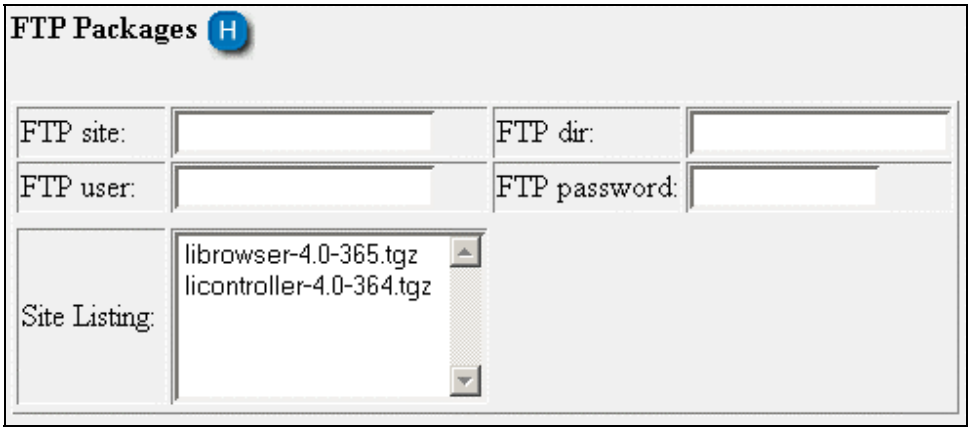

Figure 7. Available packages in FTP server

7. Click on the LIC or LIB package in the **Select a package to unpack** box and click **Apply**.

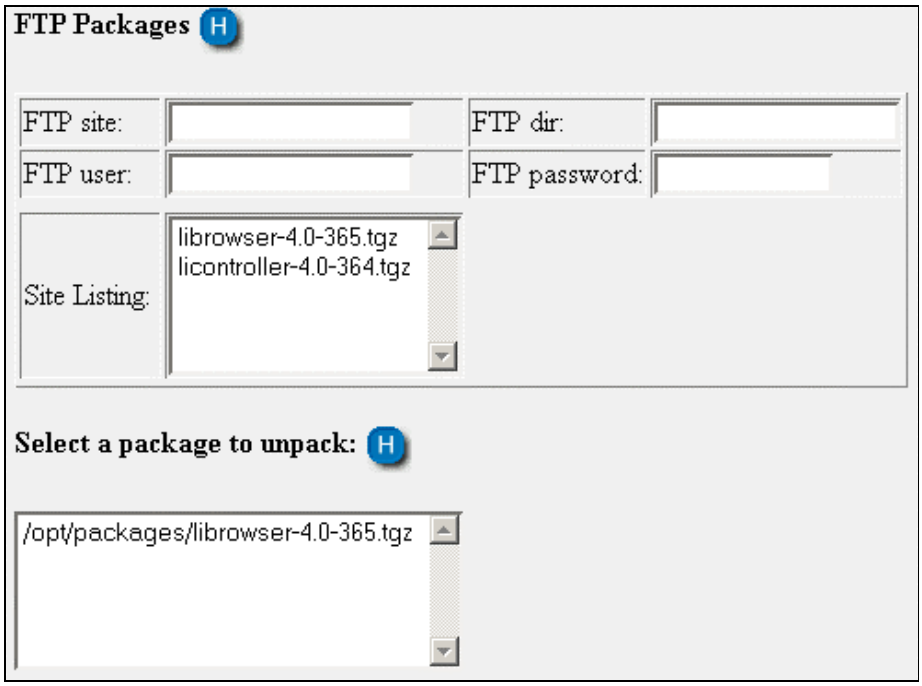

Figure 8. Select a package to unpack

8. Click the *Click here to install/upgrade/opt/packages/<name_of_sw_package>.tgz* link under **Information of unpacked package.**

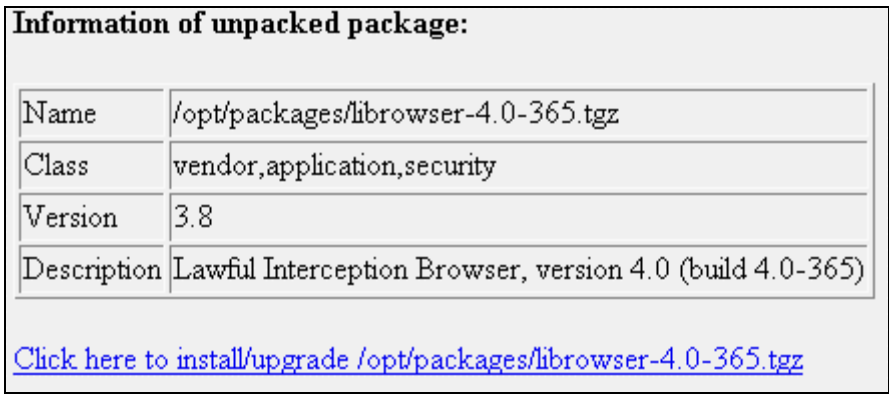

Figure 9. Unpack package

9. Choose **Install** (NOT Upgrade) and click **Apply.**

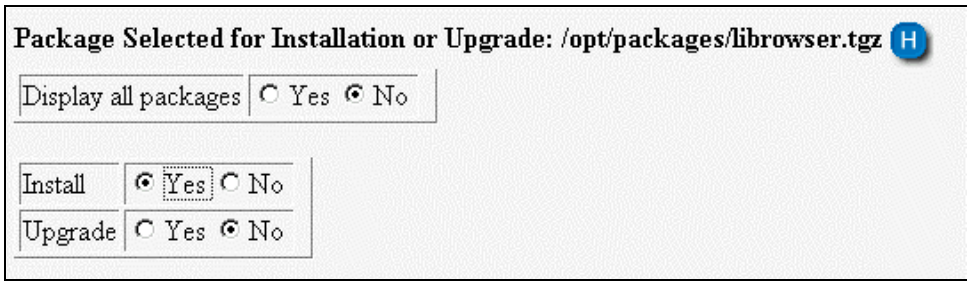

Figure 10. Install selected package

10. Wait until package is installed and click **Home**.
11. Select **Config**.
12. Go to the menu **Reboot**, **Shutdown System**.
13. Press **Reboot** and wait until the element is up and running.

8.5 Installing online documentation

Install LIG online documentation (`ligdoc.tgz`) in the same way as the LIG 4 SW package. More detailed instructions are in *Nokia LIG Release 4 Product Documentation: Installation Guide*.

9 Converting LIG 3 configuration to LIG 4

The conversion tool downloads the LIC or LIB Release 3 backup file to the LIC or LIB, and converts and installs the configuration files to release 4 level.

Using the conversion tool, the Admin user can restore and convert LIG Release 3 configurations to LIG Release 4 format. The `convTool` process is started from the web page. Wait until the process has finished. This will take approximately 30 seconds – 1 minute, depending on the speed of the FTP connection and the size of the configuration to be converted. Afterwards the events and the status of the upgrade can be viewed from `upgrade.log`. The conversion log file can be seen in Voyager. The upgrade can be started again if needed.

9.1 LIC conversion tool

To use the Voyager conversion tool for the LIC:

1. Log into the Voyager page `http://<IP-address>/opt/cgi-bin/licontroller/admin/upgrade.cgi` where `<IP-address>` is the address of the LIC.
2. Enter the required information about the location of the LIC Release 3 backup file into the **Define restore configuration** section :
   - File transfer host IP address
   - File name
   - File path
   - File transfer account
   - FTP File transfer mode
   - File transfer password
   - File transfer password (verification)

3. Click **Save** to start the upgrade now.

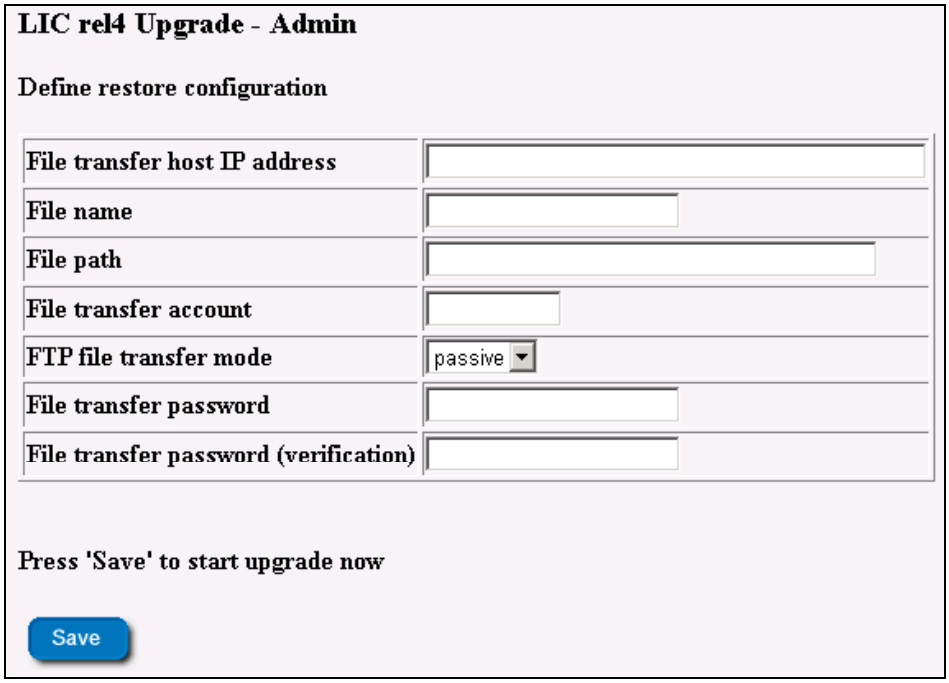

Figure 11. LIC Upgrade

4. Wait until the upgrade has been completed. It will take about 1 minute.
5. Press **Home** to view the upgrade log. The contents of the file, `upgrade.log`, can be seen in Voyager. Below is an example of an upgrade log.

Example 1. Example of LIC `upgrade.log` file

```
Upgrade in progress: LIC upgrade to rel4 started
Upgrade in progress: disabling LIC processes
Upgrade in progress: downloading rel3 backup file
Upgrade in progress: LIG3 backup file downloaded
Upgrade in progress: unpacking rel3 backup file
Upgrade in progress: current /var/ligdb/ configuration removed
Upgrade in progress: rel3 backup file unpacked
Upgrade in progress: transferring access files from LIG3
Upgrade in progress: access files transferred to LIG4
```

```
Upgrade in progress: reading rel3 user files
Upgrade in progress: rel3 user files read
Upgrade in progress: reading rel3 NE files
Upgrade in progress: rel3 NE files read
Upgrade in progress: reading rel3 FTC files
Upgrade in progress: rel3 FTC files read
Upgrade in progress: reading rel3 target files
Upgrade in progress: rel3 target files read
Upgrade in progress: reading rel3 LIC configuration files
Upgrade in progress: rel3 LIC configuration files read
Upgrade in progress: reading rel3 LDI configuration file
Upgrade in progress: rel3 LDI configuration file read
Upgrade in progress: reading rel3 cli configuration file
Upgrade in progress: rel3 cli configuration file read
Upgrade in progress: reading rel3 IA files
Upgrade in progress: rel3 IA files read
Upgrade in progress: copying lipconf file from LIG3
Upgrade in progress: lipconf file copied to LIG4
Upgrade in progress: copying backup/restore configuration file from LIG3
Upgrade in progress: backup/restore configuration file copied to LIG4
Upgrade in progress: creating LIG4 crontab file for scheduled backup
Upgrade in progress: LIG4 crontab file handling finished
Upgrade in progress: copying log DB from LIG3
Upgrade in progress: log DB copied to LIG4
Upgrade in progress: copying unchanged files from LIG3
Upgrade in progress: Unchanged files copied
Upgrade in progress: setting LIC xpand variables
Upgrade in progress: LIC xpand variables set
Upgrade in progress: cleaning up rel3 log files
Upgrade in progress: rel3 log files handled
Upgrade in progress: writing rel4 NE DB files
Upgrade in progress: rel4 NE DB files written
Upgrade in progress: writing rel3 user DB files
Upgrade in progress: rel3 user DB files written
Upgrade in progress: writing rel4 FTC DB files
Upgrade in progress: rel4 FTC DB files written
Upgrade in progress: writing rel4 target DB files
Upgrade in progress: rel4 target DB files written
Upgrade in progress: writing rel4 LIC general configuration DB file
Note: Statistics configuration resetted, please configure statistics
after upgrade using GUI
Upgrade in progress: rel4 LIC general configuration DB written
```

```
Upgrade in progress: writing rel4 LIC IA DB files
Note: all LIG3 IA CGI/SAI cell types considered as CGI in LIG4
Upgrade in progress: rel4 LIC IA DBs written
Upgrade in progress: writing rel4 CLI DB file
Upgrade in progress: creating rel4 CLI users
Upgrade in progress: rel4 CLI users created
Upgrade in progress: rel4 LIC CLI DB file
Exiting: LIC upgrade to rel4 successfully finished
Note: please reboot your IPSO now
```

6. Installation of LIC Release 4 is now finished.
7. If you need to restart the conversion tool again, click **Save** to initialise the upgrade procedure. When clicking **Save,** the old upgrade log file is renamed `upgrade.old.log` in the `/var/admin` directory.

Note

After running the conversion tool all LIC processes are in the disabled state.

9.2 LIB conversion tool

To use the Voyager conversion tool for LIB:

1. Log into the Voyager page `http://<IP-address>/opt/cgi-bin/librowser/admin/upgrade.cgi` where `<IP-address>` is the address of the LIB in question.
2. Enter the required information for the **Define restore configuration** section:
   - File transfer host IP address
   - File name
   - File path
   - File transfer account
   - FTP file transfer mode
   - File transfer password
   - File transfer password (verification)
3. Click **Save** to start the upgrade now.

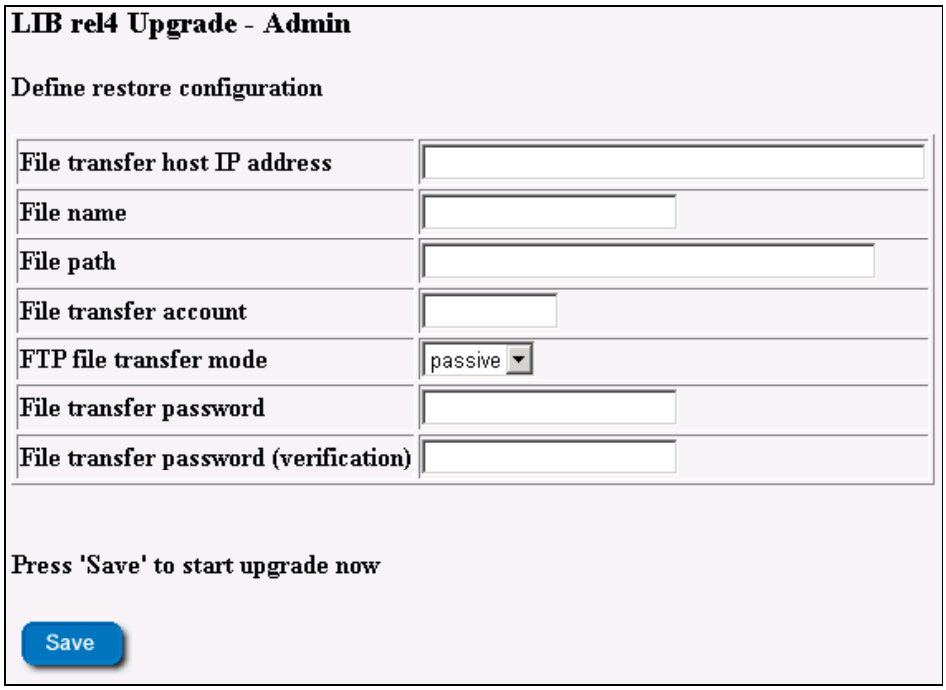

Figure 12. LIB Upgrade

4. Wait until the upgrade has been completed
5. Click **Home** to view the upgrade log. The contents of the file `upgrade.log` can be seen in Voyager.

Example 2. Example of LIB upgrade log file

```
Upgrade in progress: LIB upgrade to rel4 started
Upgrade in progress: disabling LIB processes
Upgrade in progress: downloading rel3 backup file
Upgrade in progress: LIG3 backup file downloaded
Upgrade in progress: unpacking rel3 backup file
Upgrade in progress: current /var/ligdb/ configuration removed
Upgrade in progress: current /var/mfs_forward/ configuration removed
Upgrade in progress: current /var/ufs_forward/ configuration removed
Upgrade in progress: current /var/browse/ configuration removed
Upgrade in progress: rel3 backup file unpacked
Upgrade in progress: transferring access files from LIG3
Upgrade in progress: access files transferred to LIG4
Upgrade in progress: reading rel3 user files
Upgrade in progress: rel3 user files read
```

```
Upgrade in progress: reading rel3 LIB configuration
Upgrade in progress: rel3 LIB general configuration file read
Note: optional file liIri.conf not upgraded, use the file delivered
within LIG4
Upgrade in progress: copying backup/restore configuration file from LIG3
Upgrade in progress: backup/restore configuration file copied to LIG4
Upgrade in progress: creating LIG4 crontab file for scheduled backup
Upgrade in progress: LIG4 crontab file handling finished
Upgrade in progress: copying lipconf file from LIG3
Upgrade in progress: lipconf file copied to LIG4
Upgrade in progress: setting LIB 4 xpand variables
Upgrade in progress: LIB xpand variables set
Upgrade in progress: cleaning up rel3 log files
Upgrade in progress: rel3 log files handled
Upgrade in progress: writing user DB files of LIG3
Upgrade in progress: user DB files written to LIG4
Upgrade in progress: writing LIB general configuration file based on LIG3
Upgrade in progress: LIB general configuration DB written to LIG4
Exiting: LIB upgrade to rel4 successfully finished
Note: please reboot your IPSO now
```

6. Installation of LIB release 4 is now finished
7. If you need to restart the conversion tool again,click **Save** to initialise the upgrade procedure. When clicking **Save,** the old upgrade log file is renamed `upgrade.old.log` in the `/var/admin` directory.

9.3 Installing the optional liIRI.conf file

The country-specific customisation file `liIRI.conf` is delivered inside the `conf.tgz` package. `liIRI.conf` defines which IRI events are sent from the LIB to the LEA, and which parameters are included in each sent IRI event. If the file is not installed (the normal case), then LIG Release 4 default definitions are used.

To install `liIri.conf` file:

1. In your own working directory, unpack the `conf.tgz` package using the command `tar –xzf conf.tgz`. The unpacked package structure is `/conf/<country>/liIri.conf`.

2. Using the LIB web admin interface, disable the `libMain` and `libFwd` LIB processes.
3. Establish an FTP connection to the LIB.
4. Transfer the `liIri.conf` file for the appropriate country to the LIB as `/var/ligdb/liIri.conf`.

Note

The existing `liIri.conf` is overwritten.

The `liIri.conf` from previous LIG releases cannot be used because the file has a different content in LIG 4.

5. Enable the LIG processes through the web interface. The new configuration has now been taken into use. This can be verified from the LIB system log:

```
000394 2005-08-04 03:56:36, severity 3,pid 06276,uid 00000,libFwd,
IRI FILTERING configuration loaded OK.


000396 2005-08-04 03:56:37, severity 3,pid 06283,uid 00000,libMain,
IRI FILTERING configuration loaded OK.
```

9.4 Rebooting the LIB and LIC

First reboot the LIB and then reboot the LIC.

To reboot the LIB and LIC:

1. Go to the IPSO main page.
2. Select **Config**.
3. Select **Reboot, Shutdown System menu**.
4. Press **Reboot** and wait until the system is up and running.

10 Completing and checking the configuration

This chapter explains and summarises the completion and checking of a configuration.

10.1 Adding license key to the LIC

To add the license key to the LIC, and to take the new key into use:

1. Copy the `license.key` file from the source media with FTP to the `/var/etc/license` directory on the LIC.
2. Check/set the license file access rights using the command `chmod 644 <name_of_license_file>.`
3. Update the license configuration from the LIC main page/Manage license by choosing the correct license file to the **License file list** dropdown menu. Also set the **License expiry warning time**. Click **Save**.

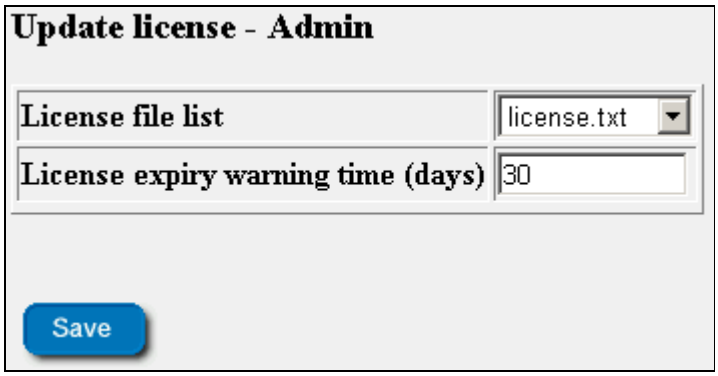

Figure 13. Updating the license

After updating the license, the license information can be seen in the license page. Check that the license values are correct.

Note

LIG downtime ends.

10.2 Configuring LIC statistics

LIG Release 3 statistics configuration values are not automatically converted to the LIG Release 4 level. If you need to collect statistics about LIG Release 4, statistics collection parameters must be manually configured to the LIC.

10.3 Comparing and completing the IPSO configuration

Compare the configuration to printouts of the previous LIG3 IPSO 3.6 configurations. Complete the IPSO configuration if needed.

10.4 Comparing the configuration with the LIG release 3 configuration

Compare the new configuration to printouts of LIG Release 3 configurations.

11 Upgrading from IP650, IP740 to IP740, IP1260

Hardware and software upgrading from LIG 3 (IP650/IP740) to LIG 4 (IP740/IP1260) means that the old hardware is replaced with new hardware during the upgrade. The configuration of the LIC and LIB is converted from release 3 to release 4. The new hardware is configured with the same IP address as the old hardware in the network.

The upgrade from the old LIG 3 hardware to the new LIG 4 hardware consists of the following phases:

- Install and configure IPSO 3.8 to the new hardware in a separate network.
- Install the LIC Release 4 and LIB Release 4 packages to the new hardware.
- Take backups from the currently operational old hardware in the LIC/LIB.
- Import the LIC/LIB Release 3 configuration via upgrade script to LIC/LIB Release 4 and check the configuration.
- Shutdown the old LIG Release 3 hardware.
- Replace the old hardware with the new hardware.
- Boot up the new LIG Release 4 hardware.
- HW upgrade is completed.

To perform a hardware upgrade from LIG Release 3 to LIG Release 4:

1. Connect the new hardware to a separate network. This is because IPSO will be using the same IP addresses as the currently operational old hardware.
2. Boot up the new HW to see if it is already installed with NET IPSO. To check this, log into the console, and enter the command `uname -a`. The printout on screen should be as follows:

`IPSO <hostname> 3.8NET-FCSx`

If IPSO 3.8NET is already installed, go directly to step 4. Otherwise continue with step 3.

3. Install IPSO 3.8NET to the new hardware from the console. Use the same IP addresses as in the currently operational old hardware.

Note

If you are installing NET IPSO for the first time to the IP1260, you need to answer **nocompat** to the following question.

```
BOOTMGR[1]> install
################### IPSO Full Installation ###################
You will need to supply the following information:
Client IP address/netmask, FTP server IP address and filename,
system serial number, and other license information.
This process will DESTROY any extant files and data on your disk.
##############################################################
Continue? (y/n) [n] nocompat
```

This disables the IPSO compatibility check. This is needed because the originally installed IPSO would not otherwise allow the installation of NET IPSO.

4. Configure the new IPSO the same way as in the old hardware. The IPSO configuration cannot be transferred from the old hardware to the new hardware.
5. Install the LIG Rel 4 software packages to the new hardware as instructed in Chapters 8.4 and 8.5.
6. Take backups from the currently active old hardware LIC/LIB as instructed in Chapter 5.1.
7. Convert the LIG Rel 3 configurations to the LIG Rel 4 level as instructed in Chapters 9.1 and 9.2. This is done in the new hardware LIG.
8. (Optional) Copy `liIRI.conf` to the LIB as instructed in Chapter 9.3.
9. Copy the LIG Rel 4 license key to the LIC under the `/var/etc/license` directory. See Chapter 10.1.
10. Check the LIG Rel 4 configuration.
11. Shut down the new LIG Rel 4 hardware.
12. Disconnect the old LIG Rel 3 hardware as instructed in Chapters 6.1 and 6.2
13. Replace the old LIG Rel 3 hardware with the new LIG 4 hardware.
14. Boot up the new hardware as instructed in Chapter 9.4.
15. Check that everything is functioning correctly.
16. The upgrade is completed.

12 Returning to the old release (rollback)

If the hardware upgrade has been done, the rollback is done by replacing the new LIG Rel 4 hardware with the old LIG Rel 3-based hardware.

If a normal upgrade was performed and you have to return to the old release, use the following instructions. The rollback is executed in the following order:

1. Install the previous IPSO (clean installation). The following system information is needed during the IPSO installation:
   - Serial number
   - Client IP address/net mask
   - FTP server IP address
   - Default GW IP address
   - Path to the IPSO file on FTP server
   - Host name
2. Restore the IPSO backup (taken before the upgrade).
3. Install the LIG 3 software.
4. Restore the LIG backup (taken before the upgrade).

12.1 Returning to the previous IPSO 3.6

To return to the previous version:

1. Connect to the console.
2. Restart the unit. (Be careful in the next step: ‘Type any character to enter command mode.’ The prompt is very easy to miss.)

   shutdown -r now
3. Interrupt booting when prompted to get to boot manager.

4. Start the IPSO installation:

   install

5. Answer the questions in the installation program.
6. Upgrade the boot manager (bootmgr) when asked.

12.2 Restoring the IPSO backup

To restore the IPSO backup:

1. Connect to the network element using telnet or console.
2. Create directory `/var/backup` for backups.

   `mkdir /var/backup`

3. Copy the IPSO backup file from the FTP server to the backup directory.
4. Connect to the network element using Voyager.
5. Click **Config** on the home page.
6. Click the **Configuration Backup and Restore** link in the System Configuration section.
7. Select a file from the **Restore from file** drop-down list. The drop-down list contains a list of all the files in the `/var/backup` directory, although some of the files may not be backup files.
8. Click **Apply**.
9. Select **Home**, **Config** and **Reboot**, **Shutdown System** menu.
10. Press **Reboot** and wait until system is up again.

12.3 Installing the LIG Release 3 software

To install the LIG Release 3 software:

1. Connect to the LIC or LIB using Voyager.
2. Select **Config.**
3. Go to the menu option **FTP and Install Packages** under **Manage Installed Packages**.
4. Enter the **FTP Site** and **FTP Dir** of your FTP server and click **Apply**.

5. When you see the LIC or LIB package in the **Site Listing** box, select it and click **Apply**.
6. When you see the LIC or LIB package in the **Select a package to unpack** box, select it and click **Apply**.
7. Click the *Click here to install/upgrade /opt/packages/<name_of_sw_package>.tgz* link under **Information of unpacked package**.
8. Choose **Install** (NOT Upgrade).
9. Click **Apply** and **Save**.
10. Click **Top** to get to the **Manage Installed Packages** menu.
11. Check that the correct LIC/LIB package is **On**.
12. Click **Top**.
13. Go to **Reboot, Shutdown System** menu.
14. Click **Reboot** and wait until system is up again.

Install the online documentation in the same way.

12.4 Initialising the LIC

This step is done only in the LIC.

To initialise the LIC:

1. Use Voyager and select **Config**.
2. Go to the LIC main page.
3. Click **Initialise LIC** menu.
4. Enter the **Operator Identifier**, **Operator MNC+MCC**, **Delivery function id's start**, and **LIC Identifier**.
5. Click **Save**.
6. Click **Home**.
7. Select **Audit user's alarm configuration** menu.
8. Enter the required information for the audit user's alarm configurations.
9. Click **Save**.
10. Select **Change own alarm configuration** menu.
11. Enter the required information for alarm configurations.
12. Click **Save**.

13. Click **Home**.

12.5 Restoring the LIC/LIB backup

To restore the LIG backup:

1. Go to the LIC or LIB main page.
2. Select **Restore**.
3. Fill in required information and set **Restore Now**.
4. Click **Save**.

12.6 Rebooting

First reboot the LIB and then the LIC.

To reboot the LIG:

1. Go to IPSO main page.
2. Select **Config**.
3. Select **Reboot, Shutdown System** menu.
4. Press **Reboot** and wait until the system is up and running.

   Note that it may take some time before all element connections are up again.

12.7 Checking the configuration

Check the configuration of IPSO and LIG.

Appendix A

Below is an example of IPSO 3.8NET clean installation. User inputs are in **bold** characters.

```
Starting bootmgr
Loading boot manager..
Boot manager loaded.
Entering autoboot mode.
Type any character to enter command mode. Press any key here
BOOTMGR[1]> install

#################### IPSO Full Installation ####################
You will need to supply the following information:
Client IP address/netmask, FTP server IP address and filename,
system serial number, and other license information.
This process will DESTROY any extant files and data on your disk.
################################################################
Continue? (y/n) [n] y

Motherboard serial number is 0.

The chassis serial number can be found on a
sticker on the back of the unit with the letters
S/N in front of the serial number.
Please enter the serial number:  01234567890

Please answer the following licensing questions.

Will this node be using IGRP ? [y] n

Will this node be using BGP ? [y] n


1. Install from anonymous FTP server.
2. Install from FTP server with user and password.
Choose an installation method (1-2):  2
Enter IP address of this client (0.0.0.0/24): 10.8.199.16/26
Enter IP address of FTP server (0.0.0.0): 10.8.199.30
Enter IP address of the default gateway (0.0.0.0): 10.8.199.1

Choose an interface from the following list:
1) eth1
2) eth2
3) eth3
4) eth4
Enter a number [1-4]: 1
Would you like to use 100 Mb speed for eth1? [n] y
Half or full duplex? [h/f] [h] f
Enter user name:  username
Enter password for "": password
Enter path to ipso image  on FTP server [~]:  lig4
Enter ipso image filename on FTP server [ipso.tgz]: <Enter>

1. Retrieve all valid packages, with no further prompting.
2. Retrieve packages one-by-one, prompting for each.
3. Retrieve no packages.
Enter choice [1-3] [1]:  3

Client IP address = 10.8.199.16/26
Server IP address = 10.8.199.30
Default gateway IP address = 10.8.199.1
Network Interface = eth1, speed = 100M, full-duplex
Server download path = [lig4/]
Package install type = none
Mirror set creation = no
```

```
Are these values correct? [y] y
Checking what packages are available on 10.8.199.30.
Hash mark printing on (1048576 bytes/hash mark).
Interactive mode off.
#
The following packages are available:
ipso.tgz

Building filesystems...done.
Making initial links...done.
Downloading compressed tarfile(s) from 10.8.199.30.
Hash mark printing on (1048576 bytes/hash mark).
Interactive mode off.

100%  36169 KB    00:00 ETA
Checking validity of image...done.
Installing image...
gzip: stdout: Broken pipe
tar: child returned status 1
done.
Image version tag:  IPSO-3.8NET-FCS8-07.05.2005-131500-339.
Checking if bootmgr upgrade is needed...
Need to upgrade bootmgr. Proceeding..
Upgrading bootmgr....
new bootmgr size is 2048000
old bootmgr size is 1474560
Saving old bootmgr.
Installing new bootmgr.
Verifying installation of bootmgr.

Installation completed.

Reset system or hit <Enter> to reboot.

Starting reboot.



Starting bootmgr
Loading boot manager..
Boot manager loaded.
Entering autoboot mode.
Type any character to enter command mode.
Booting /dev/wd0f:/image/IPSO-3.8NET-FCS8-07.05.2005-131500-339/kernel
[kernel] symtab f65a7000, sym_start f65a7004, sym_end f65e8e0c
[kernel] sym_size 57d6, str_size 60018
[ preserving 0xa1e24 bytes of kernel symbol table ]
Copyright (c) 1982, 1986, 1989, 1991, 1993
The Regents of the University of California.  All rights reserved.

Resizing packet buffers: mbufs 15360 clusters 14000
iprman 339  07.05.2005-131500
CPU: 1000-MHz Pentium-III w ATC (686-class CPU)
real memory  = 2147483648 (2048M bytes)
kernel virtual space starting from c0000000 (1023M bytes)
avail memory = 2096836608 (1999M bytes)
pcircc0 <ServerWorks CNB20HE Northbridge> rev 34 on pci0:0:0
pcircc1 <ServerWorks CNB20HE Northbridge> rev 1 on pci0:0:1
pcircc2 <ServerWorks Southbridge> rev 80 on pci0:15:0
pcircc3 <ServerWorks Southbridge UltraDMA Function> rev 0 on pci0:15:1
Probing for devices on the ISA bus:
sio0 at 0x3f8-0x3ff irq 4 on isa
<5>sio0: type 16550A
sio1 at 0x2f8-0x2ff irq 3 on isa
<5>sio1: type 16550A
wdc0 at 0x1f0-0x1f7 irq 14 on isa
```

```
wdc0: unit 0 (wd0): <SanDisk SDCFB-16>, LBA
wd0: 16MB (31360 sectors), LBA geometry: 31 cyls, 16 heads, 63 S/T
wd0: Physical geometry: 490 cyls, 2 heads, 32 S/T
wdc0: unit 1 (wd1): <WDC WD200EB-11CPF0>, LBA, DMA
wd1: 20020MB (39102336 sectors), LBA geometry: 2434 cyls, 255 heads, 63
S/T
wd1: Physical geometry: 16383 cyls, 16 heads, 63 S/T
npx0 on motherboard
npx0: INT 16 interface
syspld0 at 0x340 on isa
superionat0 at 0x0 on isa
pcircc4 <ServerWorks Southbridge USB Function> rev 4 on pci0:15:2
tulip0 <Digital DC21143 Fast Ethernet> rev 65 int a irq 10 onboard 3
netlog:eth3 .. Generic 2114x DC21143 pass 4.1 -- 00:a0:8e:40:b6:a4
netlog:eth3 .. enabling 10baseT/UTP port in half duplex mode
tulip1 <Digital DC21143 Fast Ethernet> rev 65 int a irq 12 onboard 4
netlog:eth4 .. Generic 2114x DC21143 pass 4.1 -- 00:a0:8e:40:b6:a5
netlog:eth4 .. enabling 10baseT/UTP port in half duplex mode
pcic0 <TI PCI-1225 PCI-CardBus Bridge> rev 1 int a irq 10 on pci0:3:0
pcmcia0: TI PCI-1225 (5 mem & 2 I/O windows)
pcic1 <TI PCI-1225 PCI-CardBus Bridge> rev 1 int a irq 10 on pci0:3:1
pcircc5 <ServerWorks CIOB20 I/O Bridge> rev 0 on pci0:0:2
CIOB Revision 3.0
hotswap_pci0 <Nokia Hotswap PCI Device> rev 5 int a irq 12 on pci1:4:0
pcircc6 <ServerWorks CIOB20 I/O Bridge> rev 0 on pci0:0:3
CIOB Revision 3.0
ubsec0 <Broadcom 5805 Encryption Accelerator> rev 1 int a irq 12 on
pci128:1:0
pcidec0 <DEC 21154 64-bit PCI-PCI bridge> rev 5 on pci128:2:0
tulip2 <Digital DC21143 Fast Ethernet> rev 65 int b irq 5 onboard 1
netlog:eth1 .. Generic 2114x DC21143 pass 4.1 -- 00:a0:8e:40:b6:a6
netlog:eth1 .. enabling 10baseT/UTP port in half duplex mode
tulip3 <Digital DC21143 Fast Ethernet> rev 65 int c irq 7 onboard 2
netlog:eth2 .. Generic 2114x DC21143 pass 4.1 -- 00:a0:8e:40:b6:a7
netlog:eth2 .. enabling 10baseT/UTP port in half duplex mode
pcidec1 <DEC 21154 64-bit PCI-PCI bridge> rev 5 on pci128:3:0
hotswap_pci1 <Nokia Hotswap PCI Device> rev 5 int d irq 7 on pci192:11:0
changing root device to wd0f
system event list inited
swapon: adding /dev/wd0b as swap device
Automatic reboot in progress...
/dev/rwd0f: clean, 264053 free (805 frags, 32906 blocks, 0.2%
fragmentation)
/dev/rwd0a: clean, 38192 free (16 frags, 4772 blocks, 0.0% fragmentation)
/dev/rwd0d: clean, 14950114 free (90 frags, 1868753 blocks, 0.0%
fragmentation)
/dev/rwd0e: clean, 2563615 free (31 frags, 320448 blocks, 0.0%
fragmentation)

clearing /tmp
checking for core dump...savecore: no core dump
savecore failed, cleaning dump if present
recording kernel -c changes
starting system daemons: syslogd done.
 superd done.

Please choose the host name for this system.  This name will be used
in messages and usually corresponds with one of the network hostnames
for the system.  Note that only letters, numbers, dashes, and dots (.)
are permitted in a hostname.

Hostname? doris
Hostname set to "doris", OK? [y] <Enter>

Please enter password for user admin: <password>
Please re-enter password for confirmation: <password>
```

```
You can configure your system in two ways:

    1) configure an interface and use our Web-based Voyager via a remote
       browser
    2) VT100-based Lynx browser

Please enter a choice [ 1-2, q ]: 1


Select an interface from the following for configuration:

    1) eth1
    2) eth2
    3) eth3
    4) eth4
    5) quit this menu

Enter choice [1-5]: 1

Enter the IP address to be used for eth1: 10.8.199.16/26

Do you wish to set the default route [ y ] ? <Enter>

Enter the default router to use with eth1: 10.8.199.1

This interface is configured as 10 mbs by default.
Do you wish to configure this interface for 100 mbs [ n ] ? y

This interface is configured as half duplex by default.
Do you wish to configure this interface as full duplex [ n ] ? y

You have entered the following parameters for the eth1 interface:

               IP address: 10.8.199.16
               masklength: 26
            Default route: 10.8.199.1
                    Speed: 100M
                   Duplex: full

Is this information correct [ y ] ? y

Do you want to configure Vlan for this interface [ n ] ? n

You may now configure your interfaces with the Web-based Voyager by
typing in the IP address "10.8.199.16" at a remote browser.

Modem detected on /dev/cuaa1.

Enable logins on this modem [y,n]: n
Generating config files for doris: ipsrd hosts password group resolver
snmp inetd ttys tz ntp ssmtp skey arp ndp aggrclass acl ddr ef syslog
autosupport httpd lynx modem cron archive tellpm: error writing to
socket: No such file or directory.
fmd AAA cluster mirror [1] 392
ssh [1]  + Done                  dm_xlate dm /var/etc/mirror.conf
done.


 ifm done.
Nov 18 08:03:52  [LOG_INFO] kernel: netlog:eth1 .. enabling 100baseTX/UTP
port in full duplex mode
Fri Nov 18 08:03:52 GMT 2005

   IPSO (doris) (ttyd0)

login:
```