ERICSSON

Installing Ericsson Library Explorer Server

Linux

INSTALLATION INSTRUCTIONS

Ericsson
Library
Explorer

Contents

1 Introduction

This document describes the installation procedure for Ericsson Library Explorer Server on **Linux**® platforms. Ericsson Library Explorer, in short ELEX, is a web-based tool to browse the technical documentation available to handle Ericsson products thought the life cycle.

Intended audience is local system administration personnel responsible for maintenance of file servers where document libraries are stored, and web servers where the web application itself is installed.

ELEX is designed to handle all types of Ericsson product information delivered in the form of library files (`*.alx`). The installation procedure consists of the following main steps:

1   Install the Ericsson Library Explorer Server (see Section 2 on page 4 for new installation or Section 3 on page 9 for upgrading from ALEX installation)

2   Verify that the installation works (see Section 2.5 on page 7)

Once the system is correctly configured and started as described in this document, little further action is required to administer it.

This document covers the installation of Ericsson Library Explorer Server on Linux® platforms. A separate document describes how to install the product on Windows® platforms.

1.1 Functional Overview

The Ericsson Library Explorer runtime architecture contains 6 main components: a web browser, a web server (HTTPD), and the `elex, alexserv, alexhint,` and `omnidaemon` programs.

The web browser and web server are not included in the Ericsson Library Explorer Server product, and hence the installation of them is not described in this document.
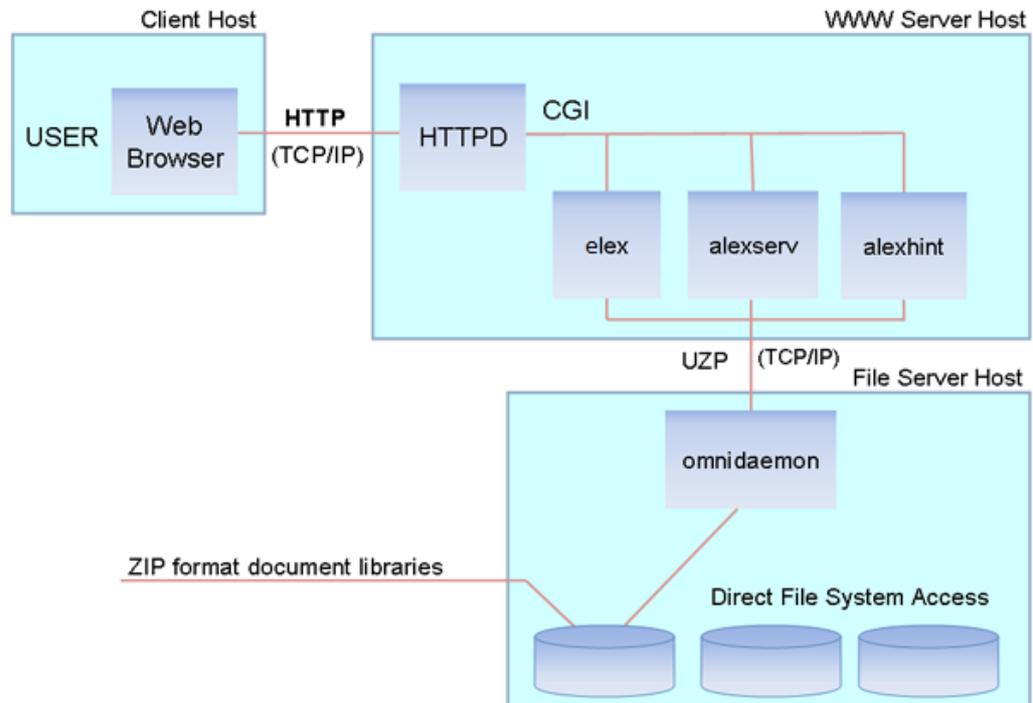
Figure 1   Ericsson Library Explorer - Runtime Architecture

1.1.1   elex, alexserv & alexhint

elex, alexserv, and alexhint programs are installed on the web server as CGI applications. They act as gateway applications that read information from the library server (omnidaemon) over TCP/IP, and transfer the information to the web browser. This is necessary since the web server cannot directly access content from the compressed Ericsson Library Explorer library files.

1.1.2   omnidaemon

omnidaemon is a server program without a user interface. The program is similar to an ftp daemon. The program is typically started automatically on system boot, and must be running constantly (a daemon process) while the system is operational.

The program listens to a local TCP port for incoming network connections, and interacts with clients by executing commands issued by the clients. The commands are defined by a proprietary protocol (UZP), a protocol similar to FTP. The UZP protocol allows transfer of file data directly from library files (compressed ZIP archives) from server to client.

1.2 System Requirements

Table 1   ELEX Server for Linux

Operating system[1]	RedHat® Linux® 6.8 64-bit (Kernel Version 2.6.32-504.el6.x86_64)
Disk space	9 MB for Ericsson Library Explorer programs Appoximatelly 10-300 MB for each library file
Client browser	Latest version of Chrome®, Firefox® or Microsoft Edge®. Other modern browsers probably work as well. Microsoft® Internet Explorer® 11 also works, but is not recommended because of performance and security reasons.
Web server	Apache web server

(1) Ericsson Library Explorer is tested on this operating system version. Other versions probably work as well, but this has not been verified.

2 Installation

If you are upgrading an existing Active Library Explorer installation, see Section 3 on page 9.

Installing Ericsson Library Explorer on a new machine is done in the following steps:

1   Unpack the installation package

2   Copy files to assigned directories

3   Check the configuration parameters

4   Start the `omnidaemon`

5   Verify the installation

Note: The Apache™ web server must be installed, before installing Ericsson Library Explorer.

2.1 Unpack the Installation Package

Copy the tar file to a suitable directory and unpack the tar file with the command:

```
tar xvf elex_linux_3_3.tar.gz
```

A directory named `/ELEX` is created containing all needed files for the installation.

2.2 Copy Files to Assigned Directories

2.2.1 elex, alexserv, alexhint & alex.conf

— Copy the `elex`, `alexserv` and `alexhint` CGI programs into the web server host location. For the Apache™ web server, the default directory for CGI applications is named `cgi-bin`.

All three CGI programs must have execute permission for all.

— Copy the `alex.conf` file with configuration settings for all the CGI programs into the same directory.

In case this configuration file is not found, `elex`, `alexserv` and `alexhint` assume default values for all keywords.

— If installation is done under `cgi-bin` directory, the files are installed as in this example:

```
cp elex /usr/local/httpd/cgi-bin/elex
chmod 755 /usr/local/httpd/cgi-bin/elex
cp alexserv /usr/local/httpd/cgi-bin/alexserv
chmod 755 /usr/local/httpd/cgi-bin/alexserv
cp alexhint /usr/local/httpd/cgi-bin/alexhint
chmod 755 /usr/local/httpd/cgi-bin/alexhint
cp alex.conf /usr/local/httpd/cgi-bin/alex.conf
```

Apache configuration example

To enable shorter and more user-friendly URL addresses, a script alias can be defined for the CGI applications in the web server configuration. Go to the directory for Apache configuration files, and edit the file `httpd.conf`, or equivalent. Search the file for `ScriptAlias` keywords. Add a ScriptAlias for `elex`, `alexserv` and `alexhint`, as this:

```
ScriptAlias /cgi-bin/     /usr/local/httpd/cgi-bin/
ScriptAlias /elex         /usr/local/httpd/cgi-bin/elex
ScriptAlias /alexserv     /usr/local/httpd/cgi-bin/alexserv
ScriptAlias /alexhint     /usr/local/httpd/cgi-bin/alexhint
```

Note: `ScriptAlias` must be specified for all 3 CGI applications, if defined.

2.2.2 omnidaemon, omnidaemon.conf & sys_structure.conf

— Copy the `omnidaemon` program into a separate directory, where other program files are present on the server (typically `/usr/local/bin`). This program file must have execute permission for all.

— Copy the `omnidaemon.conf` file with configuration settings into the same directory. In case this configuration file is not found, `omnidaemon` assume default values for all keywords. The path of this configuration file is provided to `omnidaemon` with `"-c"` option when started.

— Copy also the optional system structure configuration file, named `sys_structure.conf` into the same directory. This file, if used, defines a hierarchical structure of folders where the library files are stored.

— If `omnidaemon` is installed under `/usr/local/bin`, the files are installed as this:

```
cp omnidaemon /usr/local/bin/omnidaemon
chmod 755 /usr/local/bin/omnidaemon
cp omnidaemon.conf /usr/local/bin/omnidaemon.conf
cp sys_structure.conf /usr/local/bin/sys_structure.conf
```

2.2.3 elex_info.alx, elex_resources.ers & alex_help.ahx

Copy the ELEX library `elex_info.alx` and the resource files `elex_resources.ers`, and `alex_help.ahx` to the library folder.

The library folder specified in `omnidaemon.conf`, or in the root folder (Level: 0) specified in `sys_structure.conf` file, if that is used. See Section 4.2.2 on page 13 for how to specify these directories.

The default path is `$HOME/libraries` if the LibraryPath keyword is not defined.

Note: If `elex_resources.ers` is not found by `omnidaemon`, then ELEX cannot be started.

2.3 Check the Configuration Parameters

In an installation where default values are used for all configuration parameters, the configuration files are not needed.

The most important parameters and their default values:

Table 2   Parameters

Parameter	Default Value	Notes
alex.conf		
Address of document server (Omnidaemon)	localhost:9229	Section 4.1.1 on page 11 Section 4.2.1 on page 13
Web server port number (HttpdPort)	80	Section 4.1.2 on page 11
Web server protocol (HttpdProto)	http:/	Section 4.1.3 on page 12
omnidaemon.conf		
Port number used by omnidaemon (WellKnownPort)	9229	Section 4.2.1 on page 13
Path to directory containing the libraries (LibraryPath)	$HOME/libraries	$HOME = Home directory of username under which omnidaemon is running Section 4.2.2 on page 13
omnidaemon log file (LogFile)	$HOME/tmp/omnidaemon.log	Section 4.2.3 on page 13

For more information on configuring ELEX, see Section 4 on page 11.

2.4 Start the Omnidaemon

Sample commands to start the `omnidaemon` without defining a configuration file:

```
/usr/local/bin/omnidaemon
```

`omnidaemon` looks for a configuration file with the name `omnidaemon.conf` in the current working directory. To use an explicit configuration file, start `omnidaemon` with the following command:

```
/usr/local/bin/omnidaemon -c /usr/local/bin/omnidaemon.conf
```

If a configuration file is not found, default values for all the keywords are used.

After starting `omnidaemon`, if everything works, no error messages is displayed, and the shell prompt returns. `omnidaemon` starts by indexing all library files existing in the library folder. When this is ready, a second process is started monitoring the library directories for new or updated library files, and then client requests are accepted. Each request spawns a new process, that dies when the request is processed.

See Section 4.2 on page 13 for information on configuration settings.

Errors and warnings detected during execution are written to a log file (See Section 4.2.3 on page 13). The log file can be viewed, for instance, with the `more` or `less` commands in a shell window.

omnidaemon start on system boot

The server can be configured to start `omnidaemon` automatically after every server restart. This can be done using the `rc` or `rc.local` file, or the `/etc/init.d` directory, for example. Consult the operating system documentation for the correct place to add local tools to be started at server restart.

2.5 Verify the Installation

2.5.1 Installing an Ericsson Library Explorer Library

A library file is installed simply by copying it to the defined library directory. `omnidaemon` detects a new library automatically, typically within a minute. See Section 4.2.2 on page 13 for more information on defining the library directory.

2.5.2 Viewing the Libraries Using a Web Browser

To view the content of an Ericsson Library Explorer library, enter the web address (URL) of the `elex` program in the address field of the web browser. The address has the form:

```
http://<address of the web server>/elex
```

The Ericsson Library Explorer user interface is loaded into the browser window. To find a library, perform a search or select the relevant folder in the filter settings. Clicking a library name shows the entry page of that library in a separate window.

Open the included library with title **Ericsson Library Explorer (ELEX 3.3)** for view. This library contains this installation instruction, and other ELEX-related user guides and information.

For more information on how to use Ericsson Library Explorer features, see online help provided.

2.5.3   Troubleshooting

If there is a problem, always check the log files, both the `omnidaemon` and the web server log files. For a new installation, the most common error is that the `LibraryPath` keyword does not contain a valid file path.

3 Upgrading from Earlier Versions

3.1 Upgrading from ALEX to ELEX

If the Ericsson Library Explorer is replacing an existing installation of Active Library Explorer, the following simplified procedure can be followed:

1   Stop all running `omnidaemon` processes.

2   Copy the new `omnidaemon` program, replacing the existing one.

3   Check that the keywords in the `omnidaemon` configuration file `omnidaemon.conf` are still valid. Typically no change is required, see Section 4.2 on page 13 as reference.

4   Copy the `elex`, `alexserv` and `alexhint` programs to the `cgi-bin` folder, replacing existing files with the same names. All programs must have execute permission for all.

5   Delete the `alex` program from the `cgi-bin` folder, replaced by the `elex` program.

6   Check that the keywords in the ELEX/ALEX configuration file `alex.conf` are still valid. Typically no change is required, see Section 4.1 on page 11 as reference.

7   Copy ELEX library and resource files `elex_info.alx`, `elex_resources.ers` and `alex_help.ahx` to the library folder, replacing existing files with the same names, see Section 2.2.3 on page 5

8   Start `omnidaemon` and verify the installation, see Section 2.5 on page 7.

For more details about the installation steps, see Section 2 on page 4.

Note: For an easy rollback, take a backup of the old files before replacing them.

3.2 Upgrading from Earlier Version of ELEX

For upgrading the existing installation, the following simplified procedure can be followed:

1   Stop all running `omnidaemon` processes.

2   Copy the new `omnidaemon` program, replacing the existing one.

3   Copy the `elex`, `alexserv` and `alexhint` programs to the `cgi-bin` folder, replacing existing files with the same names. All programs must have execute permission for all.

4   Copy ELEX library and resource files `elex_info.alx`, and
     `elex_resources.ers` to the library folder, replacing existing files with the
     same names, see Section 2.2.3 on page 5

5   Start `omnidaemon` and verify the installation, see Section 2.5 on page 7.

For more details about the installation steps, see Section 2 on page 4.

4 Configuration File Reference

Ericsson Library Explorer Server is configured using three configuration files. The configuration files consist of space or tab separated name-value pairs on separate lines:

1 **alex.conf:** The `elex`, `alexserv`, and `alexhint` programs read this configuration file. If this file is not present, then default values for all settings are used.

2 **omnidaemon.conf:** The `omnidaemon` programs read this configuration file. If this file is not present, then default values for all settings are used.

3 **sys_structure.conf:** This is an optional file for the `omnidaemon` programs, where a hierarchal structure of library folders can be defined.

The following sections describe the usage of the configuration files.

4.1 elex, alexserv & alexhint

The CGI programs read the `alex.conf` configuration file with following keywords supported.

4.1.1 Address of Document Server

The `omnidaemon` keyword specifies the hostname (or IP address) and port number of the default document server, as in the following example:

```
# Address of the omnidaemon document server
Omnidaemon:  localhost:9229
```

The port number (9229 in the example) must match the value of the `WellKnownPort` keyword defined in the `omnidaemon` configuration file. The default value `localhost:9229` is used if this keyword is not defined.

4.1.2 Port Number of Web Server Host

The `HttpdPort` keyword is used to provide the TCP/IP port number of the web server.

If the `HTTP_HOST` or `SERVER_PORT` environment variable is correctly set by the web server, or the web server is on default port 80, then this keyword can be omitted.

The order of precedence followed to determine the port number is:

1. `HTTP_HOST` - If the variable is set with the server name the default port number 80 is assumed.

2. `HttpdPort` - If the `HTTP_HOST` does not contain the port number.

3. `SERVER_PORT` - If `HTTP_HOST` and `HttpdPort` do not contain the port number.

As the `HTTP_HOST` or `SERVER_PORT` environment variables are set by the Apache web server, it is better to take the port value from these variables. Hence, this keyword can normally be omitted.

4.1.3 Protocol of Web Server Host:

The `HttpdProto` keyword is used to specify the protocol (http:/ or https:/) used to access the web server. For example:

`HttpdProto:   https:/`

The default value for the `HttpdProto` keyword is `http:/`

Note: The protocol `https` can only be used if the web server supports HTTPS or OpenSSL.

4.1.4 Path to Directory for Temporary Files

The `TempPath` keyword is used to specify a directory where `elex` and `alexserv` can write temporary files (user preferences, MyDocs content, and files used by the library Compare function).

If this keyword is not specified in the configuration file, then the path in the `TMPDIR` environment variable is used, and if that fails, a predefined directory path `/tmp` is used. In this order of precedence.

Note: `elex` and `alexserv` must have write access to the specified temporary directory. Typically only a few MB is required.

4.1.5 Sample Configuration File

Example of `alex.conf` included in the installation package:

```
#
# Ericsson Library Explorer and Active Library Explorer
# Server configuration file
#
# Note: The lines starting with hash (#) are commented out
# (inactive) keywords
#

# Omnidaemon:   localhost:9229

# HttpdPort:    8080
# HttpdProto:   https:/

# TempPath:     "/tmp/elex/"
```

4.2 omnidaemon

omnidaemon repeatedly scans the specified directories to check if libraries
have been added or updated. This applies also to changes in the system
structure configuration file. Changes to the omnidaemon configuration file
(omnidaemon.conf) are, however, not automatically detected, so omnidaemon
must be explicitly restarted to update itself in this case.

Note: Keyword values that contain space characters must be quoted in the
configuration file.

4.2.1 Port Number

The WellKnownPort keyword is used to specify the port number on which
omnidaemon listens for incoming connections. The default value for this keyword
is 9229.

```
WellKnownPort    9229
```

4.2.2 Library Path

The LibraryPath keyword can specify either a system structure configuration file
(see Section 4.2.6 on page 15) or the directory where the library files are stored.
The default path is $HOME/libraries if this keyword is not defined.

```
LibraryPath      "/data/elex/libraries/sys_structure.conf"
```

or

```
LibraryPath      "/data/elex/libraries/"
```

The use of local disks is recommended for performance reasons.

4.2.3 Log File

Omnidaemon logs events and errors to a log file during execution. The location of
this file is specified with the LogFile keyword. The default value for this keyword
is $HOME/tmp/omnidaemon.log

```
LogFile          "/usr/tmp/omnidaemon.log"
```

When troubleshooting, this file must be checked for possible error messages.

4.2.4 Restricting the Log File Size

By default, there is no limitation in the log file size. It will increase as more rows are added over time. In normal operation this is not a problem, since only few events are logged.

If needed, the maximum size (in MB) of the log file can be defined using the `MaxLogSize` keyword.

```
MaxLogSize       2
```

When the log file reaches the set size (2 MB in this case), the log file is archived. For example, `omnidaemon.log` is renamed to `omnidaemon.1.log`. If again the log file reaches the set size, `omnidaemon.1.log` is renamed as `omnidaemon.2.log` and `omnidaemon.log` is renamed as `omnidaemon.1.log`. This continues until the number of backups created reaches the maximum number of log file backups to be created, specified using the `MaxLogBackups` keyword.

```
MaxLogBackups    3
```

When the specified number of backup log files is reached, the oldest file is discarded when a new backup file is created.

This parameter is valid only when `MaxLogSize` value is defined and greater than 0.

The default value for `MaxLogBackups` is 1.

4.2.5 Sample Configuration File

Example of `omnidaemon.conf` included in the installation package:

```
#
# Ericsson Library Explorer - omnidaemon configuration file
#
# Note: Lines starting with a hash (#) are commented out
# (inactive) keywords.

# WellKnownPort    9229

# LibraryPath      "/data/elex/libraries/"

# LogFile          "/usr/tmp/omnidaemon.log"
```

4.2.6　System Structure Configuration

If a flat list of libraries is not desired, it is possible to organize document libraries in a hierarchical structure. To use this feature, a system structure configuration file must be specified in `omnidaemon.conf` with the `LibraryPath` keyword.

For example, libraries can be organized into a system structure (folder hierarchy) as this:

```
CPI
   Radio Access Network
            Base Stations
                Radio 2000 Family
            Radio Dot System
```

The system structure configuration file has one entry, consisting of five name-value pairs, for each folder. Each entry specifies the following information in this order:

— Name of the folder (for example, "`Radio Access Network`").

— Label (not currently in use).

— Level of the folder. A numerical value starting with 0 for the root folder and increasing with one for each sublevel.

— The absolute path of where the libraries are stored for this folder on the file system.

— Index file (not currently in use).

The entries are organized hierarchically for all folders defined in the configurations file (see example).

Note:　The information for every folder entry must contain the five name-value pairs in the defined order. Text strings and file paths containing spaces must be enclosed within double quotes.

Example of a system structure configuration file, as included in the installation package:

```
#
# Ericsson Library Explorer - omnidaemon system structure
# configuration file
#
# Note: Lines starting with a hash (#) are commented out
# (inactive) keywords.
#

Name:    "CPI"
Label:  -
Level:  0
Path:   /data/alex/libraries
IndexFile:  -

Name:    "Radio Access Network"
Label:  -
Level:  1
Path:   /data/alex/libraries/RAN
IndexFile:  -

Name:    "Base Stations"
Label:  -
Level:  2
Path:   /data/alex/libraries/RAN/BS
IndexFile:  -

Name:    "RBS 2000 Family"
Label:  -
Level:  3
Path:   /data/alex/libraries/RAN/BS/RBS2000
IndexFile:  -

Name:    "Radio Dot System"
Label:  -
Level:  2
Path:   /data/alex/libraries/RAN/RDS
IndexFile:  -
```

Glossary

CGI
Common Gateway Interface, a method for web servers to generate web pages by external software.

FTP
File Transfer Protocol

HTML
Hypertext Markup Language, a mark-up language for online content.

IP
Internet Protocol

URL
Uniform Resource Locator. An address on the World Wide Web.

ZIP
File compression format, originally created by PKWare Inc.