
hp Unified Correlation Analyzer



Unified Correlation Analyzer for Event Based Correlation

Version 3.2

Installation Guide

Edition: 1.0

For the HP-UX (11.31), Linux (RHEL 5.9 & 6.5) and Windows® Operating Systems

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Preface

This guide describes how to install the product on the various supported platforms.

Product Name: Unified Correlation Analyzer for Event Based Correlation

Product Version: 3.2

Kit Version: 3.2

Intended Audience

Here are some recommendations based on possible reader profiles:

- Solution Developers
- Software Development Engineers

Software Versions

The term UNIX is used as a generic reference to the operating system, unless otherwise specified.

The software versions referred to in this document are as follows:

Product Version	Supported Operating systems
UCA for Event Based Correlation Server Version V3.2	<ul style="list-style-type: none">• HP-UX 11.31 for Itanium• Red Hat Enterprise Linux Server release 5.9 & 6.5
UCA for Event Based Correlation Channel Adapter V3.2	<ul style="list-style-type: none">• HP-UX 11.31 for Itanium• Red Hat Enterprise Linux Server release 5.9 & 6.5
UCA for Event Based Correlation Software Development Kit Version V3.2	<ul style="list-style-type: none">• Windows XP / Vista• Windows Server 2007• Windows 7• Red Hat Enterprise Linux Server release 5.9 & 6.5

Table 1 - Software versions

Typographical Conventions

Courier Font:

- Source code and examples of file contents.
- Commands that you enter on the screen.
- Pathnames
- Keyboard key names

Italic Text:

- Filenames, programs and parameters.
- The names of other documents referenced in this manual.

Bold Text:

- To introduce new terms and to emphasize important words.

Associated Documents

The following documents contain useful reference information:

References

[R1] *Unified Correlation Analyzer for Event Based Correlation Reference Guide*

[R2] *Unified Correlation Analyzer for Event Based Correlation Value Pack Development Guide*

[R3] *OSS Open Mediation Installation and Configuration Guide*

[R4] *Unified Correlation Analyzer for Event Based Correlation Clustering and HA Guide*

Support

Please visit our HP Software Support Online Web site at <https://softwaresupport.hp.com/> for contact information, and details about HP Software products, services, and support.

The Software support area of the Software Web site includes the following:

- Downloadable documentation.
- Troubleshooting information.
- Patches and updates.
- Problem reporting.
- Training information.
- Support program information.

Introduction

This guide describes the installation procedure for the UCA for EBC product.

Throughout this document, we use the `${UCA_EBC_HOME}` environment variable to reference the root directory (“static” part) of UCA for EBC. The default value for the `${UCA_EBC_HOME}` environment variable is `/opt/UCA-EBC`. The `${UCA_EBC_HOME}` environment variable thus references the `/opt/UCA-EBC` directory unless UCA for EBC “static” part has been installed in an alternate directory.

We also use `${UCA_EBC_DATA}` environment variable to reference the data directory (“variable” part) of UCA for EBC. The default value for the `${UCA_EBC_DATA}` environment variable is `/var/opt/UCA-EBC`. The `${UCA_EBC_DATA}` environment variable thus references the `/var/opt/UCA-EBC` directory unless UCA for EBC “variable” part has been installed in an alternate directory.

Since UCA for EBC V2.0, the `${UCA_EBC_DATA}` directory may contain multiple instances of UCA for EBC. In this document, we will use the value `${UCA_EBC_INSTANCE}` for referring to `${UCA_EBC_DATA}/instances/<instance-name>` directory. At installation, a single `<instance-name>` is configured: `default`.

For more information on the UCA for EBC product, please refer to the *Unified Correlation Analyzer for Event Based Correlation Reference Guide* [R1].

UCA for EBC Server

The UCA for EBC Server product is delivered as a tar file named:

```
uca-ebc-server-kit-3.2-<os>.tar
```

where *<os>* is either *linux* for **Linux** systems or *hpux* for **HP-UX** systems.

This chapter describes the software prerequisites, installation steps, and gives a brief content description of the UCA for EBC Server kit.

2.1 Licensing

After installation, UCA for EBC will activate a trial license for 90 days (Instant-On license) that activates all features of the product for a trial period. After expiration of this trial period, a commercial license is needed to continue to use the product.

HP standard end user license agreement for HP Software products and Additional License Authorizations for HP CMS Software products are published on <https://softwaresupport.hp.com>. For any questions related to licensing, please get in touch with your local HP sales representative or HP partner.

2.1.1 Obtaining a UCA for EBC license

Depending on your configuration, one or more license key(s) are required to use UCA for EBC. Licensing is managed with AutoPassJ (automatically installed alongside UCA for EBC). You must obtain a license key to be able to use the product past the 90-day trial period.

The standard process to get a license key is the following:

The system administrator of the product must go to the **Webware** web site and download the perpetual license to use the product. To request perpetual license keys, you need the following items:

- **Entitlement Certificate**, which contains the HP product number and order number (i.e. entitlement order number).
- **License owner contact information** (i.e. your company or organization information)
- **Locking ID values** (if required) to create license keys (e.g. Device Identifier, IP Address, MAC Address, Serial Number, WWN, etc...)

The best way to obtain product licenses is through the web site:

www.webware.hp.com

You can also contact the HP Password Center by using fax, email, or phone. This information is available on the Password Request Form and the License Entitlement

Certificate. In order to obtain product licenses, you need the License Entitlement Certificate.

2.1.2 License policy

A license check is performed for the following UCA for EBC features every time UCA for EBC Server is started:

- UCA for EBC Server
- UCA for EBC Topology Extension
- UCA for EBC Graph Display

You will need a valid license key to activate these features.

If you have no valid license key for the 'UCA for EBC Server' feature, UCA for EBC Server will not start.

If you have no valid license key for the 'UCA for EBC Topology Extension' feature, UCA for EBC Server will not start if you have enabled the use of the UCA for EBC topology database by setting the `uca.ebc.topology` property to either of the following values: `embedded`, or `external` in the UCA for EBC property file:

```
${UCA_EBC_DATA}/instances/<instance name>/conf/uca-  
ebc.properties (by default /var/opt/UCA-  
EBC/instances/default/conf/uca-ebc.properties).
```

Note

In order to activate the 'UCA for EBC Graph Display' feature, you need to obtain a valid license key for the **Unified OSS Console** product and install it in the `license.txt` file located in the

```
${UCA_EBC_DATA}/instances/<instance name>/licenses folder.
```

If you have no valid license key for the 'UCA for EBC Graph Display' feature, UCA for EBC Server will start but the 'UCA for EBC Graph Display' feature will not be activated.

In order to run UCA for EBC Server with the UCA for EBC Topology Extension, valid keys are needed for both the 'UCA for EBC Server' and the 'UCA for EBC Topology Extension' features.

In order to run UCA for EBC Server without the UCA for EBC Topology Extension, a valid key is needed only for the 'UCA for EBC Server' feature.

The following table shows the link between UCA for EBC product names (i.e. type of license key) and UCA for EBC features:

Product name (i.e. type of license key)	Enabled UCA for EBC features
UCA for EBC Server Production 4 cores	<ul style="list-style-type: none">• UCA for EBC Server• UCA for EBC Server production core capacity for 4 cores
UCA for EBC Server Incremental Production <i>N</i> cores	<ul style="list-style-type: none">• UCA for EBC Server production core capacity for <i>N</i> cores
UCA for EBC Server Non Production 4 cores	<ul style="list-style-type: none">• UCA for EBC Server

Product name (i.e. type of license key)	Enabled UCA for EBC features
	<ul style="list-style-type: none"> UCA for EBC Server non production core capacity for 4 cores
UCA for EBC Server Incremental Non Production <i>N</i> cores	<ul style="list-style-type: none"> UCA for EBC Server non production core capacity for <i>N</i> cores
UCA for EBC Graph DB Production 4 cores	<ul style="list-style-type: none"> UCA for EBC Topology Extension UCA for EBC Graph DB production core capacity for 4 cores
UCA for EBC Graph DB Incremental Production <i>N</i> cores	<ul style="list-style-type: none"> UCA for EBC Graph DB production core capacity for <i>N</i> cores
UCA for EBC Graph DB Non Production 4 cores	<ul style="list-style-type: none"> UCA for EBC Topology Extension UCA for EBC Graph DB non production core capacity for 4 cores
UCA for EBC Graph DB Incremental Non Production <i>N</i> cores	<ul style="list-style-type: none"> UCA for EBC Graph DB non production core capacity for <i>N</i> cores
UCA for EBC Development Toolkit Production	<ul style="list-style-type: none"> UCA for EBC Development Toolkit

Table 2 - UCA for EBC product names and features

For the product numbers associated with the product names, please contact your local HP sales representative or HP partner.

As apparent in the above table, licensing is implemented at the CPU core level. By default, UCA for EBC Server or UCA for EBC Graph DB are licensed for 4 CPU cores. In case you need to run UCA for EBC Server or UCA for EBC Graph DB on more than 4 CPU cores, additional license keys must be purchased. Depending on your configuration, one of the following license keys may be needed:

- UCA for EBC Server Incremental Production *N* cores
- UCA for EBC Server Incremental Non Production *N* cores
- UCA for EBC Graph DB Incremental Production *N* cores
- UCA for EBC Graph DB Incremental Non Production *N* cores

When UCA for EBC Server starts, a check will be performed to validate that enough CPU core license keys are present for your configuration.

In addition to the UCA for EBC features mentioned above, the license policy for UCA for EBC also enables an UCA for EBC Instant-On feature (activated the first time you start UCA for EBC) that enables all UCA for EBC features for 90 days so that you can evaluate the product.

Upon activation of the UCA for EBC Instant-On feature, UCA for EBC automatically generates a corresponding license key that is added to the *license.txt* file located in the *#{UCA_EBC_DATA}/instances/<instance name>/licenses* folder (by default */var/opt/UCA-EBC/instances/default/licenses*).

The *license.txt* file contains all license keys currently installed on UCA for EBC.

Notes

As soon as a permanent license is installed in the *license.txt* file, the UCA for EBC Instant-On feature (that lets you use all features of UCA for EBC for a 90 day period so that you can evaluate the product) will be disabled.

In this case, you must add all the permanent licenses corresponding to the UCA for EBC features that you need to the *license.txt* file. For example, if you need the UCA for EBC Topology Extension feature, you need to add a UCA for EBC Topology Extension permanent license to the *license.txt* file.

There is specific license model for HA configuration. You'll need to set up licenses on all systems that can be used for HA, including production systems but also standby systems, otherwise the standby system cannot start and recover the production system.

2.1.3 Using the web site

Follow these steps to obtain your product licenses:

1. Go to **www.webware.hp.com**. This links you to the web site - **HP Licensing for Software**.
2. Click on the **Sign In** button. This takes you to the **HP Passport Sign-in** page.
3. Sign in using the User ID and Password associated with your **HP Passport**. You can request a new HP Passport if you don't have one already by clicking on the **New users – please register** link.
4. Click '**Sign In**'.
5. After successfully signing in, the home page of the **HP Licensing for Software** web site is displayed
6. Type your entitlement order number in the **Entitlement order number (EON)** text box. Your order number is found on the License Entitlement Certificate (HP Order Number).
7. Click '**Go**'.
8. Select the product(s) you are requesting a license key for in the list of products displayed in column 'Entitlement' by clicking the check box(es) next to the product name(s)
9. Click '**Activate**'.
10. For each product you selected, type the number of Licenses To Use (LTUs) (limited by the total number of LTUs available for the order) you wish to get in the 'Qty' field
11. For each product you selected, type the appropriate information in the 'Target' field (Server host name, IP address for the system where the software is installed...)
12. Click '**Finish**'.
13. A confirmation page is shown stating that an email has been automatically sent to you containing the license key(s) you have requested. The page also displays the license key(s) and provides links to email or display it(them) along with related information regarding the product(s) activation you have just performed.

2.1.4 Installing license keys on UCA for EBC

Once you have retrieved UCA for EBC license key(s), you will need to copy this(these) license key(s) to the *license.txt* file located in the `${UCA_EBC_DATA}/instances/<instance name>/licenses` folder (by default `/var/opt/UCA-EBC/instances/default/licenses`).

In case you need to copy more than one UCA for EBC license key to the *license.txt* file, just append them to the *license.txt* file one after the other until all license keys are copied to the *license.txt* file.

In case you have installed more than one instance of UCA for EBC, you will need to repeat this process for each instance of UCA for EBC.

Note

UCA for EBC Server must be restarted in order for any change to the *license.txt* file to be taken into account.

2.1.5 Removing license keys from UCA for EBC

Removing expired UCA for EBC license key(s) involves removing these license keys from the *license.txt* file located in the `${UCA_EBC_DATA}/instances/<instance name>/licenses` folder (by default `/var/opt/UCA-EBC/instances/default/licenses`).

If you have deployed multiple instances of UCA for EBC, you will need to repeat this process for each instance of UCA for EBC.

Note

UCA for EBC Server must be restarted in order for any change to the *license.txt* file to be taken into account.

2.2 Disk requirements

Here are the disk requirements for UCA for EBC:

On HP-UX:

Type	Disk requirements
Temporary disk space	150 MB minimum: <ul style="list-style-type: none">75 MB minimum for the <code>uca-ebc-server-kit-3.2-hpux.tar</code> file75 MB minimum for the <code>install-install-uca-ebc.sh</code> and <code>UCAEBCSERVERV3200B.depot</code> files (expanded from the <code>uca-ebc-server-kit-3.2-hpux.tar</code> file)
Permanent disk space	75 MB minimum for UCA for EBC V3.2 installed on the system

Table 3 - Disk Requirements for UCA for EBC on HP-UX

On Linux:

Type	Disk requirements
Temporary disk space	140 MB minimum: <ul style="list-style-type: none">• 70 MB minimum for the uca-ebc-server-kit-3.2-linux.tar file• 70 MB minimum for the install-uca-ebc.sh and UCA-EBCSERVER-V3.2-00B.noarch.rpm files (expanded from the uca-ebc-server-kit-3.2-linux.tar file)
Permanent disk space	70 MB minimum for UCA for EBC V3.2 installed on the system

Table 4 - Disk Requirements for UCA for EBC on Linux

2.3 Software prerequisites

2.3.1 Java

UCA for EBC V3.2 Server, UCA for EBC V3.2 Topology Extension, UCA for EBC V3.2 Development Toolkit, and UCA for EBC V3.2 Value Packs support both Java 1.6 and Java 1.7.

However Java 1.7 is the recommended platform to use.

Software	Version
Java JRE/JDK 6	1.6.0.XX
Java JRE/JDK 7	1.7.0.XX (recommended)

Table 5 - Software Prerequisites for UCA for EBC Server

Notes

Please note that if your Value Packs are compiled with one version of Java, it is strongly recommended that UCA for EBC Server is also running the same version of Java to avoid running into compatibility issues between Java 6 and Java 7.

For instance any UCA for EBC Inference Machine Value Pack will require Java 7.

For more information on these compatibility issues, you can go to:

<http://www.oracle.com/technetwork/java/javase/compatibility-417013.html>

Java JRE (Java Runtime Environment) is enough for running UCA for EBC Server. However the Java JDK (Java Development Kit) comes with some useful debugging tools (jconsole, jvisualvm, etc...) that may help understanding the behavior of UCA for EBC Server. It is therefore recommended to install the JDK, instead of just installing the JRE.

On HP-UX:

To check if you already have Java installed:

```
$ swlist | grep Java
```

You should get an output similar to the following:

```
Java60JDK      1.6.0.08.00    Java 6.0 JDK for HP-UX
```

The latest JDK package for HP-UX can be downloaded (for free) from www.hp.com/go/java.

It is usually installed in the /opt/java6 or /opt/java7 folder.

On Linux:

To check if you already have Java installed:

```
$ rpm -qa | grep jdk
```

Red Hat Enterprise Linux Server comes with OpenJDK Java VM. You should get an output similar to the following (here 1.6.0 and 1.7.0 are installed):

```
java-1.7.0-openjdk-1.7.0.9-2.3.4.1.e16_3.x86_64  
java-1.7.0-openjdk-devel-1.7.0.9-2.3.4.1.e16_3.x86_64
```

You can also download (for free) the latest Java packages (HotSpot Java VM) from Oracle from <http://java.com/en/download/manual.jsp>. If this is installed (usually under /usr/java), you should get an output similar to the following:

```
jdk-1.6.0_23-fcs.x86_64
```

2.4 Installation on HP-UX

2.4.1 Pre-installation tasks

Before installing UCA for EBC Server on a system, you need to create a local "uca" user account on that system.

The local "uca" user account must have a $\{HOME\}$ directory containing at least a .login or a .profile file.

The following super user command should create an acceptable "uca" user:

```
$ useradd -g <your uca group name here> -m -d /home/uca -s  
/bin/csh uca
```

2.4.2 Product installation

As **root** user, untar the archive in a temporary local directory (For example: /tmp):

```
$ cd /tmp
```



```
$ tar -xvf <kit location>/uca-ebc-server-kit-3.2-hpux.tar
```

Depending on whether you wish to install the UCA for EBC Server at the default location, i.e. both the /opt/UCA-EBC and /var/opt/UCA-EBC directories, or an alternate location, run either of the following commands to execute the installation script.

To install UCA for EBC Server at the default location (in both the /opt/UCA-EBC and /var/opt/UCA-EBC directories), please execute the following command as **root** user:

```
$ install-uca-ebc.sh
```

To install UCA for EBC Server at an alternate location of your choosing, please execute the following command as **root** user:

```
$ install-uca-ebc.sh -r <root directory> -d <data directory>
```

If unspecified, the default root directory for UCA for EBC Server is /opt/UCA-EBC and the default data directory is /var/opt/UCA-EBC.

The root directory of UCA for EBC Server contains the “static” part of the UCA for EBC Server application (the binaries, libraries, javadoc, ...), while the data directory of UCA for EBC Server contains the “variable” part (the configuration, valuepacks, logs, ...) for all instances.

Since UCA-EBC V2.0, multiple instances of UCA for EBC Server can be configured in the data directory.

2.4.3 Firewall

Please make sure to authorize access on the same port numbers as the ones defined in the `/${UCA_EBC_DATA}/instances/<instance name>/conf/uca-ebc.properties` file.

Typical ports to open are:

- 1100,8888,61666 for default instance
- 7474 for neo4j

2.5 Installation on Linux

2.5.1 Pre-installation tasks

Before installing UCA for EBC Server on a system, you need to create a local "uca" user account on that system.

The local “uca” user account must have a `/${HOME}` directory containing at least a .login or a .profile file.

The following super user command should create an acceptable “uca” user:

```
$ useradd -g <your uca group name here> -m -d /home/uca -s /bin/bash uca
```

2.5.2 Product installation

As **root** user, untar the archive in a temporary local directory (For example: /tmp):

```
$ cd /tmp
$ tar -xvf <kit location>/uca-ebc-server-kit-3.2-linux.tar
```

Depending on whether you wish to install the UCA for EBC Server at the default location, i.e. both the /opt/UCA-EBC and /var/opt/UCA-EBC directories, or an alternate location, run either of the following commands to execute the installation script.

To install UCA for EBC Server at the default location (in both the /opt/UCA-EBC and /var/opt/UCA-EBC directories), please execute the following command as **root** user:

```
$ install-uca-ebc.sh
```

To install UCA for EBC Server at an alternate location of your choosing, please execute the following command as **root** user:

```
$ install-uca-ebc.sh -r <root directory> -d <data directory>
```

If unspecified, the default root directory for UCA for EBC Server is /opt/UCA-EBC and the default data directory is /var/opt/UCA-EBC.

The root directory of UCA for EBC Server contains the “static” part of the UCA for EBC Server application (the binaries, libraries, javadoc, ...) , while the data directory of UCA for EBC Server contains the “variable” part (the configuration, valuepacks, logs, ...) for all instances.

Since UCA-EBC V2.0, multiple instances of UCA for EBC Server can be configured in the data directory.

Note

Installing UCA for EBC Server as non-root user:

For testing purpose (or for some very specific needs) the UCA for EBC Server package can be installed by a non-root user. This feature is available for Linux only.

When installing UCA for EBC Server as non-root user, the following limitations must be understood and acknowledged:

- The system RPM database is not writable by a non-root user. As a consequence, when installation is performed by a non-root user, a specific RPM database must be specified. The default RPM repository for non-root installation is set to ~/.rpmdb (where ~ is the user home directory). This directory can be overridden by specifying the `--rpmdbpath` option as installation script argument. However, the `-rpmdbpath` option is not recommended and may disappear in next versions. We recommend to set your RPM db as followed so that next calls to rpm command will use it (for example `rpm -q queries`)

```
$ echo %_dbpath $HOME/.rpmdb > $HOME/.rpmmacros
```

- The UCA for EBC Server root and data directories must be read/write accessible by the non-root user. As a consequence, when installation is performed by a non-root user, the default are set to \$HOME/UCA-EBC and \$HOME/UCA-

EBC/data respectively. If you need to set specific directories, both the `-r` and `-d` options should be specified.

- When installed by the non-root users the UCA for EBC Server binaries and scripts will only be executable by the user who performed the installation. As a consequence UCA for EBC administration (start/stop/admin) has to be executed with this user (and not as 'uca' user as stated in the documentation)

2.5.3 Red Hat Linux firewall settings

Netfilter is a host-based firewall for Linux operating systems. It is included as part of the Linux distribution and it is activated by default on RHEL6. This firewall is controlled by the program called iptables. Netfilter filtering takes place at the kernel level, before a program can even process the data from the network packet.

Therefore, when iptables is up and filtering packets, its settings should be modified in order to let UCA for EBC work properly.

Let's suppose we have the default iptables configuration file.

```
# cat /etc/sysconfig/iptables
# Firewall configuration written by system-config-firewall
# Manual customization of this file is not recommended.
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
-A INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -i lo -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 22 -j
ACCEPT
-A INPUT -j REJECT --reject-with icmp-host-prohibited
-A FORWARD -j REJECT --reject-with icmp-host-prohibited
COMMIT
```

On top of this, or on top of your current iptables settings, you will need to add filters to open ports used by each UCA for EBC instance.

By default, 3 chains are used : INPUT, OUTPUT, FORWARD. Please refer to the Red Hat Linux guide for a better understanding of what a chain is and what the packet matching rules are that apply within a chain.

Here we are going to create a new custom chain, used by INPUT, dedicated to control UCA for EBC ports, for example for the default instance.

Let's call it UCA-EBC. To do so, you will need to:

- Add 2 lines to define the UCA-EBC chain
- Add 1 line to open ports used by the UCA-EBC default instance
- Add optionally 1 line to open the port used by the UCA for EBC topology server (if installed)

Please make sure to specify the same port numbers as the ones defined in the `/${UCA_EBC_DATA}/instances/<instance name>/conf/uca-ebc.properties` file.

Please see below for an updated version of the configuration file (added lines are in blue):

```
# cat /etc/sysconfig/iptables
```

```
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [2843:756710]
:UCA-EBC - [0:0]
-A INPUT -j UCA-EBC
-A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -i lo -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 22 -j
ACCEPT
-A UCA-EBC -p tcp -m multiport --dports 1100,8888,61666 -m
comment --comment "UCA-EBC default instance" -j ACCEPT
-A UCA-EBC -p tcp -m tcp --dport 7474 -m comment --comment
"UCA-EBC Topology Server Neo4J" -j ACCEPT
-A INPUT -j REJECT --reject-with icmp-host-prohibited
-A FORWARD -j REJECT --reject-with icmp-host-prohibited
COMMIT
```

Then, you need to validate your settings using the iptables command or the iptables service.

```
# service iptables restart
iptables: Flushing firewall rules: [ OK ]
iptables: Setting chains to policy ACCEPT: filter [ OK ]
iptables: Unloading modules: [ OK ]
iptables: Applying firewall rules: [ OK ]
```

And then you need to check that your settings are up and running:

```
# iptables --list UCA-EBC
Chain UCA-EBC (1 references)
target      prot opt source                destination
ACCEPT      tcp  --  anywhere                anywhere
multiport   dports mctp,ddi-tcp-1,61666 /* UCA-EBC default
instance */
ACCEPT      tcp  --  anywhere                anywhere
tcp dpt:7474 /* UCA-EBC Topology Server Neo4J */
```

Please make sure to open the ports for all UCA-EBC instances running on your server.

If everything is OK, please save your configuration so that it is taken into account after a reboot:

```
# service iptables save
iptables: Saving firewall rules to /etc/sysconfig/iptables:[
OK ]
```

2.6 Post-installation setup

2.6.1.1 Setting the JAVA_HOME environment variable

The JAVA_HOME environment variable must be set in the “uca” user’s environment before using UCA for EBC software.

Depending on your shell, and the location of the Java JDK software, use one of the following commands to set the JAVA_HOME environment variable.

Example for **cs**h-like shell:

```
$ setenv JAVA_HOME /opt/java/jdk1.7.0_75
```

Example for **sh**-like shell:

```
$ export JAVA_HOME=/opt/java/jdk1.7.0_75
```

2.6.1.2 Setting the UCA for EBC environment variables

Several environment variables must be defined for UCA for EBC to work properly.

For that purpose, the UCA for EBC installation script installs two files in the UCA for EBC HOME directory (*/opt/UCA-EBC* by default):

- `${UCA_EBC_HOME}/.environment.sh`
- `${UCA_EBC_HOME}/.environment.csh`

These files can be used for setting the correct environment variables.

Depending on your shell, use one of the following commands to set the “uca” user’s UCA for EBC environment variables and update the path:

On **csh**-like shell:

```
$ source /opt/UCA-EBC/.environment.csh
```

On **sh**-like shell:

```
$ . /opt/UCA-EBC/.environment.sh
```

2.6.1.3 Migrating from an earlier UCA-EBC version.

In the case you had an earlier UCA for EBC version installed on your system, you probably already have UCA for EBC instances definitions that you want to keep.

The *uca-ebc.properties* file coming with UCA for EBC version V3.2 has been enriched with some new settings. However the UCA for EBC installation script does not overwrite the existing version of this file with the new one in order to prevent losing important (customer specific) customizations.

The changes in the *uca-ebc.properties* file must then be re-applied manually for all UCA for EBC instances.

Changes to apply:

For each instance, edit the following file:

```
${UCA_EBC_DATA}/instances/<your instance>/conf/uca-ebc.properties
```

then perform the following:

1. Remove *uca-ebc.version* property if it exists (not used since 3.2):

2. Add the *uca.ebc.serverhost* property

```
uca.ebc.serverhost=<your local host name>
```

the local host name is usually **'localhost'** but depending on your settings you may have to set here either the fully qualified DNS name of your server or its IP Address.

3. Add the following section in the file if not existing yet:

```
#####  
# DO NOT MODIFY the Following Properties  
# property used by uca-ebc-admin tool  
uca.ebc.jmx.url:service\:jmx\:rmi\://${uca.ebc.serverhost}/jndi/rmi\://${uca.ebc.serv  
erhost}\:${uca.ebc.jmx.rmi.port}/uca-ebc
```

```

# properties used by uca-ebc-injector tool
java.naming.factory.initial = org.apache.activemq.jndi.ActiveMQInitialContextFactory
java.naming.provider.url =tcp\://${uca.etc.serverhost}\:${uca.etc.jms.broker.port}
# topic.[jndiName] = [physicalName]
topic.uca-ebc-alarms = com.hp.uca.etc.alarms
#####

```

Note : to prevent any errors you can copy such definitions from the uca-ebc.properties file provided at this location :

`${UCA_EBC_HOME}/defaults/conf/uca-ebc.properties`

2.7 File organization

UCA for EBC Server “static” part is installed under the `${UCA_EBC_HOME}` directory which is by default the `/opt/UCA-EBC` directory.

The following table describes the different sub-directories under the `${UCA_EBC_HOME}` root directory:

Subdirectories	Description
<i>admin</i>	<i>For Internal Use</i>
<i>apidoc</i>	Contains the Javadoc of the Java objects provided by UCA for EBC that can be used in Drools rules files.
<i>bin</i>	Contains the UCA for EBC executables
<i>defaults</i>	Contains the default: <ul style="list-style-type: none"> • configuration (in the conf/ sub-directory) • log db (in the logs/ sub-directory) • value packs (in the valuepacks/ sub-directory)
<i>lib</i>	Directory containing the JAR (Java ARchive) files needed by UCA for EBC
<i>licenses/3pp</i>	UCA for EBC 3 rd party licences
<i>schemas</i>	XML Schema Definition files (XSD) used by UCA for EBC
<i>webapp</i>	Home directory for the UCA for EBC Admin Web User Interface. It contains the UCA for EBC Web UI (User Interface) WAR (Web application ARchive) file

Table 6 - Sub-directories of `${UCA_EBC_HOME}`

UCA for EBC Server “variable” part is installed under the `${UCA_EBC_DATA}` directory which is by default the `/var/opt/UCA-EBC` directory.

In the `${UCA_EBC_DATA}` directory, all instances of UCA-EBC are stored under the `${UCA_EBC_DATA}/instances` subdirectory. At installation, only a single instance is created under `${UCA_EBC_DATA}/instances/default`.

The tool `${UCA_EBC_HOME}/bin/uca-ebc-instance` allows to manage instances.

The following table describes the different sub-directories under the `${UCA_EBC_DATA}/instances/<instance-name>` data directory:

Subdirectories	Description
<i>archive</i>	Contains UCA for EBC value packs after they have been undeployed
<i>conf</i>	UCA for EBC Server configuration files directory. The default configuration files of UCA for EBC are located in the <code>\${UCA_EBC_HOME}/defaults/conf</code> directory. Note that for additional instances, the port numbers are automatically tuned and may not reflect the default ones.
<i>deploy</i>	Runtime directory for UCA for EBC Value Packs. UCA for EBC value packs are expanded into this folder when they have been deployed.
<i>externallib</i>	Directory containing the JAR (Java ARchive) files that are needed by several UCA for EBC Value Packs
<i>licenses</i>	Directory containing the <i>license.txt</i> file used for license checking.
<i>logs</i>	Logs directory (this directory is created after UCA for EBC is first started). The default log database files of UCA for EBC are located in the <code>\${UCA_EBC_HOME}/defaults/logs</code> directory.
<i>users</i>	Directory containing the local 'user' database.
<i>valuepacks</i>	This directory is the place where available UCA for EBC value packs reside before they are deployed. The default value packs delivered with UCA for EBC are located in the <code>\${UCA_EBC_HOME}/defaults/valuepacks</code> directory.
<i>work</i>	Directory used to store temporary files at runtime.

Table 7 - Sub-directories of `${UCA_EBC_DATA}/instances/<instance-name>`

2.8 Uninstallation

The UCA for EBC Server product can be easily uninstalled by running the ***uninstall-uca-ebc*** script provided in the `${UCA_EBC_HOME}/bin` directory.

This uninstall utility must be run with the **root** privileges. (see note below for non-root user case)

When the ***uninstall-uca-ebc*** tool is launched, it checks for all UCA for EBC Server native packages installed on your system and prompts you for the number associated with the package to be uninstalled:

```
$ /opt/UCA-EBC/bin/uninstall-uca-ebc
```

The `/opt/UCA-EBC` used above is the default location of UCA for EBC Server kit and could be different in your case if UCA for EBC Server was installed with `-r` option.

You should get an output similar to the following text:

```
Here is the list of installed UCA-EBC packages:
```

```
[0]      UCA-EBCSERVER-V3.2-00B
```

```
Enter the index number of UCA-EBC version to un-install:
```

By entering '0' (as in the example above), UCA for EBC Server version V3.2-00B will be removed.

Note

Uninstalling UCA for EBC Server as non-root user:

Log in with the same user used to install UCA for EBC

```
${UCA_EBC_HOME}/bin/uninstall-uca-ebc
```

You should get an output similar to the following text:

```
Here is the list of installed UCA-EBC packages:
```

```
[0]      UCA-EBCSERVER-V3.2-00B
```

```
Enter the index number of UCA-EBC version to un-install:
```


UCA for EBC Channel Adapter

UCA for EBC Channel Adapter is delivered as an archive file named:

`uca-ebc-ca-kit-3.2-<os>.tar`

where `<os>` is either `linux` for **Linux** systems or `hpux` for **HP-UX** systems.

This chapter describes the software prerequisites, installation steps, and gives a brief content description of the UCA for EBC Channel Adapter kit.

3.1 Licensing

No extra license is required to run the UCA for EBC Channel Adapter.

Note

Please refer to Chapter 2.1 “*Licensing*” for more information on UCA for EBC licensing.

3.2 Disk requirements

Here are the disk requirements for the UCA for EBC Channel Adapter kit:

On HP-UX:

Type	Disk requirements
Temporary disk space	30 MB minimum: <ul style="list-style-type: none"> 15 MB minimum for the <code>uca-ebc-ca-kit-3.2-hpux.tar</code> file 15 MB minimum for the <code>install-uca-ebc-ca.sh</code> and <code>UCAEBCCA3200A.depot</code> files (expanded from the <code>uca-ebc-ca-kit-3.2-hpux.tar</code> file)
Permanent disk space	300 MB minimum for UCA for EBC Channel Adapter V3.2 installed on the system and deployed in an OSS Open Mediation V7.1 container

Table 8 - Disk Requirements for UCA for EBC Channel Adapter on HP-UX

On Linux:

Type	Disk requirements
Temporary disk space	30 MB minimum: <ul style="list-style-type: none">• 15 MB minimum for the uca-ebc-ca-kit-3.2-linux.tar file• 15 MB minimum for the install-uca-ebc-ca.sh and UCA-EBCCA-V3.2-00A.noarch.rpm files (expanded from the uca-ebc-ca-kit-3.2-hpux.tar file)
Permanent disk space	300 MB minimum for UCA for EBC Channel Adapter V3.2 installed on the system and deployed in an OSS Open Mediation V7.1 container

Table 9 - Disk Requirements for UCA for EBC Channel Adapter on Linux

3.3 Software prerequisites

3.3.1 OSS Open Mediation V7.1

UCA for EBC Channel Adapter is a 'plugin' component for the "OSS Open Mediation V7.1" application.

As such, it requires that the "OSS Open Mediation V7.1" application be properly installed and configured on the system before installing the UCA for EBC Channel Adapter.

The following table lists the mandatory OSS Open Mediation V7.1 dependencies for UCA for EBC Channel Adapter:

Software	Package Reference (Linux)	Package Reference (HP-UX)
OSS Open Mediation V7.1	ngossopenmediation-7.1.0	NGOSSOPENMEDIATION710

Table 10 - Software Prerequisites for UCA for EBC Channel Adapter (Linux and HP-UX)

Depending on the configuration of your whole solution comprising UCA for EBC, OSS Open Mediation V7.1 (including Channel Adapters), and 3rd party products, you may also need to install the following optional component:

- The TeMIP Channel Adapter: if your solution involves TeMIP
- The Exec Channel Adapter: if you need the ability to execute shell scripts or executables in your solution

Note

Please refer to the *OSS Open Mediation Installation and configuration Guide* [R3] for information on how to properly install and configure OSS Open Mediation V7.1.

Before installing UCA for EBC Channel Adapter, you must identify the home directory of OSS Open Mediation and the default container number (by default, this is container 0).

3.3.2 Compatibility matrix

UCA for EBC Channel Adapter V3.2 targets OSS Open Mediation V7.1 as mentioned in the previous chapter.

Below is the list of versions of UCA for EBC Channel Adapter and the corresponding versions of OSS Open Mediation that each version supports.

Supported UCA for EBC version	Supported OSS Open Mediation version	UCA for EBC Channel Adapter version
UCA for EBC V3.2	OSS Open Mediation V7.1	UCA for EBC Channel Adapter V3.2
UCA for EBC V3.1 or UCA for EBC V3.2	OSS Open Mediation V7.0	UCA for EBC Channel Adapter V3.1
UCA for EBC V3.0 or UCA for EBC V3.1 or UCA for EBC V3.2	OSS Open Mediation V6.2	UCA for EBC Channel Adapter V3.0

Table 11 – UCA for EBC Channel Adapter / OSS Open Mediation compatibility matrix

3.4 Installation

3.4.1 Product installation

As root user, untar the UCA for EBC Channel Adapter archive file under a temporary local directory (For example: /tmp):

On HP-UX:

```
$ cd /tmp
$ tar -xvf <kit location>/uca-ebc-ca-kit-3.2-hpux.tar
```

On Linux:

```
$ cd /tmp
$ tar -xvf <kit location>/uca-ebc-ca-kit-3.2-linux.tar
```

Still as root user, run the package installation script:

On both HP-UX and Linux:

```
$ install-uca-ebc-ca.sh -o <OSS Open Mediation root directory>
[-r <UCA for EBC Channel Adapter installation directory>]
```

The *<OSS Open Mediation root directory>* parameter value represents the absolute path of the Installation Root directory of the OSS Open Mediation product (by default the /opt/openmediation-71 directory).

If OSS Open Mediation has been installed at an alternate location, please check with your system administrator to get the correct value for the installation directory of OSS Open Mediation V7.1.

The *<UCA for EBC Channel Adapter installation directory >* parameter value represents the absolute path of the UCA for EBC Channel Adapter

installation directory (by default the standard UCA for EBC root directory: `/opt/UCA-EBC`).

Please execute the `install-uca-ebc-ca.sh -h` command for a description of all available options.

The UCA for EBC Channel adapter installation script creates a soft link in the `< OSS Open Mediation root directory>/ips` directory that links to the UCA for EBC Channel adapter installation directory.

Note

Installing UCA for EBC Server as non-root user (Linux only):

For testing purpose (or for some very specific needs) the UCA for EBC Channel Adapter package can be installed by a non-root user. This feature is available for Linux only.

When installing UCA for EBC Channel Adapter as non-root user, the following limitations must be understood and acknowledged:

- The system RPM database is not accessible by a non-root user. As a consequence, when installation is performed by a non-root user, a specific RPM database must be specified. The default RPM repository for non-root installation is set to `~/rpmdb` (where `~` is the user home directory). This directory can be overridden by specifying the `--rpmdbpath` option as installation script argument. However, the `-rpmdbpath` option is not recommended and may disappear in next versions. We recommend to set your RPM db as followed so that next calls to `rpm` command will use it (for example `rpm -q queries`)

```
$ echo %_dbpath $HOME/.rpmdb > $HOME/.rpmmacros
```

- The UCA for EBC Channel Adapter root directory as well as the OSS Open Mediation root directory must be read/write accessible by the non-root user. As a consequence, when installation is performed by a non-root user, the `-r` and `-o` options **must be** specified. More over this user must be the same than the one that did install the OSS Open Mediation packages.
 - When installed by the non-root users the UCA for EBC Channel Adapter files are owned by the user who performed the installation.
-

3.4.2 Post-installation setup

After the UCA for EBC Channel Adapter has been installed, a few tasks must be performed in order to complete the installation. These tasks are described in detail in the following paragraphs but for now, here's a summary of these tasks:

1. Install the UCA for EBC Channel Adapter on OSS Open Mediation

This task renders the UCA for EBC Channel Adapter available to be installed in an OSS Open Mediation container. This task is a pre-requisite for the next task.

2. Install the UCA for EBC Channel Adapter in an OSS Open Mediation container

This tasks installs the UCA for EBC Channel Adapter in an OSS Open Mediation container. The UCA for EBC Channel Adapter is ready to be configured but is not yet deployed. This means that the UCA for EBC Channel

Adapter will not be started when the OSS Open Mediation container is started. This task is a pre-requisite for the next task.

3. Configure the UCA for EBC Channel Adapter

This task configures the UCA for EBC Channel Adapter in an OSS Open Mediation container. Once the UCA for EBC Channel Adapter is configured, it becomes ready to be deployed in an OSS Open Mediation container. This task is optional and depends on your configuration.

4. Deploy the UCA for EBC Channel Adapter in an OSS Open Mediation container

This task deploys (i.e. starts) the UCA for EBC Channel Adapter in an OSS Open Mediation container. This means that the UCA for EBC Channel Adapter will be started whenever the OSS Open Mediation container is started.

Note

All commands in the following sub-sections must be run using the same user account that was used to perform OSS Open Mediation setup and is responsible for OSS Open Mediation administration.

3.4.2.1 Install the UCA for EBC Channel Adapter on OSS Open Mediation

Installing the UCA for EBC Channel Adapter on OSS Open Mediation is done using the following command (where *<OSS Open Mediation root directory>* represents the OSS Open Mediation root directory which, by default, translates to the */opt/openmediation-71* directory):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --install-ip uca-ebc-ca-3.2
```

Verify that the installation was successful by using the following command:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip
```

The following text should be displayed:

```
INSTALLED          uca-ebc-ca-3.2
```

Note

In a nutshell, the `nom_admin --install-ip` command copies the channel adapter's configuration files from `/opt/openmediation-71/ips` to `/var/opt/openmediation-71/ips` (assuming that OSS Open Mediation V7.1 is installed at the default location).

Once the channel adapter has been installed on OSS Open Mediation V7.1, it becomes ready to be deployed in an OSS Open Mediation V7.1 container, which we will describe in the next paragraph.

3.4.2.2 Install the UCA for EBC Channel Adapter in an OSS Open Mediation container

Deciding in which container number to install the UCA for EBC Channel Adapter depends entirely on your OSS Open Mediation configuration, how you choose to group channel adapters among containers and how to choose to distribute OSS Open Mediation across containers.

The following command is an example that installs the UCA for EBC Channel Adapter in OSS Open Mediation container 0.

It is recommended in a first step (if we set aside OSS Open Mediation distribution considerations*) to install UCA for EBC Channel Adapter in OSS Open Mediation container 0, provided the other OSS Open Mediation Channel Adapters are also installed in container 0.

Depending on your configuration you may want to install the UCA for EBC Channel Adapter in container 0 or another container. Please adjust the sample command below to suit your needs.

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --install-  
ip-in-container 0 uca-ebc-ca-3.2
```

In order to check whether the installation was successful or not, you must first start container 0 (or whichever container number depending on your configuration).

If you do not wish to start container 0 just yet, please skip this verification and move to the next section explaining how to deploy the channel adapter in an OSS Open Mediation container.

Otherwise you can check whether container 0 is started or not, by issuing the following command:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-  
container
```

The following text should be displayed:

```
List of the containers:  
0          STARTED      Hub
```

If container 0 is not yet started, please issue the following command to start container 0:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --start-  
container 0
```

The following text should be displayed:

```
Container instance number 0 has been STARTED.
```

Now that container 0 is started, you can issue the following command to verify whether the installation of UCA for EBC Channel Adapter in OSS Open Mediation container 0 was successful or not:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip-  
in-container 0
```

The following text should be displayed:

```
...  
INSTALLED IN INSTANCE          uca-ebc-ca-3.2
```

Note

* Please refer to the *OSS Open Mediation Installation and Configuration Guide* [R3] for more information on installation, configuration and distribution of OSS Open Mediation.

3.4.2.3 Configure the UCA for EBC Channel Adapter

The UCA for EBC Channel adapter needs to be configured if you want to remove the default traces (for example if you are in a production environment), if UCA for EBC Server doesn't run on the same system as OSS Open Mediation or if the UCA for EBC Server collection queue port number has been changed and is different from the default value of 61666.

Modifying the uca-ebc-ca.properties file

If UCA for EBC Server doesn't run on the same system as OSS Open Mediation or if the UCA for EBC Server collection queue port number has been changed and is different from the default value of 61666, the following configuration file needs to be updated:

```
/var/<OSS Open Mediation root  
directory>/containers/instance-0/ips/uca-ebc-ca-  
3.2/etc/uca-ebc-ca.properties
```

Where:

- *<OSS Open Mediation root directory>* stands for the OSS Open Mediation installation root directory, which, by default, translates to the */opt/openmediation-71* directory
- **instance-0** is the OSS Open Mediation container instance folder name. Depending on you configuration, the container number could be different than 0. If this is the case, please adjust the name of the container instance folder accordingly

In this file, the `uca.ebc.jms.broker.host`, `uca.ebc.jms.broker.port` and `uca.ebc.gui.port` properties should be updated with the correct value for the UCA for EBC Server collection queue hostname and port number:

```

# UCA EBC Server to connect to
uca.ebc.jms.broker.host=localhost
uca.ebc.jms.broker.port=61666
uca.ebc.gui.port=8888
subscription.management.action.name.hint=UCAEBCSubscriptionManagement

# Action Service
action-service.host=0.0.0.0
action-service.port=26700
action.threads = 24
action.timeout = 20000

```

1. Replace: **'localhost'** by the IP Address or full DNS name of the system running UCA for EBC Server. Please be aware that the value you set for the `uca.ebc.jms.broker.host` property must match the value you have set for the `uca.ebc.serverhost` property in the `_${UCA_EBC_INSTANCE}/conf/uca-ebc.properties` file.

If you have set the `uca.ebc.serverhost` property to `localhost` or `127.0.0.1` in the `_${UCA_EBC_INSTANCE}/conf/uca-ebc.properties` file then you must use `localhost` or `127.0.0.1` here.

Alternatively, if you have set the `uca.ebc.serverhost` property to the actual IP address/DNS name of the server (or one of the IP addresses/DNS names of the server in case the server has more than one) in the `_${UCA_EBC_INSTANCE}/conf/uca-ebc.properties` file then you must use the same IP address/DNS name here.

If you have set the `uca.ebc.serverhost` property to `0.0.0.0` in the `_${UCA_EBC_INSTANCE}/conf/uca-ebc.properties` file then you should be able to use `localhost`, `127.0.0.1`, or any IP address/DNS name of the server here.

2. Replace: **'61666'** by the correct port number for UCA for EBC Server collection queue (only if it is different from the default value of 61666)
3. Replace: **'8888'** by the correct port number for UCA for EBC Server GUI (only if it is different from the default value of 8888)

Regarding other properties, please update as needed:

- The `subscription.management.action.name.hint` property indicates the value to use for the **NOMActionNameHint** JMS property when sending subscription management requests, i.e. `CreateFlow/DeleteFlow/ResynchFlow/StatusFlow`, to UCA for EBC CA. The default value is `UCAEBCSubscriptionManagement`. In case your environment involves multiple UCA for EBC CAs across multiple interconnected OSS Open Mediation containers, you may want to change the value of this property so that each UCA for EBC CA has a different value for this property.
- The `action.threads` property indicates how many threads to use for processing actions in the UCA for EBC CA
- The `action.timeout` property indicates the timeout (in milliseconds) for actions processed by the UCA for EBC CA

Note

The port number for UCA for EBC Server default instance is 61666 (also the default port number for UCA for EBC GUI is 8888). Additional instances of UCA for EBC will have different port numbers, so the above port number changes are mandatory for accessing additional instances of UCA for EBC server.

If you modify the UCA for EBC Channel Adapter configuration while the UCA for EBC Channel Adapter is already deployed in an OSS Open Mediation container (this should not be the case if you're installing the UCA for EBC Channel Adapter for the first time following the instructions in these chapters), you will need to either undeploy then redeploy the UCA for EBC Channel Adapter in the container, or restart the container for the changes in the configuration to be taken into effect.

Below are the commands to issue to restart the OSS Open Mediation container where the UCA for EBC channel adapter is installed:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --shutdown-container 0
```

The following text should be displayed:

```
Container instance number 0 has been SHUTDOWN.
```

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --start-container 0
```

The following text should be displayed:

```
Container instance number 0 has been STARTED.
```

Enable debug logging to a single file

This step is optional. It is not recommended for production environments since it involves logging messages at the DEBUG level.

In case you want to configure OSS Open Mediation to log all UCA for EBC Channel Adapter DEBUG log messages to a single file, you can edit the *<OSS Open Mediation container instance directory>/conf/log4j.xml* file (by default this translates to: */var/opt/openmediation-<version>/containers/instance-<instance number>/conf/log4j.xml*) to add an UCA for EBC Channel Adapter specific appender and loggers:

```

...
    <appender name="UCA-EBC-CA" class="org.apache.log4j.RollingFileAppender">
      <param name="threshold" value="DEBUG"/>
      <param name="File" value="data/log/servicemix-uca-ebc-ca.log"/>
      <param name="MaxFileSize" value="50MB"/>
      <param name="MaxBackupIndex" value="10"/>
      <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d %-5p [%t] %c %x - %m%n"/>
      </layout>
    </appender>
...
    <logger name="uca-ebc-ca-actions-to-nom" additivity="false">
      <level value="DEBUG"/>
      <appender-ref ref="UCA-EBC-CA"/>
    </logger>
    <logger name="uca-ebc-ca-alarms-to-nom" additivity="false">
      <level value="DEBUG"/>
      <appender-ref ref="UCA-EBC-CA"/>
    </logger>
    <logger name="uca-ebc-ca-alarms-from-nom" additivity="false">
      <level value="DEBUG"/>
      <appender-ref ref="UCA-EBC-CA"/>
    </logger>
...

```

All UCA for EBC Channel Adapter DEBUG log messages will be logged to the `<OSS Open Mediation container instance directory>/data/log/servicemix-uca-ebc-ca.log` file (by default this translates to `/var/opt/openmediation-<version>/containers/instance-<instance number>/data/log/servicemix-uca-ebc-ca.log`).

Configuring the threads

This step is optional. It is recommended for production environments or if you expect the UCA for EBC Channel Adapter to process a large volume of actions.

The thread pool size options of the UCA for EBC Channel Adapter with regards to actions can be set by editing the `actions-to-nom.xml` file located in the following folder:

```

/var/opt/openmediation-71/containers/instance-<instance
number>/ips/uca-ebc-ca-3.2/etc

```

It is recommended to add threading parameters (to the CXF component) as shown in the following screenshot (the lines to add are highlighted):

```

<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
  xmlns:context="http://www.springframework.org/schema/context"
  xmlns:tns="http://hp.com/openmediation/${ca.name}/${ca.version.artifacts}"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:uca="http://server.action.mediation.uca.hp.com/"
  xmlns:actions="http://hp.com/openmediation/actions/2011/08"
  xmlns:cxfr="http://camel.apache.org/schema/cxfr"
  xmlns:lang="http://www.springframework.org/schema/lang"
  xmlns:http="http://camel.apache.org/transports/http-jetty/configuration"
  xsi:schemaLocation="
    http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd
    http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context.xsd
    http://camel.apache.org/schema/spring http://camel.apache.org/schema/spring/camel-spring.xsd
    http://camel.apache.org/schema/cxfr http://camel.apache.org/schema/cxfr/camel-cxfr.xsd
    http://www.springframework.org/schema/lang http://www.springframework.org/schema/lang/spring-lang.xsd
    http://camel.apache.org/transports/http-jetty/configuration http://camel.apache.org/schemas/configuration/http-jetty.xsd">

  <import resource="classpath:META-INF/cxfr/cxfr.xml" />
  <http:engine-factory bus="cxfr">
    <http:engine port="${action-service.port}">
      <http:threadingParameters minThreads="5" maxThreads="50" />
    </http:engine>
  </http:engine-factory>

```

Figure 1 - Setting the CXF component thread pool size in the actions-to-nom.xml file

You should adjust the *maxThreads* property value according to the *action.threads* property of the */\${UCA_EBC_INSTANCE}/conf/uca-ebc.properties* file using the following formula:

$$\text{maxThreads (in UCA EBC CA)} = \text{action.threads (in UCA EBC)} + 4$$

3.4.2.4 Deploy the UCA for EBC Channel Adapter in an OSS Open Mediation container

In order to deploy the UCA for EBC channel adapter in OSS Open Mediation container 0, please issue the following command:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --deploy-ip-in-container 0 uca-ebc-ca-3.2
```

Verify that the deployment was successful by using the following command (provided the container is started):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip-in-container 0
```

The following text should be displayed:

```
...
DEPLOYED          uca-ebc-ca-3.2
```

The UCA for EBC Channel Adapter is now up and running in an OSS Open Mediation container.

3.5 File organization

The UCA for EBC Channel Adapter is installed in the root directory specified at installation (by default /opt/UCA-EBC).

The following table describes the different subdirectories contained in the delivery:

Directory	Description
<i>ips/uca-ebc-ca-3.2/etc</i>	Contains the configuration files (including the XSLT files used for mapping) for the UCA for EBC Channel Adapter
<i>ips/uca-ebc-ca-3.2/jbisa</i>	Contains the Service Assembly (to be deployed on an OSS Open Mediation V7.1 container) for the UCA for EBC Channel Adapter
<i>ips/uca-ebc-ca-3.2/misc</i>	Contains the XML Schema Definition files used by the UCA for EBC Channel Adapter
<i>bin</i>	Contains the UCA for EBC Channel Adapter uninstall script.

Table 12 - Sub-directories of UCA for EBC Channel Adapter installation directory

3.6 Un-installation

In order to un-install the UCA for EBC Channel Adapter, you will need to:

1. Un-deploy the UCA for EBC Channel Adapter from any OSS Open Mediation container where it has been deployed.
2. Un-install the UCA for EBC Channel Adapter from any OSS Open Mediation container where it has been installed.
3. Un-install the UCA for EBC Channel Adapter from OSS Open Mediation.
4. Un-install the UCA for EBC Channel Adapter from the system.

Note

All commands in the following sub-sections (unless mentioned otherwise) must be run using the same user account that was used to perform OSS Open Mediation setup and is responsible for OSS Open Mediation administration.

3.6.1 Un-deploy the channel adapter from any OSS Open Mediation container

To un-deploy the UCA for EBC Channel Adapter from an OSS Open Mediation container, please execute the following command (repeat this command for each container where the UCA for EBC Channel Adapter is deployed):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --undeploy-  
ip-in-container <container number> uca-ebc-ca-3.2
```

Verify that the undeployment was successful by using the following command (provided container *<container number>* is started):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip-  
in-container <container number>
```

The following text should be displayed:

```
...  
INSTALLED IN INSTANCE          uca-ebc-ca-3.2
```

3.6.2 Un-install the channel adapter from any OSS Open Mediation container

To un-install the UCA for EBC Channel Adapter from an OSS Open Mediation container, please execute the following command (repeat this command for each container where the UCA for EBC Channel Adapter is installed):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --remove-  
ip-in-container <container number> uca-ebc-ca-3.2
```

Verify that the un-installation was successful by using the following command (provided container *<container number>* is started):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip-  
in-container <container number>
```

The text displayed as a result of executing this command should not mention the uca-ebc-ca-3.2 installation package anymore.

3.6.3 Un-install the channel adapter from OSS Open Mediation

To un-install the UCA for EBC Channel Adapter from OSS Open Mediation, please execute the following command:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --remove-ip  
uca-ebc-ca-3.2
```

You can verify that the un-installation was successful by using the following command:

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --list-ip
```

The following text should be displayed:

```
NOT INSTALLED          uca-ebc-ca-3.2
```

3.6.4 Un-install the channel adapter

The UCA for EBC Channel Adapter product can be easily uninstalled by running the ***uninstall-uca-ebc-ca*** script provided in the *<UCA for EBC Channel Adapter Root Directory>/bin* directory.

This uninstall utility must be run with the **root** privileges. However on Linux, if the installation had happened with a non-root user, the uninstallation can be performed with the same non-root user

When the ***uninstall-uca-ebc*** tool is launched, it checks for all UCA for EBC Server native packages installed on your system and prompts you for the number associated with the package to be uninstalled:

On both HP-UX and Linux:

```
$ /opt/UCA-EBC/bin/uninstall-uca-ebc
```

You should get an output similar to the following text:

```
Here is the list of installed UCA-EBC CA packages:
```

```
[0]      UCA-EBCCA-V3.2-00A
```

```
Enter the index number of UCA-EBC version to un-install:
```

By entering '0' (as in the example above), UCA for EBC Channel Adapter version V3.2-00A will be removed.

UCA for EBC Development Kit

The UCA for EBC Development Kit is running and supported on Windows and Linux. It is delivered as follow:

On Windows XP/Vista, Windows 7, Windows Server 2007:

uca-ebc-dev-kit-3.2-msi.zip

On Linux:

uca-ebc-dev-kit-3.2-linux.tar

This chapter describes the software prerequisites, the installation steps, and gives a brief content description of the UCA for EBC Development kit.

4.1 Licensing

Please refer to Chapter 2.1 “*Licensing*” for more information on UCA for EBC Development Kit licensing.

4.2 Disk requirements

Here are the disk requirements for the UCA for EBC Development Kit:

On Windows:

Type	Disk requirements
Temporary disk space	160 MB minimum: <ul style="list-style-type: none">• 80 MB minimum for the uca-ebc-dev-packaging-3.2-msi.zip file• 80 MB minimum for the UCA-EBCDEVTOOLKIT-V3.2-00B.msi file (expanded from the uca-ebc-dev-kit-3.2-msi.zip file)
Permanent disk space	80 MB minimum for UCA for EBC Development Kit V3.2 installed on the system

Table 13 - Disk Requirements for UCA for EBC Development Kit on Windows

On Linux:

Type	Disk requirements
Temporary disk space	160 MB minimum: <ul style="list-style-type: none">• 80 MB minimum for the uca-ebc-kits-3.2-linux.tar file• 80 MB minimum for the install-uca-ebc.sh and UCA-EBC-DEVTOOLKIT-V3.2-00B.noarch.rpm files (expanded from the uca-ebc-dev-kit-3.2-linux.tar file)
Permanent disk space	80 MB minimum for UCA for EBC V3.2 installed on the system

Table 14 - Disk Requirements for UCA for EBC Development Kit on Linux

4.3 Software prerequisites

4.3.1 Java

UCA for EBC V3.2 Server, UCA for EBC V3.2 Topology Extension, UCA for EBC V3.2 Development Toolkit, and UCA for EBC V3.2 Value Packs support both Java 1.6 and Java 1.7.

However Java 1.7 is the recommended platform to use.

Software	Version
Java JRE/JDK 6	1.6.0.XX
Java JRE/JDK 7	1.7.0.XX (recommended)

Table 15 - Software Prerequisites for UCA for EBC Development Kit

Notes

Please note that if your Value Packs are compiled with one version of Java, it is strongly recommended that UCA for EBC Server is also running the same version of Java to avoid running into compatibility issues between Java 6 and Java 7.

For instance any UCA for EBC Inference Machine Value Pack will require Java 7.

For more information on these compatibility issues, you can go to:

<http://www.oracle.com/technetwork/java/javase/compatibility-417013.html>

The JAVA_HOME environment variable must be set before using UCA for EBC Development Kit:

On Windows:

In the *Control Panel*, Open *System Properties*, open the *Advanced* tab and click *Environment Variables*, then set the JAVA_HOME environment variable according to the location of your JDK:

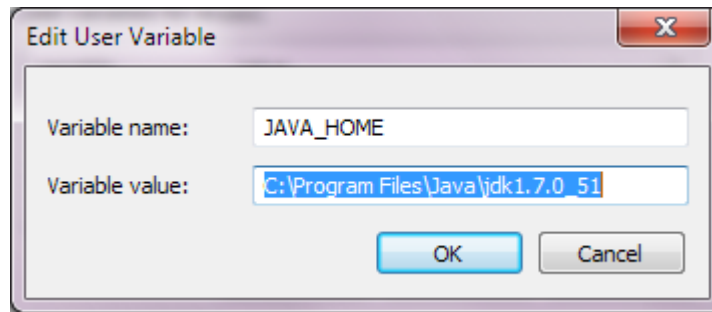


Figure 2 - Setting the JAVA_HOME environment variable on Windows systems

In case Java is not yet installed on your system, the latest JDK package for Microsoft Windows operating systems can be downloaded (for free) from <http://java.com/en/download/manual.jsp>.

On Linux:

Depending on your shell, and the location of the Java JDK software, please use one of the following commands to set the JAVA_HOME environment variable:

Example for **cs**h-like shell:

```
$ setenv JAVA_HOME /opt/java/jdk1.7.0_75
```

Example for **sh**-like shell:

```
$ export JAVA_HOME=/opt/java/jdk1.7.0_75
```

To check if you already have Java installed:

```
$ rpm -qa | grep jdk
```

Red Hat Enterprise Linux Server comes with OpenJDK Java VM. You should get an output similar to the following (here 1.6.0 and 1.7.0 are installed):

```
java-1.6.0-openjdk-1.6.0.0-1.41.1.10.4.el6.x86_64
java-1.6.0-openjdk-devel-1.6.0.0-1.41.1.10.4.el6.x86_64
java-1.7.0-openjdk-1.7.0.9-2.3.4.1.el6_3.x86_64
java-1.7.0-openjdk-devel-1.7.0.9-2.3.4.1.el6_3.x86_64
```

You can also download (for free) the latest Java packages (HotSpot Java VM) from Oracle from <http://java.com/en/download/manual.jsp>. If this is installed (usually under /usr/java), you should get an output similar to the following:

```
jdk-1.7.0_75-fcs.x86_64
```

4.4 Installation on Windows

Install the UCA for EBC Development Kit by executing the UCA-EBC-DEVTOOLKIT-V3.2-00B.msi file.

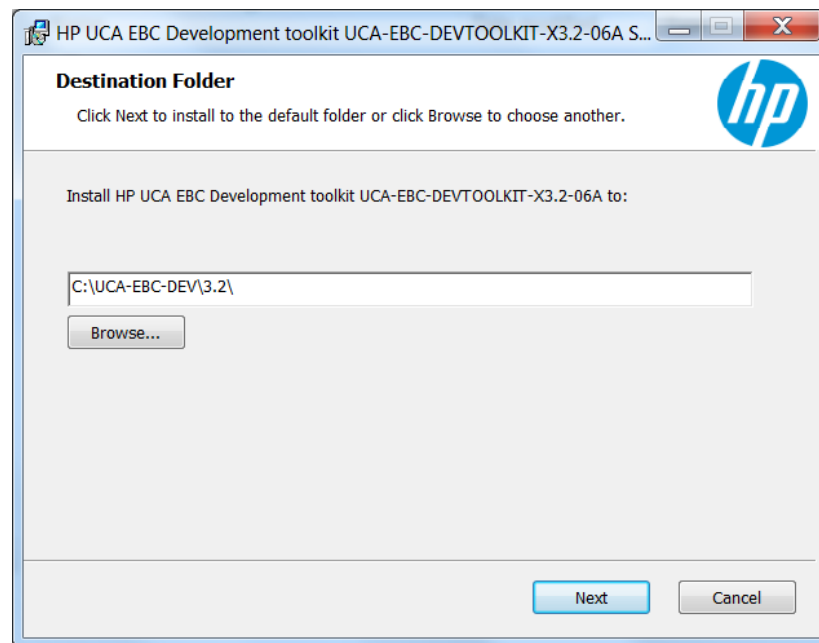


Figure 3 - Installing UCA for EBC Development Kit

By default, the UCA for EBC Development Kit is installed in the `C:\UCA-EBC-DEV\3.2\` directory.

The installer automatically creates/updates some environment variables such as:

- The system's PATH environment variable is updated in order to make 3rd party product executables (i.e. Apache Ant) easily available
- The UCA_EBC_DEV_HOME environment variable that stores the UCA for EBC Development Kit root directory (by default `C:\UCA-EBC-DEV\3.2\`) is updated

Note

On **Windows 7**, you must log off and log back in again in order for these new/updated environment variables to be taken into account.

4.5 Installation on Linux

- Untar the archive in a temporary directory:

As **root** user, untar the archive in a temporary local directory (For example: `/tmp`):

```
$ cd /tmp
$ tar -xvf <kit location>/uca-ebc-dev-kit-3.2-linux.tar
```

- Run the installation script

Depending on whether you wish to install the UCA for EBC Development Kit at the default location, i.e. `/opt/UCA-EBC-DEV`, or an alternate location, run either of the following commands to execute the installation script.

To install UCA for EBC Development Kit at the default location (in `/opt/UCA-EBC-DEV` directory), please execute the following command as **root** user:

```
$ install-uca-ebc-dev.sh
```

To install UCA for EBC Development Kit at an alternate location of your choosing, please execute the following command as **root** user:

```
$ install-uca-ebc-dev.sh -r <Alternate root directory>
```

- Post-installation setup : setting the environment variable

The UCA for EBC Development Kit on Linux requires the `UCA_EBC_DEV_HOME` environment variable to be set in order to work properly.

For that purpose, the UCA for EBC Development Kit installation script installs two files in the UCA for EBC Development Kit root directory:

By default:

- `/opt/UCA-EBC-DEV/.dev_environment.sh`
- `/opt/UCA-EBC-DEV/.dev_environment.csh`

These files can be used for setting the correct environment variables for the user account(s) that will be using the UCA for EBC Development Kit.

Depending on your shell, use one of the following commands to set the UCA for EBC Development Kit environment variables and update the path:

On **csh**-like shell:

```
$ source /opt/UCA-EBC-DEV/.dev_environment.csh
```

On **sh**-like shell:

```
$ . /opt/UCA-EBC-DEV/.dev_environment.sh
```

Note

Installing UCA for EBC Development kit as non-root user (Linux only):

For testing purpose (or for some very specific needs) the UCA for EBC Development Kit package can be installed by a non-root user. This feature is available for Linux only.

When installing UCA for EBC Development Kit as non-root user, the following limitations must be understood and acknowledged:

- The system RPM database is not accessible by a non-root user. As a consequence, when installation is performed by a non-root user, a specific RPM database must be specified. The default RPM repository for non-root installation is set to `~/rpmdb` (where `~` is the user home directory). This directory can be overridden by specifying the `--rpmdbpath` option as installation script argument. However, the `--rpmdbpath` option is not recommended and may disappear in next versions. We recommend to set your RPM db as followed so that next calls to `rpm` command will use it (for example `rpm -q queries`)

```
$ echo %_dbpath $HOME/.rpmdb > $HOME/.rpmmacros
```

- The UCA for EBC Development Kit root directory must be read/write accessible by the non-root user. Usually the default /opt/UCA-EBC-DEV directory cannot be used (unless some specific rights have been set by the administrator). As a consequence, when installation is performed by a non-root user, the default is set to \$HOME/UCA-EBC-DEV. If you need to set specific directory, the `-r` option should be specified
 - When installed by the non-root users the UCA for EBC Development Kit files are owned by the user who performed the installation.
-

4.6 File organization

The UCA for EBC Development Kit is installed under the `%UCA_EBC_DEV_HOME%` directory on Windows or the `${UCA_EBC_DEV_HOME}` directory on Linux, which is by default the `C:\UCA-EBC-DEV` directory on Windows or the `/opt/UCA-EBC-DEV` directory on Linux.

The following table describes the different subdirectories under the `%UCA_EBC_DEV_HOME%` directory on Windows or the `${UCA_EBC_DEV_HOME}` directory on Linux:

Directories	Description
<i>3pp</i>	Contains 3 rd party products needed to build value packs, i.e. Apache Ant
<i>apidoc</i>	Contains the Javadoc of the Java objects provided by UCA for EBC that can be used in Drools rules files.
<i>bin</i>	Contains the un-installer tool
<i>eclipseplugin</i>	Contains the eclipse plugin and associated template files
<i>lib</i>	Contains the jar files needed by the UCA for EBC Development Kit
<i>mediation-libs</i>	Contains Jar files describing the mapping capabilities of both the UCA for EBC channel adapter and the TeMIP channel adapter
<i>vp-examples</i>	Contains a set of valuepack examples used to demonstrate the UCA for EBC capability in different domains.

Table 16 - Sub-directories of UCA for EBC Development Kit installation directory

4.7 Un-installation

In order to uninstall the UCA for EBC Development Kit, please follow the instructions below:

4.7.1 On Windows:

1. Go to the **Control Panel**
2. Select **“Program and Features”**
3. Right-click on **“HP UCA EBC Development toolkit – UCA-EBC-DEVTOOLKIT-V3.2-00B”**
4. Select **“Uninstall”**

4.7.2 On Linux:

Run the uninstall script:

```
$ /opt/UCA-EBC-DEV/bin/uninstall-uca-ebc-dev
```

You should get an output similar to the following text:

```
Here is the list of installed UCA-EBC-DEV packages:
```

```
[0]      UCA-EBC-DEVTOOLKIT-V3.2-00B
```

```
Enter the index number of UCA-EBC-DEV version to un-install:
```

By entering ‘0’ (as in the example above), UCA for EBC Development Toolkit version V3.2-00B will be removed.

Code Signing

This Software Product from HP is digitally signed and accompanied by Gnu Privacy Guard (GnuPG) key.

5.1 On Red Hat Enterprise Linux and HP-UX platforms

Below mentioned procedure* allows you to assess the integrity of the delivered Product before installing it, by verifying the signature of the software packages.

Pick the signature (.sig) file shipped along with the product and use following GPG command

```
gpg --verify <product.sig> <product>
```

```
Example: gpg --verify VPNSVP-X51-3A.zip.sig VPNSVP-X51-3A.zip
```

Note: Look for the comments shown below in the command output

Good signature from "Hewlett-Packard Company (HP Code signing Service)"

=====

Note: If you are not familiar with signature verification using GPG and intended to verify HP Product signature, follow the steps given below.

1. Check whether gnupg gpg is installed on the system. If no, install gnupg gpg
2. Configure GPG for accepting HP signature. The steps are the following:
 - a. Log as root on your system
 - b. Get the hpPublicKey from following location:
<https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning> and save it as hpPublicKey.pub
Note that the hpPublicKey file will be located in the root's home directory.
 - c. Follow the instruction found at above URL in the "Verification using GPG" section.

**HP strongly recommends using signature verification on its products, but there is no obligation. Customers will have the choice of running this verification or not as per their IT Policies.*

Glossary

UCA: Unified Correlation Analyzer

EBC: Event Based Correlation

IP: Installation Package for OSS Open Mediation

JDK: Java Development Kit

JMS: Java Messaging Service

JMX: Java Management eXtension, used to access or process action on the UCA for EBC product

JNDI: Java Naming and Directory Interface

JRE: Java Runtime Environment

Inference Engine: Process that uses a Rete algorithm

DRL: Drools Rule file

XML: Extensible Markup Language

XSD: Schema of an XML file, describing its structure

X733: Standard describing the structure of an Alarm used in telecommunication environment