Unified Correlation Analyzer

Installation Guide

Version 3.4
Edition: 1.0

Hewlett Packard Enterprise

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Preface

About this guide

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

Product Name: Unified Correlation Analyzer

Product Version: V3.4

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:

Table 1 - Software versions

Product Version	Supported Operating systems
UCA for Event Based Correlation Server Version 3.4	Red Hat Enterprise Linux Server, 64 bits, Release 6.x & 7.x
UCA for Event Based Correlation Channel Adapter 3.4	Red Hat Enterprise Linux Server, 64 bits, Release 6.x & 7.x
UCA for Event Based Correlation Software Development Kit Version 3.4	Windows 7 64 bits Red Hat Enterprise Linux Server, 64 bits, Release 6.x & 7.x

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:

[R1] `Unified Correlation Analyzer – Reference Guide`

[R2] `Unified Correlation Analyzer – Value Pack Development Guide`

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

[R4] `Unified Correlation Analyzer – Clustering and HA Guide`

Support

Please visit our HPE Software Support Online Web site at https://softwaresupport.hpe.com for contact information, and details about HPE 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.

Chapter 1
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 - Reference Guide* [R1].

Chapter 2 UCA for EBC Server

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

```
uca-ebc-server-kit-3.4-<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.

HPE standard end user license agreement for HPE Software products and Additional License Authorizations for HPE CMS Software products are published on https://softwaresupport.hpe.com. For any questions related to licensing, please get in touch with your local HPE sales representative or HPE 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 HPE 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: http://enterpriselicense.hpe.com/redirector/home

You can also contact the HPE 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:

Table 2: UCA for EBC product names and features

Product name (i.e. type of license key)	Enabled UCA for EBC features
UCA for EBC Server Production 4 cores	UCA for EBC Server UCA for EBC Server production core capacity for 4 cores
UCA for EBC Server Incremental Production *N* cores	UCA for EBC Server production core capacity for *N* cores
UCA for EBC Server Non Production 4 cores	UCA for EBC Server UCA for EBC Server non production core capacity for 4 cores
UCA for EBC Server Incremental Non Production *N* cores	UCA for EBC Server non production core capacity for *N* cores
UCA for EBC Graph DB Production 4 cores	UCA for EBC Topology Extension UCA for EBC Graph DB production core capacity for 4 cores
UCA for EBC Graph DB Incremental Production *N* cores	UCA for EBC Graph DB production core capacity for *N* cores

Product name (i.e. type of license key)	Enabled UCA for EBC features
UCA for EBC Graph DB Non Production 4 cores	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 *N* cores	UCA for EBC Graph DB non production core capacity for *N* cores
UCA for EBC Development Toolkit Production	UCA for EBC Development Toolkit

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

NOTE: 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 http://www.webware.hp.com. This links you to the web site - HPE Licensing for Software.
2) Click on the Sign In button. This takes you to the HPE Passport Sign-in page.
3) Sign in Sign in using the User ID and Password associated with your **HPE 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 HPE Licensing for Software web site is displayed
6) Type your entitlement order number in the Entitlement order number (EON) text box. You 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.

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.

2.1.5 Disk requirements

Here are the disk requirements for UCA for EBC:

On HP-UX:

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

Product name (i.e. type of license key)	Enabled UCA for EBC features
Temporary disk space	150 MB minimum: • 75 MB minimum for the uca-ebc- server-kit-3.4-hpux.tar file • 75 MB minimum for the install- install-uca-ebc.sh and UCAEBCSERVER**V340A**.depot files (expanded from the uca-ebc- server-kit-3.4-hpux.tar file)
Permanent disk space	75 MB minimum for UCA for EBC 3.4 installed on the system

On Linux:

Table 4: Disk Requirements for UCA for EBC on Linux

Product name (i.e. type of license key)	Enabled UCA for EBC features
Temporary disk space	140 MB minimum: • 70 MB minimum for the uca-ebc- server-kit-3.4-linux.tar file • 70 MB minimum for the install-uca-ebc.sh and UCA-EBCSERVER-**3.4-0A**.noarch.rpm files (expanded from the uca-ebc- server-kit-3.4-linux.tar file)
Permanent disk space	70 MB minimum for UCA for EBC 3.4 installed on the system

2.2 Software prerequisites

2.2.1 Java

Since V3.3, Java 1.6 is no more supported

Table 5: Disk Requirements for UCA for EBC on Linux

Software	Version
Java JRE/JDK 7	1.7.0.XX

Software	Version
Java JRE/JDK 8	1.8.0.XX (strongly recommended)[1]

NOTE:

- 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 major versions.

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:

```
/ Java80JDK      1.8.0.00.00     Java 8.0 JDK for HP-UX
```

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

It is usually installed in the `/opt/java8` 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:

```
java-1.8.0-openjdk-1.8.0.65-0.b17.el6_7.x86_64
java-1.8.0-openjdk-devel-1.8.0.65-0.b17.el6_7.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:

```
jdk1.8.0_91-1.8.0_91-fcs
```

[1] Please note that if you run an Inference Machine (IM) value pack, Java JRE/JDK 8 is mandatory.

2.2.2 UMB

IMPORTANT: Since V3.3, HPE Unified Mediation Bus Runtime package is required to run UCA for EBC Server so it should be installed prior to UCA installation.

As The UCA UMB adapter is embedded to the UCA server, it requires a UMB Runtime specific version that resolves a set of third party libraries conflicts with the UCA for EBC server kit. This is especially true for the Scala library that is used both by Neo4j and the kafaka client library and must be at the same level.

The Specific UMB Runtime kit to install is the kits `umb-runtime_2.10-package-1.1.5`

This kit provides an equivalent of :

- the UMB Runtime kit V1.1 (umb-runtime-package-1.1)
- the patch UMBRTXXX_00003
- scala 2.10 libraries

Any Patch kit provided for umb-runtime-package-1.1 product will be applicable on top of the `umb-runtime_2.10-package-1.1.5` product.

Refer to HPE UMB 1.1 Installation Guide for more information on the pre-requisites that are necessary before installing an UMB Runtime package.

2.2.2.1 UMB runtime 2.10 Package installation:

- **Unzip the provided tar file:**

  On HP-UX:

```
$ cd /tmp
$ tar -xvf <kit location>/umb-runtime_2.10-package-3.4.5-hpux.tar
```

  On Linux:

```
$ cd /tmp
$ tar -xvf <kit location>/umb-runtime_2.10-package-3.4.5-linux.tar
```

- **Run the installation script**

  As root user, run the package installation shell script (or MSI file on Windows systems):

  On both HP-UX and Linux:

```
$ install-umb-runtime.sh
```

  This command installs the UCA for EBC Runtime package by default in the `/opt/UCA for EBC` folder.

  The following options can be specified for changing the default installation directory:

  -r root_directory : Specifies a valid Unified Correlation Analyzer root directory (default=`/opt/UCA for EBC`)

Refer to HPE UMB 1.1 Installation Guide for more information on the installation and configuration of the UMB Runtime package.

2.2.3 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
```

2.2.4 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-3.4-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 for EBC V2.0, multiple instances of UCA for EBC Server can be configured in the data directory.

2.2.5 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

2.3 Installation on Linux

2.3.1 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
```

2.3.2 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-3.4-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.

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 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 follows 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)

2.3.3 Firewall settings

In the case the UCA for EBC application needs to be accessed from an external server (Web clients, remote UMB adapters, etc.) and if a Firewall is active of the system the UCA for EBC application is installed, a set of ports must be opened for the application to work properly.

Please refer to your operating system documentation (HP-UX, RHEL 6, RHEL 7) for full description on how to open ports in the firewall.

These ports are:

TYPE	PORT NUMBER	Purpose
TCP	8888	UCA for EBC Web Admin Console
TCP	7474	The Neo4j Topology Database Web server
TCP	61666	Used by JMS Broker (alarm Injector)
TCP	1100	JMX Port used by the uca-ebc-admin command
TCP	5701 (start of range)	UMB port. Refer to UMB documentation for explanations

The port numbers indicated in the table above are default values. If the values are changed in the uca-ebc.properties file, the firewall setting must be changed accordingly.

2.4 Post-installation setup

2.4.1 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 csh-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
```

2.4.2 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:

Example for csh-like shell:

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

Example for sh-like shell:

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

2.4.3 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 3.4 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 if it does not exist yet:

   `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 it does not exist 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.serverhost}\:${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\://${uca.ebc.serverhost}\:${uca.ebc.jms.broker.port}
# topic.[jndiName] = [physicalName]
topic.uca-ebc-alarms = com.hp.uca.ebc.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`

2.5 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:

Table 6: Sub-directories of *${UCA_EBC_HOME}*

Subdirectories	Description
admin	*For Internal Use*
apidoc	Contains the Javadoc of the Java objects provided by UCA for EBC that can be used in Drools rules files.
bin	Contains the UCA for EBC executables
defaults	Contains the default: • configuration (in the `conf/` sub-directory)

Subdirectories	Description
	• log db (in the `logs/` sub-directory) • example value packs (in the `valuepacks/` sub-directory)
lib	Directory containing the JAR (Java ARchive) files needed by UCA for EBC
licenses/3pp	UCA for EBC 3rd party licenses
schemas	XML Schema Definition files (XSD) used by UCA for EBC
webapp	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

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:

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

Subdirectories	Description
archive	Contains UCA for EBC value packs after they have been undeployed
conf	UCA for EBC Server configuration files directory. The default configuration files of UCA for EBC are located in the `${UCA_EBC_HOME}/defaults/conf` directory. Note that for additional instances, the port numbers are automatically tuned and may not reflect the default ones.
deploy	Runtime directory for UCA for EBC Value Packs. UCA for EBC value packs are expanded into this folder when they are deployed.
externallib	Directory containing the JAR (Java ARchive) files that are needed by several UCA for EBC Value Packs
licenses	Directory containing the *`license.txt`* file used for license checking.

Subdirectories	Description
logs	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 `${UCA_EBC_HOME}/defaults/logs` directory.
users	Directory containing the UCA for EBC users database. (the case where LDAP is not used)
valuepacks	This directory is the place where available UCA for EBC value packs reside before they are deployed. The default value packs delivered with UCA for EBC are located in the `${UCA_EBC_HOME}/defaults/valuepacks` directory.
work	Directory used to store temporary files at runtime.

2.6 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).

Before Un-installing the UCA for EBC Server product, the server must be stopped properly using the "uca-ebc stop" command.

NOTE: **Un-installing the UCA for EBC Server product does not remove any of the files located in the ${UCA_EBC_DATA} directory.**

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-3.4-00A
Enter the index number of UCA-EBC version to un-install:
```

By entering '0' (as in the example above), UCA for EBC Server version 3.4-00A 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

```
$ /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 packages:

        [0]     UCA-EBCSERVER-3.4-00A
Enter the index number of UCA-EBC version to un-install:
```

Chapter 3 UCA for EBC Channel Adapter

The UCA for EBC Channel Adapter is the component that allows connecting the UCA for EBC product to the NOM BUS.

IMPORTANT: Since V3.4, Using the NOM BUS for communication with other applications is not the preferred solution, the UMB Mediation being the recommended one.
The Installation of the UCA for EBC Channel Adapter. Can simply be skipped if your solution is based on UMB only

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

uca-ebc-ca-kit-3.4-<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:

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

Type	Disk requirements
Temporary disk space	30 MB minimum: • 15 MB minimum for the `uca-ebc-ca-kit-3.4-hpux.tar` file • 15 MB minimum for the `install-uca-ebc-ca.sh` and `UCAEBCCAV3400A.depot` files (expanded from the `uca-ebc-ca-kit-3.4-hpux.tar` file)
Permanent disk space	300 MB minimum for UCA for EBC Channel Adapter 3.4 installed on the system and deployed in an OSS Open Mediation V7.2 container

On Linux:

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

Type	Disk requirements
Temporary disk space	30 MB minimum: • 15 MB minimum for the `uca-ebc-ca-kit-3.4-linux.tar` file • 15 MB minimum for the `install-uca-ebc-ca.sh` and `UCAEBCCAV3400A.noarch.rpm` files (expanded from the `uca-ebc-ca-kit-3.4-linux.tar` file)
Permanent disk space	300 MB minimum for UCA for EBC Channel Adapter 3.4 installed on the system and deployed in an OSS Open Mediation V7.2 container

3.3 Software prerequisites

3.3.1 OSS Open Mediation V7.2

UCA for EBC Channel Adapter is a 'plugin' component for the "OSS Open Mediation V7.2" application.

As such, it requires that the "OSS Open Mediation V7.2" 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 V7.2 dependencies for UCA for EBC Channel Adapter:

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

Software	Package Reference (Linux)	Package Reference (HP-UX)
OSS Open Mediation V7.2	`ngossopenmediation-7.2.0`	`NGOSSOPENMEDIATION720`

Depending on the configuration of your whole solution comprising UCA for EBC, OSS Open Mediation V7.2 (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 V7.2.

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 OSS Open Mediation

UCA for EBC Channel Adapter 3.4 targets OSS Open Mediation V7.2 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.

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

Supported UCA for EBC version	Supported OSS Open Mediation version	UCA for EBC Channel Adapter version
UCA for EBC 3.1	OSS Open Mediation 7.0	UCA for EBC Channel Adapter 3.1
UCA for EBC 3.2	OSS Open Mediation 7.1	UCA for EBC Channel Adapter 3.2
UCA for EBC 3.3	OSS Open Mediation 7.2	UCA for EBC Channel Adapter 3.3
UCA for EBC 3.4	OSS Open Mediation 7.2	UCA for EBC Channel Adapter 3.4

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-3.4-hpux.tar
```

On Linux:

```
$ cd /tmp
$ tar -xvf <kit location>/uca-ebc-ca-kit-3.4-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-72` 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 V7.2.

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 follows 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 task 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 tasks 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 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 tasks 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-72` directory):

On both HP-UX and Linux:

```
$ <OSS Open Mediation root directory>/bin/nom_admin --install-ip uca-ebc-ca-3.4
```

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-3.4
```

NOTE: In a nutshell, the `nom_admin --install-ip` command copies the channel adapter's configuration files from `/opt/openmediation-72/ips` to `/var/opt/openmediation-72/ips` (assuming that OSS Open Mediation V7.2 is installed at the default location).

Once the channel adapter has been installed on OSS Open Mediation V7.2, it becomes ready to be deployed in an OSS Open Mediation V7.2 container, which we will described in 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 accross 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-3.4
```

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-3.4
```

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.

3.4.2.3.1 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-3.4/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-72* 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.
```

3.4.2.3.2 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`).

3.4.2.3.3 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-72/containers/instance-<instance number>/ips/uca-ebc-ca-3.4/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:cxf="http://camel.apache.org/schema/cxf"
    xmlns:lang="http://www.springframework.org/schema/lang"
    xmlns:httpj="http://cxf.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/cxf http://camel.apache.org/schema/cxf/camel-cxf.xsd
        http://www.springframework.org/schema/lang http://www.springframework.org/schema/lang/spring-lang.xsd
        http://cxf.apache.org/transports/http-jetty/configuration  http://cxf.apache.org/schemas/configuration/http-jetty.xsd">

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

Figure 1 - UCA for EBC

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:

`maxThreads` (in UCA EBC CA) = 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-3.4
```

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-3.4
```

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:

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

Directory	UCA for EBC Channel Adapter version
ips/uca-ebc-ca-3.4/etc	Contains the configuration files (including the XSLT files used for mapping) for the UCA for EBC Channel Adapter
ips/uca-ebc-ca-3.4/jbisa	Contains the Service Assembly (to be deployed on an OSS Open Mediation V7.2 container) for the UCA for EBC Channel Adapter
ips/uca-ebc-ca-3.4/misc	Contains the XML Schema Definition files used by the UCA for EBC Channel Adapter
bin	Contains the UCA for EBC Channel Adapter uninstall script.

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-3.4
```

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 displayed:

```
...
INSTALLED IN INSTANCE        uca-ebc-ca-3.4
```

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-3.4
```

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-3.4 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-3.4
```

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 displayed:

```
NOT INSTALLED        uca-ebc-ca-3.4
```

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/ips/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-V3.4-00A
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 **V3.4-00A** will be removed.

NOTE: **Un-installing the UCA for EBC Channel Adapter product does not remove any of the files located in the UCA for EBC Channel Adapter Data directory.**

Chapter 4 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 64 bits, Windows 7 64 bits, Windows Server 2012:

```
uca-ebc-dev-kit-3.4-msi.zip
```

On Linux:

```
uca-ebc-dev-kit-3.4-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:

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

Type	Disk requirements
Temporary disk space	160 MB minimum: • 80 MB minimum for the uca-ebc-dev-packaging-3.4-msi.zip file • 80 MB minimum for the UCA-EBCDEVTOOLKIT-3.4-00A.msi file (expanded from the uca-ebc-dev-kit-3.4-msi.zip file)
Permanent disk space	80 MB minimum for UCA for EBC Development Kit 3.4 installed on the system

On Linux:

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

Type	Disk requirements
Temporary disk space	160 MB minimum: • 80 MB minimum for the uca-ebc-kits-3.4-linux.tar file • 80 MB minimum for the install-uca-ebc.sh and UCA-EBC-DEVTOOLKIT-3.4-00A.noarch.rpm files (expanded from the uca-ebc-dev-kit-3.4-linux.tar file)
Permanent disk space	80 MB minimum for UCA for EBC 3.4 installed on the system

4.3 Software prerequisites

4.3.1 Java

UCA for EBC 3.4 Server, UCA for EBC 3.4 Topology Extension, UCA for EBC 3.4 Development Toolkit, and UCA for EBC 3.4 Value Packs require a Java 1.8 runtime environment.

Table 15: Software Prerequisites for UCA for EBC Development Kit

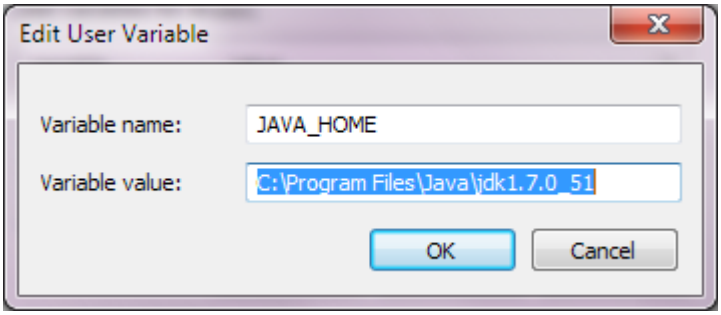
Software	Version
Java OpenJDK JRE/JDK 8	1.8.0.XX

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:

The UCA for EBC Development framework requires that some environment variables are defined in the user's environment of the user that will use the Toolkit.

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

Note: it is better to set such command in the .profile (or .bash_profile) script of the user in order to have it positioned at each UCA logon.

csh-like shell:

```
$ setenv JAVA_HOME /usr/lib/jvm/jre-1.8.0-openjdk
```

Example for ba**sh**-like shell:

```
$ export JAVA_HOME=/usr/lib/jvm/jre-1.8.0-openjdk
```

To check if you already have Java installed:

```
$ rpm -qa | grep openjdk
```

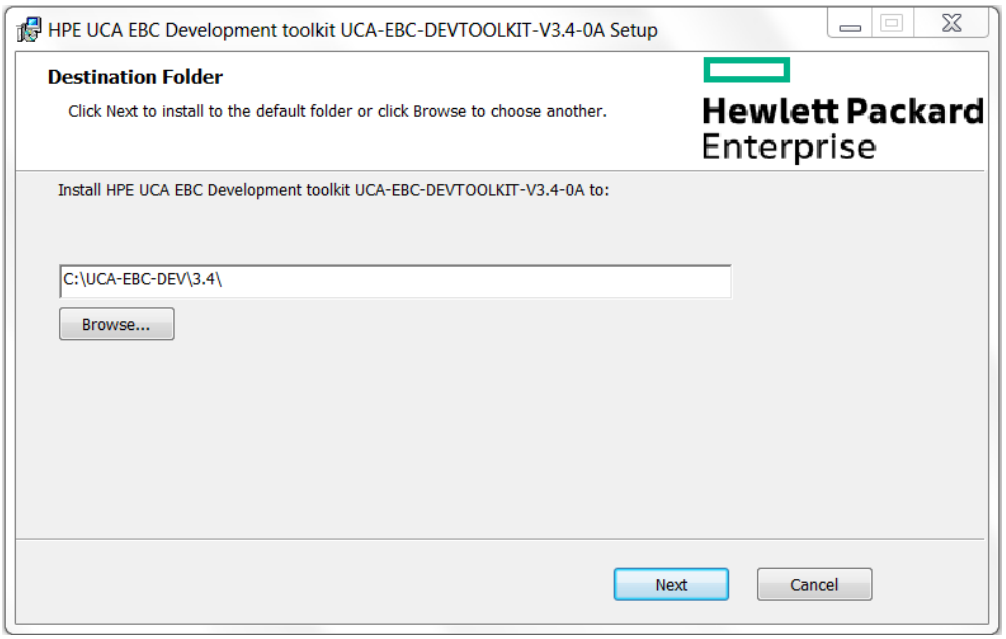
Red Hat Enterprise Linux Server comes with OpenJDK Java VM. You should get an output similar to the following (here 1.6.0 and 1.7.0 are installed):

```
java-1.7.0-openjdk-headless-1.7.0.121-2.6.8.0.el7_3.x86_64
java-1.8.0-openjdk-headless-1.8.0.111-2.b15.el7_3.x86_64
java-1.8.0-openjdk-1.8.0.111-2.b15.el7_3.x86_64
java-1.7.0-openjdk-1.7.0.121-2.6.8.0.el7_3.x86_64
```

4.4 Installation on Windows

Install the UCA for EBC Development Kit by executing the UCA-EBC-DEVTOOLKIT-V3.4-00A.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\3.4\` 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\3.4\`) 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-3.4-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 follows 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:

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

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

Directories	Description
vp-examples	Contains a set of ValueP ack examples used to demonstrate the UCA for EBC capability in different domains.

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**E UCA EBC Development toolkit **–** UCA-EBC-DEVTOOLKIT-V3.4-00A**"**
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-3.4-00A
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 3.4-00A will be removed.

NOTE: **Un-installing the UCA for EBC Development toolkit product does not remove any of the files located in the UCA for EBC Development Toolkit Data directory.**

Chapter 5 Code Signing

This Software Product from HPE 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 HPE Product before installing it, by verifying the signature of the software packages.

- Check whether gnupg gpg is installed on the system. If not, install gnupg gpg
- Configure GPG for accepting HPE signature. The steps are the following:

a. Log as root on your system

b. Import the hpPublicKey from following location:

1. Download the compressed tar key file from: https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning
2. Extract the **2BAF2262.pub** key from the compressed tar file.
3. Import the key for GPG

```
# gpg --import /path_to_the_key/2BAF2262.pub
```

c. Verify the Signature using GPG.

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

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

Example:

```
# gpg -verify uca-ebc-server-kit-3.4-linux.tar.sig uca-ebc-server-kit
-3.4-linux.tar
```

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

```
gpg: Signature made Fri 24 Feb 2017 01:48:47 AM CET using RSA key ID
2BAF2262
gpg: checking the trustdb
gpg: 3 marginal(s) needed, 1 complete(s) needed, PGP trust model
gpg: depth: 0  valid:   1  signed:   0  trust: 0-, 0q, 0n, 0m, 0f, 1u
gpg: Good signature from "Hewlett Packard Enterprise Company RSA-
2048-14 <signhp@hpe.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to
the owner.
```

In order to overcome the WARNING message, you need to trust the Hewlett-Packard key. Please follow the below steps to trust the key:

```
# gpg --list-keys
```

The below output will be displayed:

```
/root/.gnupg/pubring.gpg
---------------------------------
pub   2048R/2BAF2262 2015-12-10 [expires: 2025-12-07]
```

```
uid                  Hewlett Packard Enterprise Company RSA-2048-14
<signhp@hpe.com>
```

then key must be trusted:

```
# gpg --edit-key 2BAF2262
```

the below output will be displayed:

```
# gpg (GnuPG) 2.0.14; Copyright (C) 2009 Free Software Foundation,
Inc.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.


pub  2048R/2BAF2262  created: 2015-12-10  expires: 2025-12-07  usage:
SCEA
                     trust: unknown       validity: unknown
[ unknown] (1). Hewlett Packard Enterprise Company RSA-2048-14
<signhp@hpe.com>

Command>
```

In order to trust the key, type "trust" as shown below

```
Command> trust
```

The output will be as shown below:

```
pub  2048R/2BAF2262  created: 2015-12-10  expires: 2025-12-07  usage:
SCEA
                     trust: unknown       validity: unknown
[ unknown] (1). Hewlett Packard Enterprise Company RSA-2048-14
<signhp@hpe.com>

Please decide how far you trust this user to correctly verify other
users' keys
(by looking at passports, checking fingerprints from different
sources, etc.)

  1 = I don't know or won't say
  2 = I do NOT trust
  3 = I trust marginally
  4 = I trust fully
  5 = I trust ultimately
  m = back to the main menu

Your decision?
```

Enter 5 at the prompt:

```
Do you really want to set this key to ultimate trust? (y/N)
```

Enter y at the prompt, the output will be as shown below:

```
pub  2048R/2BAF2262  created: 2015-12-10  expires: 2025-12-07  usage:
SCEA
                     trust: ultimate      validity: unknown
[ unknown] (1). Hewlett Packard Enterprise Company RSA-2048-14
<signhp@hpe.com>
```

```
Please note that the shown key validity is not necessarily correct
unless you restart the program.
```

Quit the key editor:

```
Command> q
```

Verify the signature again:

```
# gpg --verify uca-ebc-ca-kit-3.4-hpux.tar.sig uca-ebc-ca-kit-3.4-
hpux.tar
gpg: Signature made Fri 24 Feb 2017 01:48:47 AM CET using RSA key ID
2BAF2262
gpg: checking the trustdb
gpg: 3 marginal(s) needed, 1 complete(s) needed, PGP trust model
gpg: depth: 0  valid:   2  signed:   0  trust: 0-, 0q, 0n, 0m, 0f, 2u
gpg: next trustdb check due at 2025-12-07
gpg: Good signature from "Hewlett Packard Enterprise Company RSA-
2048-14 <signhp@hpe.com>"
#
```

**HPE 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

IDE: Integrated Development Environment

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

Inference Engine: Process that uses a Rete algorithm for expert behavior

DRL: Drools Rule file

XML: Extensible Markup Language

XSD: Schema of an XML file, describing its structure

X.733: Standard describing the structure of an Alarm used in telecommunication environment.

EVP: UCA for EBC Value Pack

DSL: Domain Specific Language

API: Application Programming Interface

URI: Uniform Resource Identifier

CSV: comma-separated values