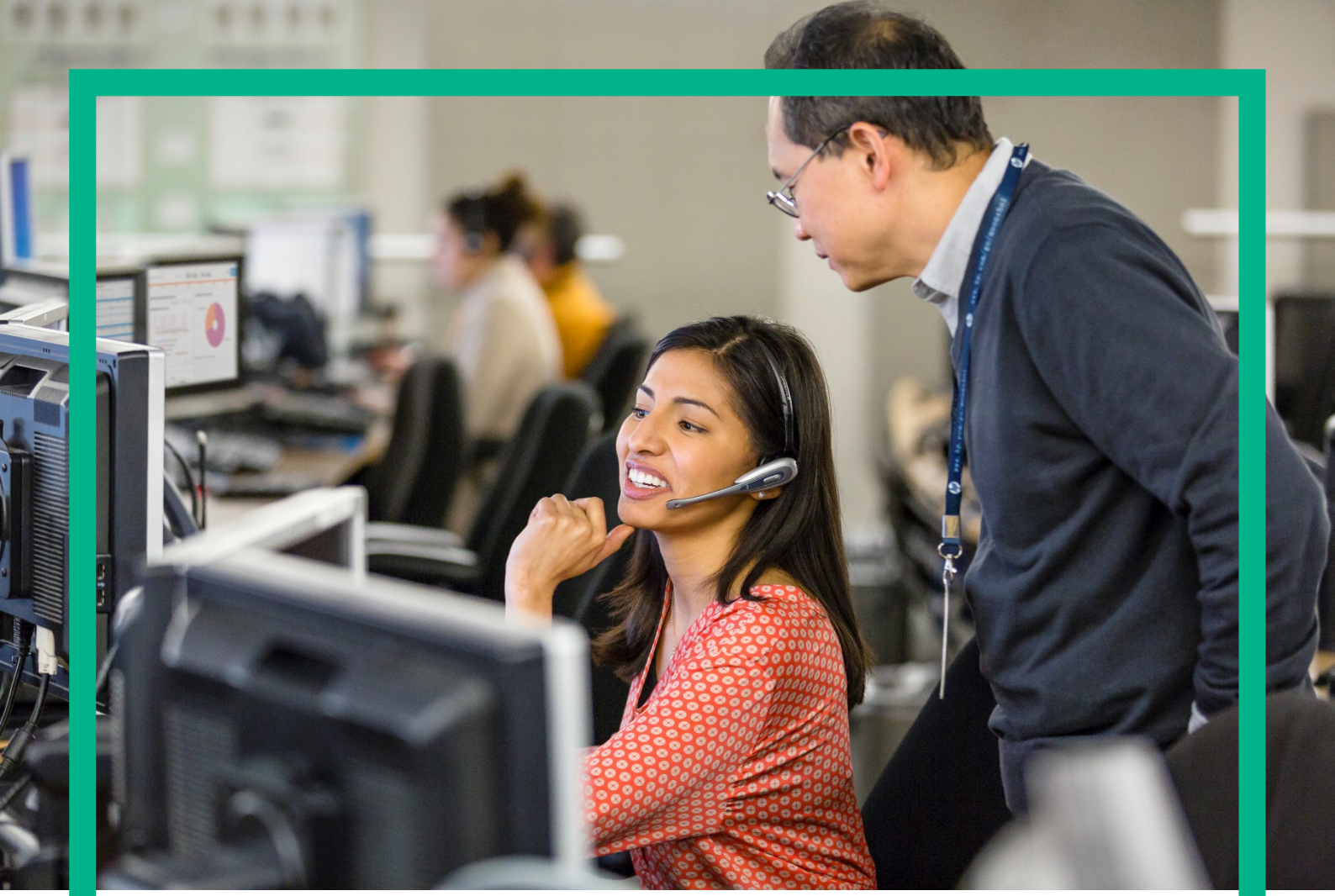

HPE UCA Automation

Installation Guide for Linux (RHEL 6.4)

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Hewlett Packard Enterprise

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Preface

About this guide

This guide describes how to install the product on the supported platform.

Product Name: UCA Automation

Product Version: 2.1

Read this document before installing or using this software.

Audience

This document is intended for the solution developers and 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 Automation 2.1	Linux Red Hat Enterprise Linux Server release 6.4

Typographical conventions

`Fixed width text`	It is used for filenames and their contents, computer inputs or outputs, program codes, and so on.
Italic text	It is used for labels, parameters, emphasized text, and replaceable text, citations and references
Bold text	It is used to indicate navigation options in the interfaces; for example, the text appearing in buttons and menu items. User interface controls, window titles, generic emphasis
<angle brackets>	Indicates generic variable names that must be substituted by real values or strings.

Associated documents

The following documents contain useful reference information:

- HPE UCA for Event Based Correlation Installation Guide
- HPE UCA for Event Based Correlation Topology Extension Guide

- HPE UCA for Event Based Correlation Value Pack Development Guide
- Deployment Manager (HPE SA) Guide
- NOM Installation and Configuration Guide
- UCA HPE SA CA Main Release Guide
- UCA Autoconsole CA Main Release Guide
- NOM UCA EBC Channel Adapter Installation Guide
- NOM TEMIP Channel Adapter Installation Guide
- UMB Installation and Configuration guide

Support

Please visit our HPE Software Support Online Web site at 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 Automation solution.

1.1 Local install descriptors

The following locations are used to define install locations throughout this guide.

Table 2: Local install descriptors

Descriptor	Description
`${ACTIVATOR_OPT}`	The base install directory of Service Activator. The UNIX® location is `/opt/OV/ServiceActivator`.
`${SOLUTION_ETC}`	The `etc` directory of the HPE SA value pack solution. The default value for UCA Solution is `/opt/OV/ServiceActivator/solutions/UCA/etc`
`${UCA_EBC_HOME}`	The root directory of UCA-EBC. The default value is `/opt/UCA-EBC.`
`${UCA_EBC_DATA}`	The data directory of UCA-EBC. The default value is `/var/opt/UCA-EBC.`
`${UCA_EBC_INSTANCES}`	This directory might contain multiple instances of UCA-EBC where the value packs are deployed. The path refers to `${UCA_EBC_DATA}/instances/default.`
`${NOM_INSTANCE}`	NOM Container instance directory `/var/opt/openmediation-72/containers/<instance-#>`
`${UCA_AUTO_HOME}`	The root directory of UCA Automation The default value is `/opt/UCA_UCAAutomation`
`${SAUMB_INSTANCE}`	The data directory for HPE Service Activator UMB adapter `/var/opt/service-activator-umb-adapter/`
`${UMB_DATA}`	The data directory of UMB The default value is `/var/opt/UMB`

Chapter 2
System requirements

2.1 Server platforms

- UCA-EBC 3.3 and latest Patches
- HPE SA V70-1A
- NOM 7.2
- UMB 1.0 and latest Patches

Refer above products server compatility matrix for the supported operating systems.

2.2 Hardware requirements

- X86-64 based system
- At least 4 GB of memory
- The database system requires a space for an Oracle 12c or an Enterprise Database Postgres 9.2 database instance of at least 4 GB for the product data. The database requirements is in line with HPSA 70-1A recommendations

2.3 Software requirements

2.3.1 HPE UCA-EBC

- UCA for Event Based Correlation Server V3.3 and the latest patches (Server patch 00002 is mandatory).
- UCA for Event Based Correlation Topology Extension.

2.3.1.1 Configure HPE UCA EBC

- Edit the `${UCA_EBC_INSTANCES}/conf/uca-ebc.properties` file to add the following configuration to integrate the UCA Automation UI login with UCA EBC.

```
UCA_Automation_Foundation_UCA-V2.1-1A-UCAAutomation-webapp-parameters=username=${user},userrole=${role}
```

- Update the `${UCA_EBC_INSTANCES}/conf/GraphDisplayProfiles.xml` file with the following configuration.

```
<Profile name="ucaatm" displayedName="Decision Tree View" defaultProfile="false"
POICategories="Health">
        <Nodes>
                <Node attributeName="ID" attributeValue="0">
                        <Icon>
                                <MainIcon>images/world.jpg</MainIcon>
                        </Icon>
                        <Text>
                                <Emphasis>plain</Emphasis>
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="999">
                                <Queries>
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
                <Node attributeName="name" attributeValue="UCAAutomation">
                        <Icon>
                                <MainIcon>images/round.jpg</MainIcon>
                        </Icon>
                        <Text>
                                <Emphasis>plain</Emphasis>
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="999">
                                <Queries>
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
                <Node attributeName="name" attributeValue="MobileServices">
                        <Icon>
                                <MainIcon>images/round.jpg</MainIcon>
                        </Icon>
                        <Text>
                                <Emphasis>plain</Emphasis>
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="999">
                                <Queries>
```

```
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
                <Node attributeName="dispatchType" attributeValue="HPSA">
                        <Icon>
                                <MainIcon>images/round.jpg</MainIcon>
                                <Decorations attributeName="state">
                                        <Decoration
attributeValue="Waiting_Operator">images/warningLarge.png</Decoration>
                                        <Decoration
attributeValue="Ok">images/ok.png</Decoration>
                                        <Decoration attributeValue="Failure">images/error-
icon.png</Decoration>
                                </Decorations>
                        </Icon>
                        <Text>
                                <Color>153 0 0</Color>
                                <Font>Courier New</Font>
                                <Size>10</Size>
                                <Emphasis>plain</Emphasis>
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="20">
                                <Queries>
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
                <Node attributeName="dispatchType" attributeValue="Trouble Ticket">
                        <Icon>
                                <MainIcon>images/round.jpg</MainIcon>
                                <Decorations attributeName="state">
                                        <Decoration
attributeValue="Waiting_Operator">images/warningLarge.png</Decoration>
                                        <Decoration
attributeValue="Ok">images/ok.png</Decoration>
                                        <Decoration attributeValue="Failure">images/error-
icon.png</Decoration>
                                </Decorations>
                        </Icon>
                        <Text>
                                <Color>153 0 0</Color>
                                <Font>Courier New</Font>
                                <Size>10</Size>
                                <Emphasis>plain</Emphasis>
```

```
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="20">
                                <Queries>
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
                <Node attributeName="dispatchType" attributeValue="Alarm">
                        <Icon>
                                <MainIcon>images/round.jpg</MainIcon>
                                <Decorations attributeName="state">
                                        <Decoration
attributeValue="Waiting_Operator">images/warningLarge.png</Decoration>
                                        <Decoration
attributeValue="Ok">images/ok.png</Decoration>
                                        <Decoration attributeValue="Failure">images/error-
icon.png</Decoration>
                                </Decorations>
                        </Icon>
                        <Text>
                                <Color>153 0 0</Color>
                                <Font>Courier New</Font>
                                <Size>10</Size>
                                <Emphasis>plain</Emphasis>
                                <DisplayedName>[${ID}] ${name}</DisplayedName>
                        </Text>
                        <GetNeighbors automatic="true" level="20">
                                <Queries>
                                        <Query><![CDATA[START startNode = node({nodeID})
MATCH (startNode)<-[relationship]->(endNode) WHERE ID(startNode)>0 and ID(endNode)>0
RETURN startNode, relationship, endNode;]]></Query>
                                </Queries>
                        </GetNeighbors>
                </Node>
        </Nodes>
        <Relationships>
                <Relationship attributeName="Type" attributeValue="hasport">
                        <LineType>dash</LineType>
                        <SourceHead>circle</SourceHead>
                        <TargetHead>arrow</TargetHead>
                        <DisplayedName>${Type}</DisplayedName>
                </Relationship>
                <Relationship attributeName="Type" attributeValue="LINK">
                        <LineType>line</LineType>
                        <SourceHead>arrow</SourceHead>
                        <TargetHead>arrow</TargetHead>
                        <DisplayedName>${Type}</DisplayedName>
```

```
                        <Colors attributeName="state" default="0 255 0">
                                <Color attributeValue="Down">255 0 0</Color>
                                <Color attributeValue="Up">0 255 0</Color>
                        </Colors>
                </Relationship>
        </Relationships>
</Profile>
```

2.3.1.2 NOM Configuration

- To use NOM the following property must be set in `${UCA_EBC_INSTANCES}/conf/uca-ebc.properties` file.

```
use.new.generation.adapter=false
```

- Add following in `${UCA_EBC_INSTANCES}/conf/ActionRegistry.xml` file

```
<MediationValuePack MvpName="temip" MvpVersion="2.2.0"
        url="http://localhost:26700/uca/mediation/action/ActionService?WSDL"
        brokerURL="failover://tcp://localhost:10000">
        ...
        ...
        <Action actionReference="HPSA_diagnosticTask_localhost">
                <ServiceName>diagnosticTask</ServiceName>
                <NmsName>hpsa</NmsName>
        </Action>
</MediationValuePack>
```

- Comment out UMB Actions in `UCA_EBC_INSTANCES}/conf/ActionRegistry.xml` file.

```
<!--UMBActions>
        <UMBAction actionReference="TeMIP_AO_Directives_localhost" targetName="TeMIP"
targetActionName="AOAction"/>
        <UMBAction actionReference="TeMIP_TT_Directives_localhost" targetName="TeMIP"
targetActionName="TTAction"/>
        <UMBAction actionReference="TeMIP_Passthrough_Directives_localhost"
targetName="TeMIP" targetActionName="PassthroughAction"/>
</UMBActions-->
```

2.3.1.3 UMB configuration

- To use Unified Mediation Bus the following property must be set in `{UCA_EBC_INSTANCES}/conf/uca-ebc.properties` file.

```
use.new.generation.adapter=true
received.events.logger.enabled = true
```

- Uncomment UMB Actions in `${UCA_EBC_INSTANCES}/conf/ActionRegistry.xml` and comment mediation flow elements.

```
<UMBActions>
```

```
        <UMBAction actionReference="TeMIP_AO_Directives_localhost" targetName="TeMIP" targetActionName="AOAction"/>
        <UMBAction actionReference="TeMIP_TT_Directives_localhost" targetName="TeMIP" targetActionName="TTAction"/>
        <UMBAction actionReference="TeMIP_Passthrough_Directives_localhost" targetName="TeMIP" targetActionName="PassthroughAction"/>
</UMBActions>
```

- Add following in `${UCA_EBC_INSTANCES}/conf/ActionRegistry.xml` file

```
<UMBActions>
        …
        …
        <UMBAction actionReference="HPSA_diagnosticTask_localhost" targetName="service-activator-umb-adapter" targetActionName="diagnosticTask" />
</UMBActions>
```

- In `${UCA_EBC_INSTANCES}/conf/uca-ebc-log4j.xml`, add the following

```
<!--logger name="UCAEBC.AdapterCollectedEvents" additivity="false">
        <level value="INFO" />
        <appender-ref ref="ASYNCINCOMINGMSG" />
  </logger-->
  <logger name="UCAEBC.AdapterCollectedEvents" additivity="false">
        <level value="INFO" />
        <appender-ref ref="UMBASYNCINCOMINGMSG" />
  </logger>
```

- In `${UCA_EBC_INSTANCES}/conf/hazelcast.xml,` make appropriate changes to connect to Hazelcast. Please refer UCA-EBC Administration, Configuration and Troubleshooting Guide for more details.

```
<management-center enabled="false">http://localhost:8080/mancenter</management-center>
```

```
<network>
        …
        <join>
                …
                …
                <tcp-ip enabled="true">
                        <interface>localhost</interface>
                </tcp-ip>
        </join>
</network>
```

- Restart UCA-EBC server.

Please refer to Unified Correlation Analyzer for Event Based Correlation Administration,Configuration and Troubleshooting Guide for more information on how to configure the ActionRegistry.xml file if NMS is not TeMIP

2.3.2 HPE Service Activator

- HPE Service Activator version 7.0 - V70-1A and the latest patches
- Oracle 12c or Postgres Plus Advanced Server 9.2 or later. The database can be installed on the same server or can be accessed remotely (but it must be located in the same sub network). You can also use an existing database that is used by another application. In that case, you need to create a new database user (if Oracle is used) or a new database instance (if Postgres Plus Advanced Server is used) for the exclusive use by Service Activator and UCA Automation.
- Ensure that PPAS is configured to run in the “Oracle” mode during its installation

2.3.3 NOM

- OSS Open Mediation V7.2 and latest patches

```
# rpm -qa| grep ngossopenmediation
ngossopenmediation-7.2.0-RHEL5.noarch
# nom_admin --list-ip-in-container
DEPLOYED        nom-basic-smx-components
DEPLOYED        smx-basic-components
```

- UCA for Event Based Correlation Channel Adapter V3.3

```
# rpm -qa | grep UCA-EBCCA
UCA-EBCCA-V3.3-0B.noarch
# nom_admin --list-ip-in-container| grep uca-ebc-ca
DEPLOYED        uca-ebc-ca-3.3
```

- The TeMIP Channel Adapter: if your solution involves TeMIP

```
# rpm -qa | grep -i ngosstemip-ca
ngosstemip-ca-2.2.0-RHEL5.x86_64
# nom_admin --list-ip-in-container| grep temip-ca-22
DEPLOYED        temip-ca-22
```

2.3.4 Configure TeMIP Channel Adapter for UCA Automation

NOTE: This configuration is optional

- Validate the TeMIP configuration in the file.
- Edit the `${NOM_INSTANCE}/ips/temip-ca-22/etc/conf/TeMIP_configuration.dynamic.xml` file.
- For example, if the TeMIP Director is configured on the `ossdemo1.ind.hpe.com` host, the file should contain the following configuration:

```
<TeMIPDirectorEntity>.temip.ossdemo1_temip</TeMIPDirectorEntity>
```

- Edit the `${NOM_INSTANCE}/ips/temip-ca-22/etc/conf/TeMIP_configuration.dynamic.xml` to add the custom attributes required for UCA Automation within the tags.

```
<CustomAttributes>
```

```
...
...
</CustomAttributes>
<CustomAttribute>
  <Attribute>Action</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Actionidlist</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Actionstatus</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Evp</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Evpscenario</Attribute>
  <Datatype>XmlString</Datatype>
 </CustomAttribute>

<CustomAttribute>
  <Attribute>Outputparameters</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Problem</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Rawresult</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Resourceinstance</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Serviceinstance</Attribute>
```

```
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Taskid</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Initiator</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Originatingfms</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Outage Flag</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>
```

- Edit the `${NOM_INSTANCE}/ips/temip-ca-22/etc/actions.to-temip.ao.request.xslt` file and add the custom attributes required for UCA Automation in the `<!-Specific output nodes>` tag.

```
<!-- Specific output nodes -->
<xsl:template name="Action">
  <xsl:call-template name="simple_node">
    <xsl:with-param name="input_node" select="command/entry[key='Action']" />
  <xsl:with-param name="output_node_name" select="'Action'" />
     </xsl:call-template>
   </xsl:template>
   <xsl:template name="Actionidlist">
     <xsl:call-template name="simple_node">
       <xsl:with-param name="input_node" select="command/entry[key='Actionidlist']" />
       <xsl:with-param name="output_node_name" select="'Actionidlist'" />
     </xsl:call-template>
   </xsl:template>
   <xsl:template name="Actionstatus">
     <xsl:call-template name="simple_node">
       <xsl:with-param name="input_node" select="command/entry[key='Actionstatus']" />
       <xsl:with-param name="output_node_name" select="'Actionstatus'" />
      </xsl:call-template>
    </xsl:template>
    <xsl:template name="Evp">
      <xsl:call-template name="simple_node">
        <xsl:with-param name="input_node" select="command/entry[key='Evp']" />
```

```
    <xsl:with-param name="output_node_name" select="'Evp'" />
    </xsl:call-template>
  </xsl:template>
  <xsl:template name="Evpscenario">
    <xsl:call-template name="simple_node">
      <xsl:with-param name="input_node" select="command/entry[key='Evpscenario']" />
    <xsl:with-param name="output_node_name" select="'Evpscenario'" />
   </xsl:call-template>
  </xsl:template>
  <xsl:template name="Outputparameters">
     <xsl:call-template name="simple_node">
       <xsl:with-param name="input_node" select="command/entry[key='Outputparameters']" />
       <xsl:with-param name="output_node_name" select="'Outputparameters'" />
      </xsl:call-template>
   </xsl:template>
   <xsl:template name="Problem">
      <xsl:call-template name="simple_node">
        <xsl:with-param name="input_node" select="command/entry[key='Problem']" />
        <xsl:with-param name="output_node_name" select="'Problem'" />
        </xsl:call-template>
   </xsl:template>
            <xsl:template name="Rawresult">
   <xsl:call-template name="simple_node">
     <xsl:with-param name="input_node" select="command/entry[key='Rawresult']" />
     <xsl:with-param name="output_node_name" select="'Rawresult'" />
   </xsl:call-template>
   </xsl:template>
   <xsl:template name="Resourceinstance">
   <xsl:call-template name="simple_node">
      <xsl:with-param name="input_node" select="command/entry[key='Resourceinstance']" />
      <xsl:with-param name="output_node_name" select="'Resourceinstance'" />
     </xsl:call-template>
  </xsl:template>
  <xsl:template name="Serviceinstance">
  <xsl:call-template name="simple_node">
  <xsl:with-param name="input_node" select="command/entry[key='Serviceinstance']" />
  <xsl:with-param name="output_node_name" select="'Serviceinstance'" />
 </xsl:call-template>
</xsl:template>
            <xsl:template name="Taskid">
 <xsl:call-template name="simple_node">
 <xsl:with-param name="input_node" select="command/entry[key='Taskid']" />
 <xsl:with-param name="output_node_name" select="'Taskid'" />
 </xsl:call-template>
</xsl:template>
            <xsl:template name="Initiator">
 <xsl:call-template name="simple_node">
 <xsl:with-param name="input_node" select="command/entry[key='Initiator']" />
 <xsl:with-param name="output_node_name" select="'Initiator'" />
</xsl:call-template>
```

```
    </xsl:template>
    <xsl:template name="Originatingfms">
      <xsl:call-template name="simple_node">
      <xsl:with-param name="input_node" select="command/entry[key='Originatingfms']" />
      <xsl:with-param name="output_node_name" select="'Originatingfms'" />
     </xsl:call-template>
   </xsl:template>
          <xsl:template name="Outage_Flag">
                    <xsl:call-template name="simple_node">
                              <xsl:with-param name="input_node"
select="command/entry[key='Outage_Flag']" />
                              <xsl:with-param name="output_node_name" select="'Outage_Flag'" />
                    </xsl:call-template>
          </xsl:template>
```

- Add the following entry under the `<!-- CREATE: -->` tag.

```
<!-- *************** -->
<xsl:if test="($request_type='Create')">
          <oper:Arguments>
                    <xsl:variable name="of_type_timestamp" select="'Event_Time'"/>
                    <xsl:variable name="of_type_simple_node" select="('Probable_Cause',
                              'Security_Alarm_Cause',
                              'Backed_Up_Status',
                              'Trend_Indication',
                              'Notification_Identifier',
                              'Additional_Text',
                              'Alarm_Object_Operator_Note',
                              'Number_Of_Outstanding_Alarms',
                              'User_Identifier',
                              'User_Text',
                              'Pb',
                              'Action',
                              'Actionidlist',
                              'Actionstatus',
                              'Evp',
                              'Evpscenario',
                              'Outputparameters',
                              'Problem',
                              'Rawresult',
                              'Resourceinstance',
                              'Serviceinstance',
                              'Taskid',
                              'Originatingfms',
                              'Initiator')"/>
```

- Add the following entry under the `<!-- Service_Provider is not yet implemented -->` tag.

```
<xsl:call-template name="Alarm_Object_Operator_Note" />
<xsl:call-template name="User_Identifier" />
<xsl:call-template name="User_Text" />
```

```
<xsl:call-template name="Parents_Set" />
<xsl:call-template name="Children_Set" />
<xsl:call-template name="Pb" />
<xsl:call-template name="Action" />
<xsl:call-template name="Actionidlist" />
<xsl:call-template name="Actionstatus" />
<xsl:call-template name="Evp" />
<xsl:call-template name="Evpscenario" />
<xsl:call-template name="Outputparameters" />
<xsl:call-template name="Problem" />
<xsl:call-template name="Rawresult" />
<xsl:call-template name="Resourceinstance" />
<xsl:call-template name="Serviceinstance" />
<xsl:call-template name="Taskid" />
<xsl:call-template name="Originatingfms" />
<xsl:call-template name="Initiator" />
```

- Add the following entry under `<!-- SET: 82 items of Attribute List -->`

```
<xsl:variable name="of_type_simple_node" select="(' Acknowledgement_User_Identifier',. . .,
        'Pb',
        'Parents',
        'Children',
        'Action',
        'Actionidlist',
        'Actionstatus',
        'Evp',
        'Evpscenario',
        'Outputparameters',
        'Problem',
        'Rawresult',
        'Resourceinstance',
        'Serviceinstance',
        'Taskid',
        'Initiator',
        'Originatingfms')"/>
```

- Redeploy the TeMIP channel adapter.

```
#nom_admin --undeploy-ip-in-container temip-ca-22
#nom_admin --deploy-ip-in-container temip-ca-22
```

2.3.5 UMB

To install and deploy the Unified Mediation Bus, follow the instructions in the Unified Mediation Bus installation and Configuration guide.

Follow the instructions in the guide to stop/start Kafka, Zookeeper and Runtime package.

2.3.6 UCA EBC UMB Adapter

The UCA EBC UMB Adapter is packaged and installed as part of UCA EBC 3.3 server installation.

2.3.7 Configure TeMIP UMB Adapter

NOTE: This configuration is optional.

Edit the adapter.properties file in `${UMB_DATA}/temip-adapter/conf` directory, replace "localhost" with IP address of the the Kafka broker host

```
producer.metadata.broker.list=localhost:9092
producer.request.required.acks=1

consumer.zookeeper.connect=localhost:2181
consumer.zookeeper.session.timeout.ms=6000
consumer.zookeeper.sync.time.ms=203
consumer.auto.commit.interval.ms=1000
consumer.auto.offset.reset=smallest

#####################################
# TeMIP Collector Properties
#####################################

# size of the raw event collection queue used to store raw inevent during resynchronization
uca.collection.rawCollectionQueueSize=10000
```

Edit hazelcast.xml file in `${UMB_DATA}/temip-adapter/conf` directory and make appropriate changes to connect to Hazelcast. Please refer UCA-EBC Administration, Configuration and Troubleshooting Guide for more details

```
<management-center enabled="false">http://localhost:8080/mancenter</management-center>
```

```
<network>
        ...
        <join>
                ...
                ...
                <tcp-ip enabled="true">
                        <interface>localhost</interface>
                </tcp-ip>
        </join>
</network>
```

Edit TeMIP_configuration.xml in `${UMB_DATA}/temip-adapter/conf` directory, replace "localhost" with TeMIP host IP Address

```
<MachineName>localhost</MachineName>
```

- Validate the TeMIP configuration in the file.
- Edit the `${UMB_DATA}/temip-adapter/conf/TeMIP_configuration.xml` file.
- For example, if the TeMIP Director is configured on the `ossdemo1.ind.hpe.com` host, the file should contain the following configuration:

```
<TeMIPDirectorEntity>.temip.ossdemo1_temip</TeMIPDirectorEntity>
```

- Edit the `${UMB_DATA}/temip-adapter/conf/TeMIP_configuration.xml` to add the custom attributes required for UCA Automation within the tags.

```
<CustomAttributes>
.....
</CustomAttributes>
<CustomAttribute>
  <Attribute>Action</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Actionidlist</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Actionstatus</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Evp</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Evpscenario</Attribute>
  <Datatype>XmlString</Datatype>
 </CustomAttribute>

<CustomAttribute>
  <Attribute>Outputparameters</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Problem</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Rawresult</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Resourceinstance</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>
```

```
<CustomAttribute>
  <Attribute>Serviceinstance</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Taskid</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Initiator</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Originatingfms</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>

<CustomAttribute>
  <Attribute>Outage Flag</Attribute>
  <Datatype>XmlString</Datatype>
</CustomAttribute>
```

- Edit the `${UMB_DATA}/temip-adapter/conf/AdapterConfiguration.xml` file. Define a flow for UCA Automation with the following parameters

```
<flowServices>
        ...
        ...
        <flow name="UCAAutomationTeMIPFlow" type="Dynamic"
collectorClass="com.hp.umb.adapter.temip.TeMIPCollector">
                <parameters>
                        <parameter key="configurationFile"
defaultValue="TeMIP_configuration.xml"/>
                        <parameter key="operationContext" occurs="many"/>
                </parameters>
        </flow>
</flowServices>
```

2.3.8 JAVA

Java JRE/JDK 8 (1.8.0.XX)

IMPORTANT: Service Activator UMB adapter works on Java JRE/JDK 1.8 only. It is mandatory to install UCA EBC on Java 1.8

2.3.9 Configure TeMIP 6.2L

NOTE: This configuration is optional

When TeMIP 6.2L is used as NMS, perform the following:

- Install and configure TeMIPV62L with the latest available patches.
- For more details, refer to the **`TeMIP Installation Guide for Linux`**.
- Install and configure TeMIP Web Services with the latest patches.
- For more details, refer to the **`TeMIP WebServices Installation and Administration Guide`**.
- Set **TeMIP Web Services Security** level to none.
- Run the following command to update the TeMIP dictionary with custom attributes required for UCA EBC 3.3.

```
/usr/opt/temip/bin/temip_ah_user_defined_attr -project TPD
```

2.3.10 Configure TeMIP when used as NMS

NOTE: This configuration is optional

When TeMIP is used as an NMS, configure TeMIP using the following procedure.

- Enter the TeMIP management and run the following commands.

```
$ manage
TeMIP Framework (V6.2.0)
```

```
TeMIP> create domain uca_dom
Domain tfrsol1_ns:.uca_dom
On director: tfrsol1_ns:.temip.tfrsol1_director
AT Mon 11 Mar 2013 06:54:49

Entity successfully created.
```

```
TeMIP> create oper uca_network assoc domain uca_dom
OPERATION_CONTEXT tfrsol1_ns:.uca_network
On director: tfrsol1_ns:.temip.tfrsol1_director
AT Mon 11 Mar 2013 06:55:29

Operation Context successfully created
```

```
TeMIP> create oper uca_pbalarm assoc domain uca_dom
OPERATION_CONTEXT tfrsol1_ns:.uca_pbalarm
On director: tfrsol1_ns:.temip.tfrsol1_director
AT Mon 11 Mar 2013 06:56:07

Operation Context successfully created
```

```
TeMIP> register oper uca_network
OPERATION_CONTEXT tfrsol1_ns:.uca_network
On director: tfrsol1_ns:.temip.tfrsol1_director
```

```
AT Mon 11 Mar 2013 06:56:22

Registration successful.
```

```
TeMIP> register oper uca_pbalarm
OPERATION_CONTEXT tfrsol1_ns:.uca_pbalarm
On director: tfrsol1_ns:.temip.tfrsol1_director
AT Mon 11 Mar 2013 06:56:36

Registration successful.
```

```
TeMIP> set oper uca_network Emit Aggregate Event = true
 OPERATION_CONTEXT tfrsol1_ns:.uca_network
 On director: tfrsol1_ns:.temip.tfrsol1_director
 AT Mon 11 Mar 2013 06:57:47 Characteristics
 Modification(s) completed successfully.
```

```
TeMIP> set oper uca_pbalarm Emit Aggregate Event = true
 OPERATION_CONTEXT tfrsol1_ns:.uca_pbalarm
 On director: tfrsol1_ns:.temip.tfrsol1_director
 AT Mon 11 Mar 2013 06:58:47 Characteristics
 Modification(s) completed successfully.
```

2.4 Web client

- Mozilla Firefox 36
- Google Chrome 41
- Microsoft Internet Explorer 8 or later
  The UCA for EBC User Interface works better with Internet Explorer 8.0
  Internet Explorer 9, 10 and 11 must be set with the “Browser Mode” set to “Internet Explorer 8 Compatibility view” mode.
  Internet Explorer compatibility mode can be set from the following menu:
  Tools -> F12 Developer Tools -> Browser Mode

Chapter 3
UCA Automation solution pack

This chapter includes the procedures to install the following components:

- UCA Automation Solution Pack
- HPE SA Foundation Value Pack
- UCA EBC Foundation Value Pack
- UCA Automation UI
- NOM Channel Adapters

3.1 Installing UCA Automation solution

The UCA Automation solution is delivered as a tar file named:

`uca-automation-kit-2.1-linux.tar`

To install the package, perform the following operations:

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

```
# cd /tmp
# tar -xvf uca-automation-kit-2.1-linux.tar
```

2. Run the installation script.

Depending on whether you wish to install the UCA Automation at the default location, i.e. `/opt/UCA_UCAAutomation`, or an alternate location, run either of the following commands to execute the installation script.

To install UCA Automation at the default location (in `/opt/UCA_Automation` directory), please execute the following command as root user:

```
# install-uca-automation.sh
```

- To install UCA Automation at an alternate location of your choosing, please execute the following command as root user:

```
# install-uca-automation.sh –r <root directory>
```

- If root directory is not specified, the default root directory for UCA Automation is /opt/UCA_Automation.
- Before running the installation script ensure that `UCA_EBC_HOME` is set to UCA-EBC Home Directory

NOTE: Installing UCA Automation as non-root user (Linux ony):

- For some very specific needs UCA Automation package can be installed by a non-root user. This feature is available for Linux only.

- When installing UCA Automation 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.
  - The UCA Automation root directory must be read/write accessible by the non-root user. Usually the default `/opt/UCA_Automation` 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 `-r` option must be specified
  - When installed by the non-root users the UCA Automation scripts will only be executable by the user who performed the installation
- The script installs the package under root directory specified by the user. The following directories are created.
  - bin
    - uninstall-uca-automation.sh
  - Licenses
  - Orchestration_Plugin
    - UCAAutomationOrchestrator.jar
  - TeMIP_Integration
    - TEMIPTFRLIN_00172.tar
    - TEMIPTFRLIN_00172.text
    - UCA_Automation_SetupLaunch.conf
  - UCA_Automation_ChannelAdapters
    - uca-autoconsole-ca-2.0.0-L.tar
    - uca-hpsa-ca-2.0.0-L.tar
  - UCA_Automation_UMBAdapters
    - hpe-service-activator-umb-adapter-1.0.0.tar
    - service-activator-umb-proto-1.0.0-javadoc.jar
    - service-activator-umb-proto-1.0.0.jar
  - UCA_Automation_HPSA_VPs
    - UCA_HPSA_DomainExample_VP-V21-1A.zip
    - UCA_HPSA_FoundationVP-V21-1A.zip
  - UCA_Automation_UCA_VPs
    - UCA_Automation_DomainExample_UCA_EV-vp-V2.1-1A.zip
    - UCA_Automation_Foundation_UCA-vp-V2.1-1A.zip
    - UCA_Automation_DomainExample_UCA_PD-vp-V2.1-1A.zip

- Utilities
  - Admin
  - DecisionTree
  - TomSawyerVisualization

Table 3: RPM artifacts

Artifact	Description
TEMIPTFRLIN_00172.tar	TeMIP Server Patch – User Defined Attributes
uca-autoconsole-ca-2.0.0-L.tar	UCA-Automation Console Channel Adapter
uca-hpsa-ca-2.0.0-L.tar	UCA HPE SA Channel Adapter
UCA_HPSA_DomainExample_VP-V21-1A.zip	HPE SA example VP
UCA_HPSA_FoundationVP-V21-1A.zip	HPE SA Foundation VP
UCA_Automation_DomainExample_UCA_EV-vp-V2.1-1A.zip	UCA EBC example evaluate value pack
UCA_Automation_Foundation_UCA-vp-V2.1-1A.zip	UCA EBC Foundation VP
UCA_Automation_DomainExample_UCA_PD-vp-V2.1-1A.zip	UCA EBC example PD value pack
hpe-service-activator-umb-adapter-1.0.0.tar	UCA HPE SA UMB Adapter

3. Verify if the package is installed successfully.

   a. Run the following command:

```
# rpm -qa | grep -i Automation
UCA_Automation-V2.1-REV_A.noarch
```

   b. Uninstall the packages by running the uninstall-uca-automation.sh provided in **<UCA Automation root>/bin**:

   When the ***uninstall-uca-automation.sh*** tool is launched, it checks for all UCA Automation packages installed on your system and prompts you for the number associated with the package to be uninstalled

```
# /opt/UCA_Automation/bin/uninstall-uca-automation.sh
```

   You should get an output similar to the following text

```
# here is the list of installed UCA Automation packages:

    [0]    UCA_Automation-V2.1-REV_A.noarch

Enter the index number of UCA Automation version to un-install ('Enter' to Cancel):
```

   By entering '0' (as in the example above), UCA Automation version V2.1 will be removed

3.2 Installing HPE SA Foundation value pack

3.2.1 Deploy HPE SA Foundation value pack

The HPE SA foundation value pack is delivered as a ZIP file named `UCA_HPSA_FoundationVP-V21-1A.zip`.

- As a root user, copy the ZIP file of the foundation value pack from `<UCA Automation root>/UCA_Automation_HPSA_VPs` to the `${ACTIVATOR_OPT}/SolutionPacks` directory.
- Import and deploy the Foundation Value Pack solution.
- Make sure that the Create Inventory Table checkbox is selected.
- For information on undeploying and deleting the HPE SA solution pack, refer to the `Solution Separation and the Deployment Manager.`

3.2.2 Configure HPE SA Foundation value pack

- As a **root** user, run the **config.sh** script in the `${SOLUTION_ETC}/config` directory.
- The script enables the httpsender module in the `mwfm.xml` file of the HPE SA with the web service URL hosted in the HPE SA Channel Adapter. When the HTTPsender module is enabled, it sends the responses to the Automation Console.

```
# cd /opt/OV/ServiceActivator/solutions/UCA/etc/config
# chmod +x ./config.sh
# ./config.sh
Setting up the Service Activator UCA Foundation Value Pack...

Configuring MicroWorkFlow Manager (/etc/opt/OV/ServiceActivator/config/mwfm.xml)...
============================================================

UCA HTTP Sender module...
Enter Host name/IP address of the web service hosted in HPSA Channel Adapter
[localhost] :
Enter port for web service hosted in HPSA Channel Adapter [ 8191 ] :
8191
(Saving mwfm.xml for future reconfiguration)

/etc/opt/OV/ServiceActivator/config/mwfm.xml configured

Done setting up Service Activator Foundation Value Pack

Log file:
/var/opt/OV/ServiceActivator/log/tfrsol1/ucasp.install.031813_013907.log

Changes in Service Activator configuration files
may be inspected in files:
/var/opt/OV/ServiceActivator/log/tfrsol1/uca.mwfm.xml.diff
```

```
Press enter to continue...
```

- The following is a snippet of the `mwfm.xml` file.

```
  <Module>
      <Name>uca_http_sender</Name>
      <Class-Name>com.hp.ov.activator.mwfm.engine.module.HTTPSenderModule</Class-Name>
       <Param name="url"  value="http://0.0.0.0:8191/UCAAutomation/UCAService"/>
      <Param name="connect_timeout"      value="10000"/>
      <Param name="read_timeout" value="10000"/>
      <Param name="min_threads" value="1"/>
      <Param name="max_threads" value="3"/>
        <Param name="queue_name" value="httprequest"/>
        <Param name="retry_count" value="3"/>
        <Param name="retry_interval" value="40000"/>
        <Param name="queue_class" value="com.hp.ov.activator.mwfm.engine.module.Weight
edEngineQueue"/>
    </Module>
```

- Reload the configuration from the HPE SA UI or restart HPE Service Activator.

3.3 Installing UCA EBC Foundation value pack

The UCA Automation foundation value pack is delivered as a ZIP file named `UCA_Automation_Foundation_UCA-vp-V2.1-1A.zip.`

- Copy the ZIP file of the foundation value pack from `<UCA Automation root>/UCA_Automation_UCA_VPs` to the `${UCA_EBC_INSTANCES}/valuepacks` directory.
- Deploy the Foundation value pack.
- For details, refer the `UCA for Event Based Correlation Value Pack Development Guide`.
- Edit the `${UCA_EBC_DATA}/instances/default/conf/uca-ebc-log4j.xml` file.
- Add the following section in the file under the root tag `<log4j:configuration>`, specifically below the comment line `Detailed Traces for Value Pack Scenarios`:

```
<logger name="UCA_Automation_Foundation_UCA.requestresponse" additivity="false">
        <level value="TRACE" />
        <appender-ref ref="CONSOLE" />
        <appender-ref ref="FILE" />
</logger>

<logger name="UCA_Automation_DomainExample_UCA_EV.evaluate" additivity="false">
        <level value="TRACE" />
        <appender-ref ref="CONSOLE" />
        <appender-ref ref="FILE" />
</logger>

<logger name="com.hp.ucaautomation" additivity="false">
        <level value="TRACE" />
        <appender-ref ref="CONSOLE" />
        <appender-ref ref="FILE" />
 </logger>
```

- Copy the service-activator-umb-proto-1.0.0.jar from `<UCA Automation root>/UCA_Automation_UMBAdapters` (default is `/opt/UCA_Automation/UCA_Automation_UMBAdapters`) to `${UCA_EBC_HOME}/lib`
- The following configuration in `ExternalActionConfig.xml` file available in the `${UCA_EBC_INSTANCES}/deploy/UCA_Automation_Foundation_UCA-V2.1-1A/conf` directory is used internally by the value pack to clean completed actions. The value must not be modified

```
<!-- Interval to clear executed Actions -->
<executedActionsClearInterval>180000</executedActionsClearInterval>
```

Restart UCA-EBC

3.3.1 Configure UCA Automation UI

- Edit the `UCAAutomation.properties` file in the `${UCA_EBC_INSTANCES}/deploy/UCA_Automation_Foundation_UCA-V2.1-1A/conf` directory.
- Update the `<ipaddress>` with UCA EBC Server host IP address.

```
UCACONSOLE_CA_URL=http://<ipaddress>:26700/uca/mediation/action/ActionService?wsdl
ucaebc_tomsawyer_port=http://<ipaddress>:8888/graphdisplay/?username=root&nodeId=0&profile=ucaatm
```

- Update the database.
  - If you have an enterprise database Postgres, use the following configuration.

```
DB_DRIVER=org.postgresql.Driver
DB_URL=jdbc:postgresql://<db-host>:<db-port>/<db>
DB_USER=<db-user>
DB_PASSWORD=<db-user-password>
```

  - If you have Oracle database, use the following configuration.

```
DB_DRIVER=oracle.jdbc.driver.OracleDriver
DB_URL=jdbc:oracle:thin:@<db-host>:<db-port>:<db>
DB_USER=<db-user>
DB_PASSWORD=<db-user-password>
```

- If you have Oracle Real Application Clusters, configure the Database URL as shown below

```
jdbc:oracle:thin:@(DESCRIPTION=
  (LOAD_BALANCE=on|off)
  (ADDRESS=(PROTOCOL=TCP)(HOST=db-host1)(PORT=db-port))
  (ADDRESS=(PROTOCOL=TCP)(HOST=db-host2)(PORT=db-port))
  (CONNECT_DATA=(SERVICE_NAME=service_name)))
```

For more details look at the tnsentries in the tnsnames.ora

- Edit the `ExternalActionConfig.xml` file available in the `${UCA_EBC_INSTANCES}/deploy/UCA_Automation_Foundation_UCA-V2.1-1A/conf` directory and edit the following line with the UCA EBC server host name and port:

```
<consoleurl>
```

```
http://localhost:8888/UCA_Automation_Foundation_UCA-V2.1-1A-UCAAutomation/UCAService
</consoleurl>
```

- If TeMIP is used as NMS, start the UCA_Automation_Foundation_UCA value pack.
- If TeMIP is not the NMS, before starting the UCA_Automation_Foundation_UCA value pack, delete the mediation flow in UCA_Automation_Foundation_UCA value pack.

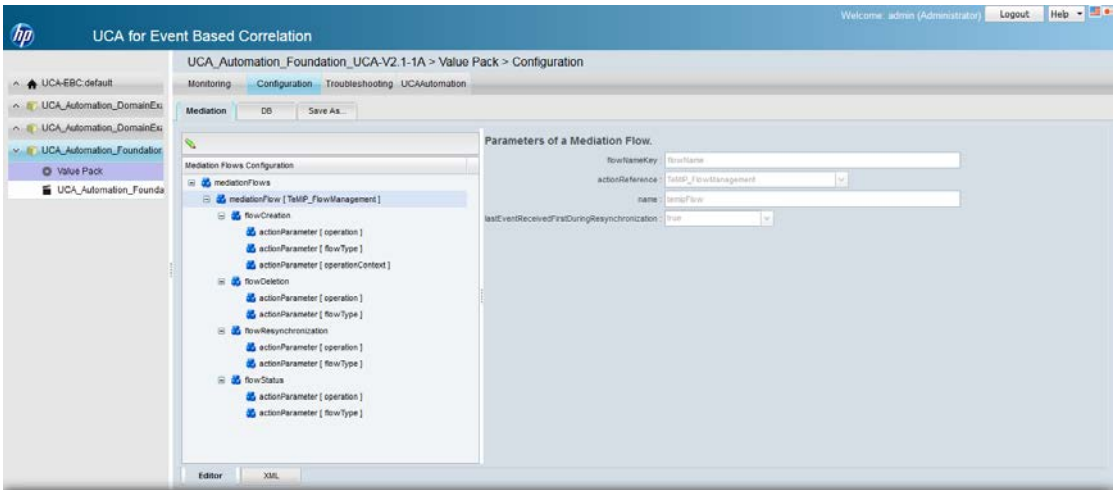

Figure 1: Deleting the Mediation Flow from UCA_Automation_Foundation_UCA value pack

3.3.2 Configure NOM

In ValuePackConfiguration.xml , mediation flow is specified as follows.

```
<mediationFlow name="temipFlow" actionReference="TeMIP_FlowManagement"
flowNameKey="flowName" lastEventReceivedFirstDuringResynchronization="true">
        <flowCreation>
                <actionParameter>
                        <key>operation</key>
                        <value>CreateFlow</value>
                </actionParameter>
                <actionParameter>
                        <key>flowType</key>
                        <value>dynamic</value>
                </actionParameter>
                <actionParameter>
                        <key>operationContext</key>
                        <value>uca_pbalarm</value>
                </actionParameter>
        </flowCreation>
        <flowDeletion>
                <actionParameter>
                        <key>operation</key>
                        <value>DeleteFlow</value>
                </actionParameter>
                <actionParameter>
                        <key>flowType</key>
                        <value>dynamic</value>
```

```
                </actionParameter>
        </flowDeletion>
        <flowResynchronization>
                <actionParameter>
                        <key>operation</key>
                        <value>ResynchFlow</value>
                </actionParameter>
                <actionParameter>
                        <key>flowType</key>
                        <value>dynamic</value>
                </actionParameter>
        </flowResynchronization>
        <flowStatus>
                <actionParameter>
                        <key>operation</key>
                        <value>StatusFlow</value>
                </actionParameter>
                <actionParameter>
                        <key>flowType</key>
                        <value>dynamic</value>
                </actionParameter>
        </flowStatus>
</mediationFlow>
```

In ExternalActionConfig.xml, action name and actionreference for NOM is specified as follows

```
<action name="TeMIP EMS">
        <actionReference>TeMIP_AO_Directives_localhostNOM</actionReference>
        <actionClass>com.hp.ucaautomation.action.framework.impl.TeMIPAction</actionClass>
</action>
```

In ExternalActionConfig.xml, the trouble ticket action name and action reference are specified as follows.

```
<troubleTicketAction name="TeMIP EMS">
        <actionReference>TeMIP_TT_Directives_localhostNOM</actionReference>
...
...
</troubleTicketAction>
```

In ExternalActionConfig.xml, the activation action name and action reference is specified as follows

```
<activationAction name="HPSA">
        <actionReference>HPSA_diagnosticTask_localhost</actionReference>
        <actionClass>com.hp.ucaautomation.action.framework.impl.ServiceActivatorAction</actionCla
ss>
</activationAction>
```

Please refer to Unified Correlation Analyzer for Event Based Correlation Value Pack Development Guide for more information on how to configure the ValuePackConfiguration.xml file if NMS is not TeMIP

3.3.3 Configure UMB

In ValuepackConfiguration.xml, UMB mediation flow for UMB is specified as follows.

```
<mediationFlows>
        <UMBmediationFlow name="temipFlow" automaticStart="true"
targetFlowName="UCAAutomationTeMIPFlow" targetAdapterName="TeMIP">
                <flowParameters>
                        <flowParameter value="uca_pbalarm" key="operationContext"/>
                </flowParameters>
        </UMBmediationFlow>
        <UMBmediationFlow name="hpsaFlow" automaticStart="true"
targetFlowName="synchResponseFlow" targetAdapterName="service-activator-umb-adapter">
        </UMBmediationFlow>
</mediationFlows>
```

In ExternalActionConfig.xml, the action name and actionreference for UMB are specified as follows

```
<action name="TeMIP##UCAAutomationTeMIPFlow">
        <actionReference>TeMIP_AO_Directives_localhost</actionReference>
        <actionClass>com.hp.ucaautomation.action.framework.impl.TeMIPAction</actionClass>
</action>
```

In ExternalActionConfig.xml, the trouble ticket action name and action reference are specified as follows.

```
<troubleTicketAction name="TeMIP##UCAAutomationTeMIPFlow">
        <actionReference>TeMIP_TT_Directives_localhost</actionReference>
...
...
</troubleTicketAction>
```

In ExternalActionConfig.xml, the activation action name and action reference is specified as follows

```
<activationAction name="HPSA">
        <actionReference>HPSA_diagnosticTask_localhost</actionReference>
        <actionClass>com.hp.ucaautomation.action.framework.impl.ServiceActivatorAction</actionCla
ss>
</activationAction>
```

Please refer to Unified Correlation Analyzer for Event Based Correlation Value Pack Development Guide for more information on how to configure the ValuePackConfiguration.xml file if NMS is not TeMIP

3.4 Installing UCA Automation UI

The UCA Automation UI is embedded in UCA Automation Foundation value pack and is delivered as a war file.

Deploy and start the UCA Automation Foundation value pack to view the UCA Automation UI.

3.5 Install Custom attributes

NOTE: This configuration is optional. Should be performed only if the NMS is TeMIP

- To create custom attributes required for UCA Automation, refer to the instruction in the file `${UCA_AUTO_HOME}/TeMIP_Integration/TEMIPTFRLIN_00172.text`
- Run the following command to update the TeMIP dictionary with custom attributes required for UCA Automation.

```
/usr/opt/temip/bin/temip_ah_user_defined_attr -project TND
```

- Run the following commands to reload the dictionary.

```
# manage restart mcc 0 appli 631
# manage reloaddict mcc 0
```

Chapter 4
UCA Automation Orchestrator

The UCA Automation 2.1 release provides an Eclipse plug-in to create and deploy UCA Automation Orchestrator.

4.1 Prerequisites for installing Orchestrator

Eclipse IDE for EE Developers Kepler version 4.3.2

4.2 Install UCA Automation Orchestrator

4.2.1 Install EMF plug-in

- Download EMF plugin from the following url

  `http://www.eclipse.org/downloads/download.php?file=/modeling/emf/emf/downloads/drops/2.10.0/R201405190339/emf-xsd-Update-2.10.0.zip`

- Open Eclipse.
- Select **Help** -> **Install New Software**. Click on Add button and specify the path to the downloaded zip file in the “Location” field.

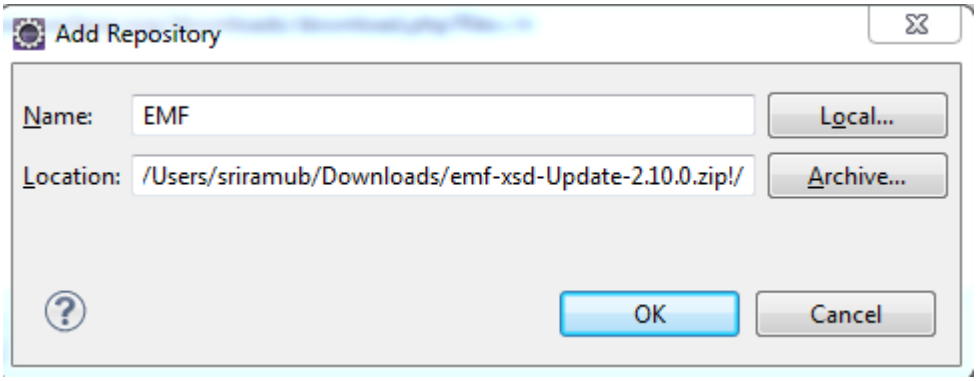

Figure 2: Add EMF Repository

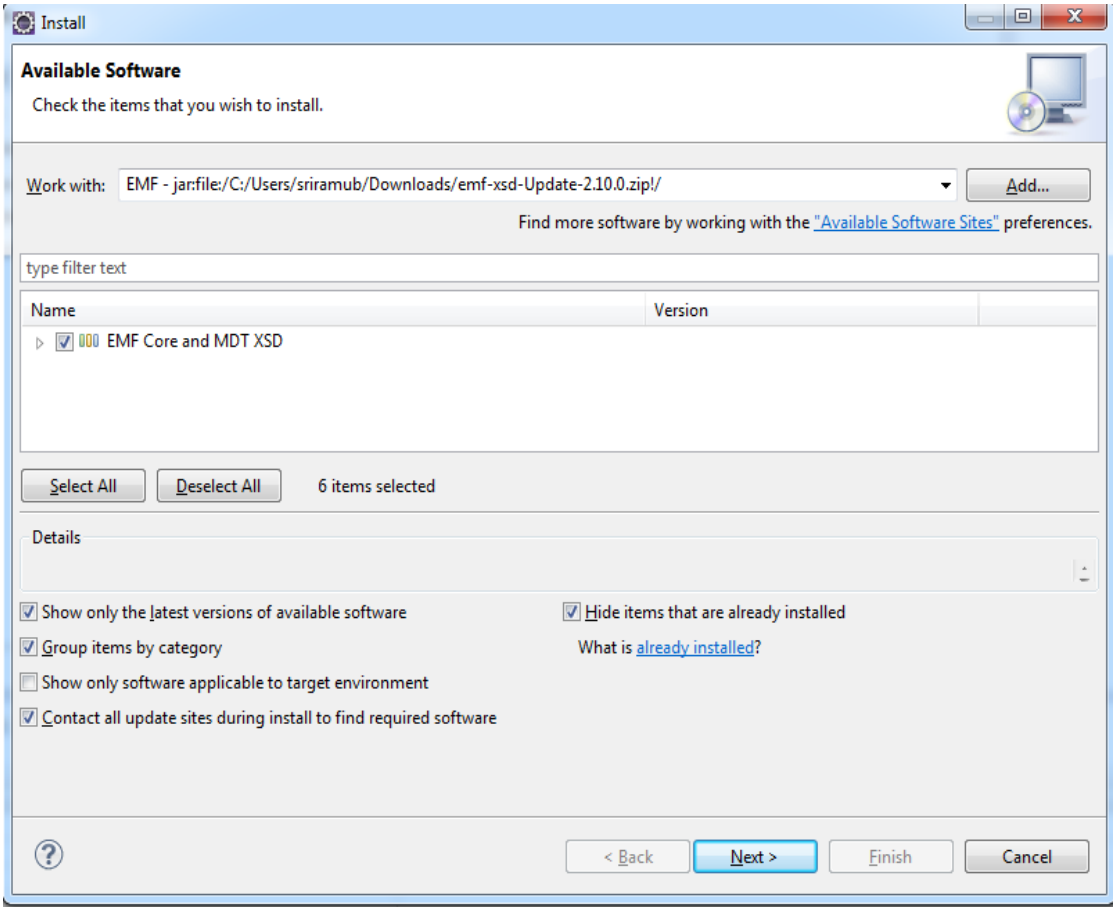

Figure 3: EMF components

- Select **All** and click **NEXT** to install the software.

4.2.2 Install GEF plug-in

- Download EMF plugin from the following url

  `http://www.eclipse.org/modeling/download.php?file=/tools/gef/downloads/drops/3.9.100/R201405261516/GEF-Update-3.9.100.zip`

- Open Eclipse.
- Select **Help** -> **Install New Software**. Click on Add button and specify the path to the downloaded zip file in the “Location” field.

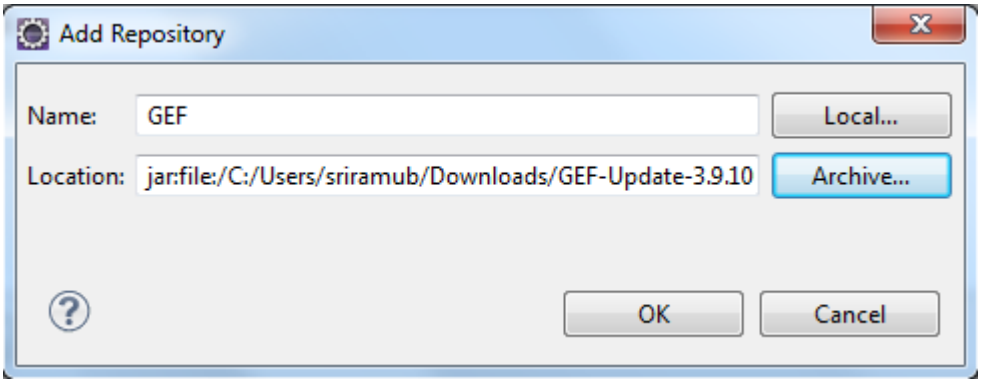

Figure 4: Add GEF Repository

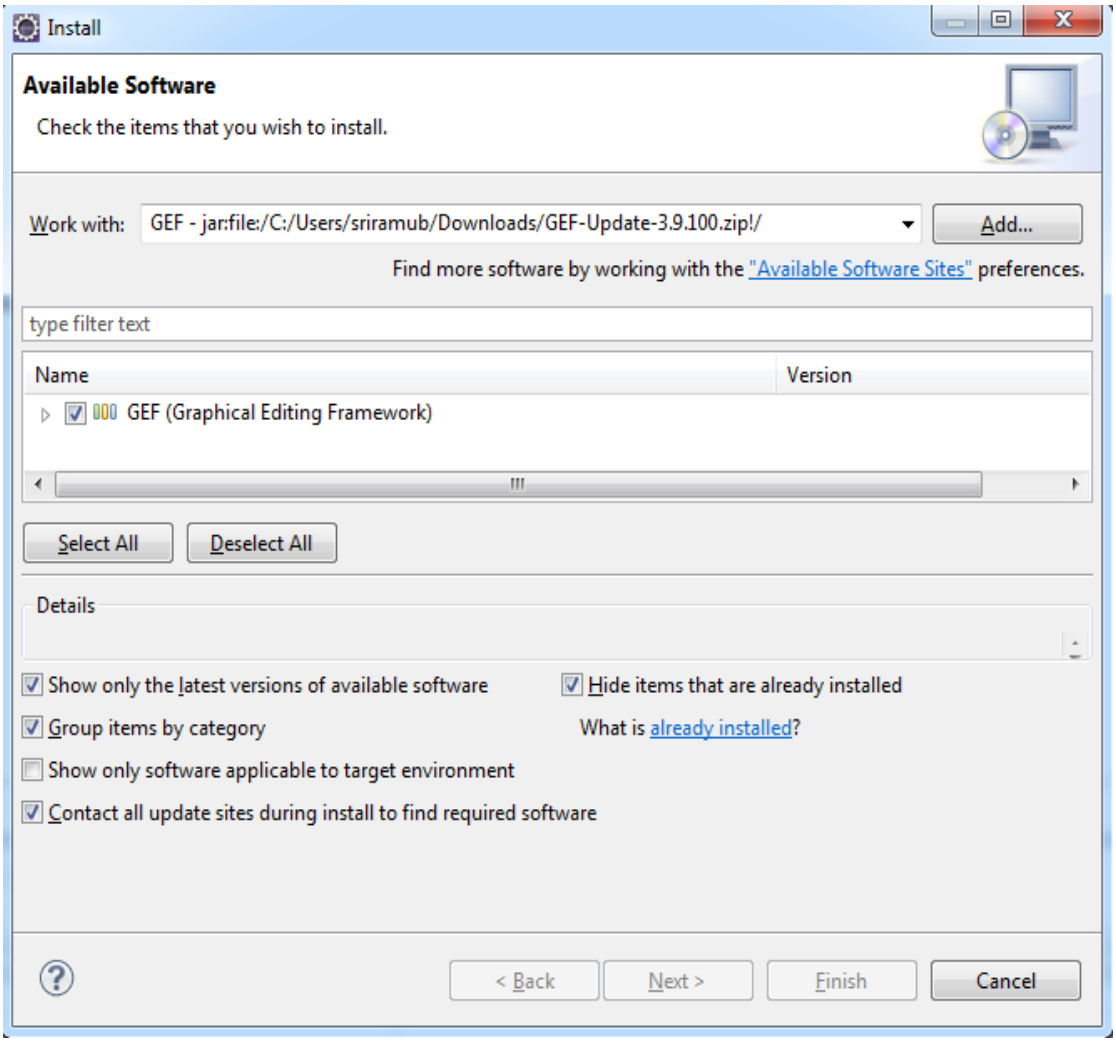

Figure 5: GEF components

- Select **All** and click **NEXT** to install the software.

4.2.3 Install Windows builder

- Follow the instructions specified in the URL to install Windows builder

  `http://download.eclipse.org/windowbuilder/WB/release/R201406251200/4.3/`

  Drag the URL for this update site and drop it into the "Work with" field of the "Install" dialog

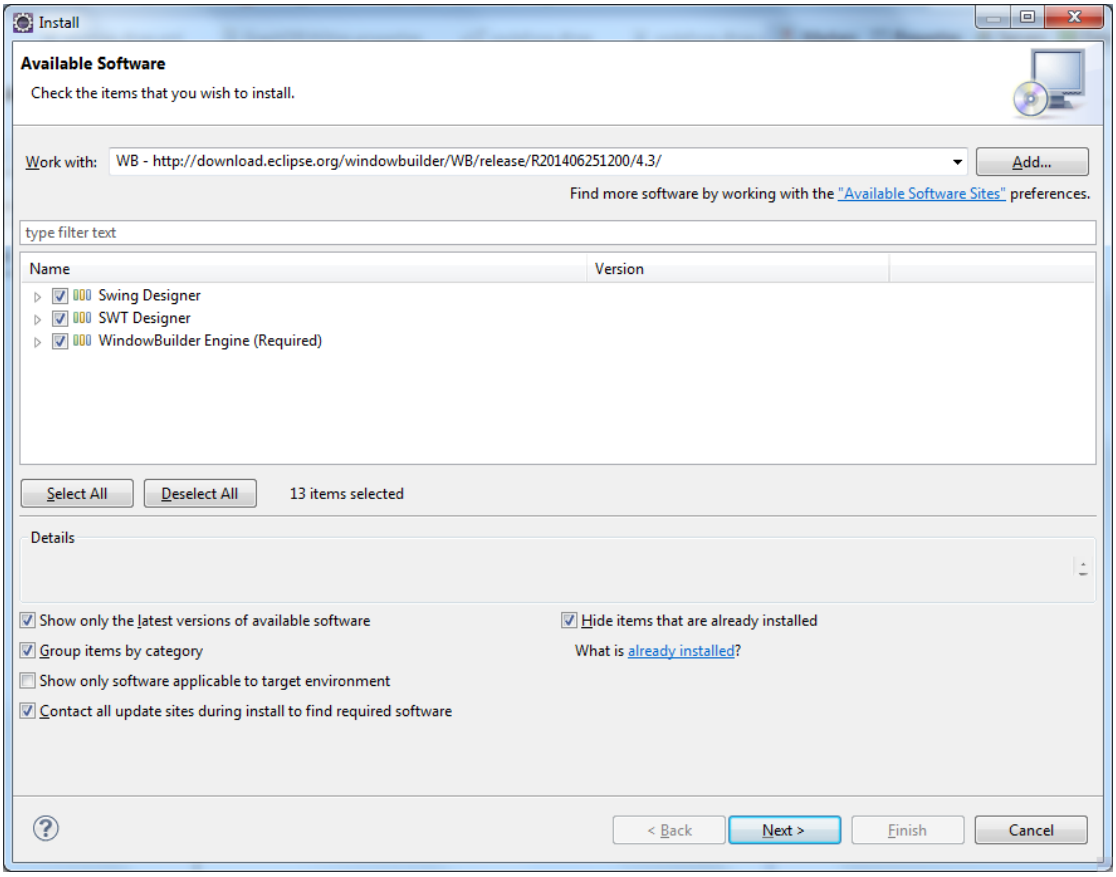

Figure 6: Windows Builder components

- Place the `UCAAutomationOrchestrator.jar` file in the `dropins` folder of the Eclipse.
- Restart Eclipse.

> **NOTE:** If the `UCAAutomationOrchestrator.jar` file is updated, after placing the updated JAR file in the `dropins` folder of Eclipse, restart Eclipse with a `-clean` option

- To verify whether the plug-in is installed, select **Help** -> **About Eclipse** -> **Installation details** -> **Plugins**.
- The following **Plug-ins** tab in the **Eclipse Installation Details** window contains the plug-in name.

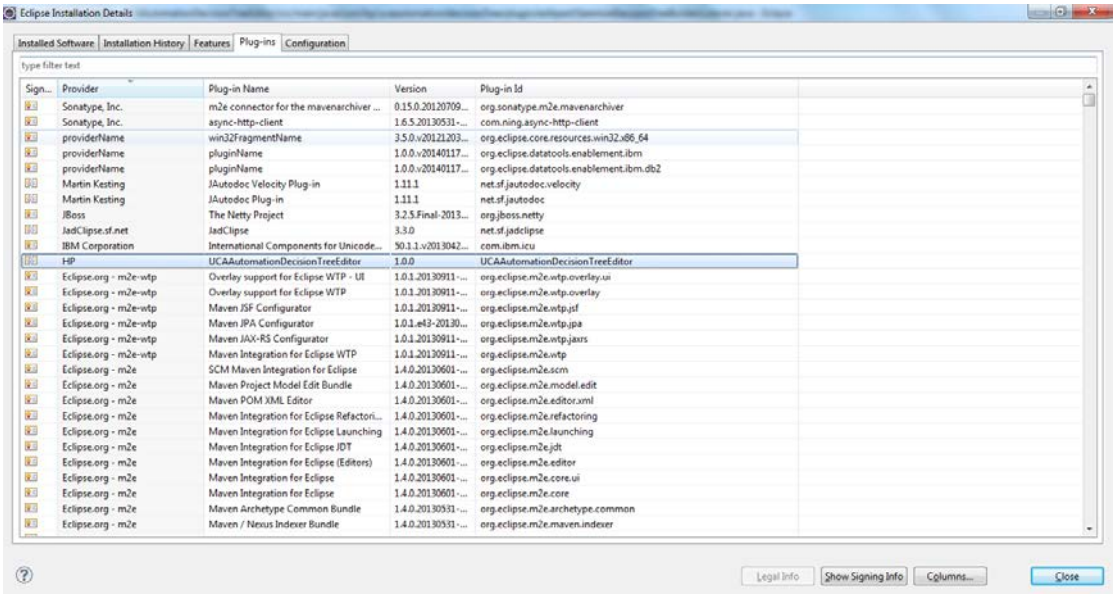

Figure 7: Installed PLug-ins

4.3 Configure Orchestrator

- After loading Eclipse, select **Window** -> **Preferences** -> **General** -> **Workspace**.
- Select the checkbox for **Refresh on access**.

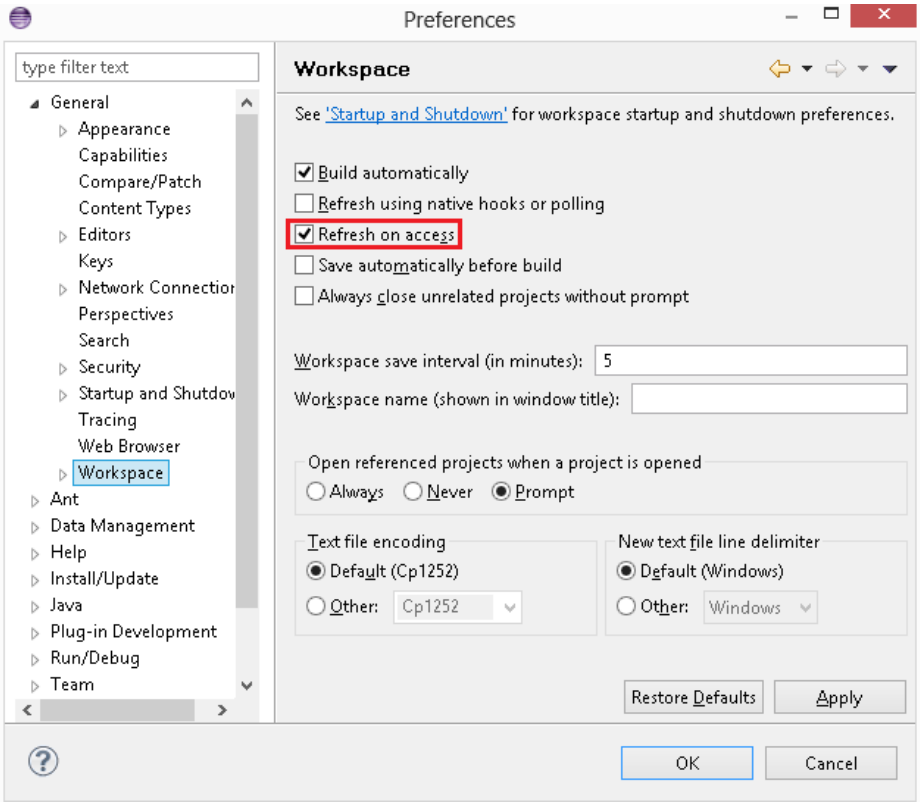

Figure 8: Lightweight workspace refresh

- Configure the Active Provider in Eclipse to improve the upload performance of the decision tree.
- Select **Window** -> **Preferences** -> **General** -> **Network Connections**.
- Set the **Active Provider** to **Direct**.

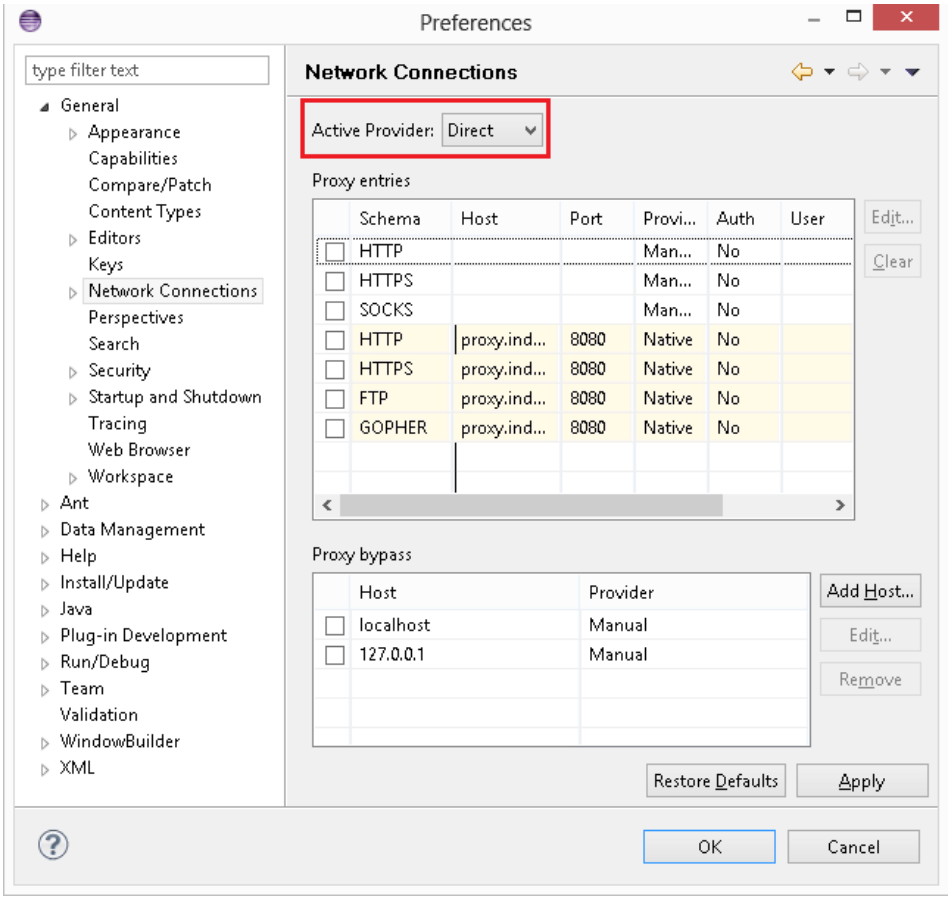

Figure 9: Network connection profile

Chapter 5
UCA Automation Admin Tools

5.1 Admin Tool

Use the Admin tool to toggle the Protection Switch flag. The command-line tool is available under the `${UCA_AUTOMATION_ROOT}/utilities/Admin/bin/uca-auto-admin` directory.

Table 4: Admin Utility options

Options	Description
-h	Displays command usage
-ps <ON|OFF|check|reload>	ON- switches ON the Protection Switch flag OFF- switches OFF the Protection Switch flag check- displays the current status of the Protection Switch flag reload- resets the Protection Switch flag to the value present in the UCAAutomation.properties files. If this property is not found in the file then the Protection Switch is reset to OFF.

5.2 Decision tree command line utility

Use the Decision tree utility to upload a tree, delete existing tree/sub-tree from Neo4j graph database and to generate the skeleton decision from the UCA Automation RDBMS.
The command-line tool is located in `${UCA_AUTOMATION_ROOT}/utilities/DecisionTree/bin/decisionTree.sh` directory.

Table 5: Decision Tree Utility options

Options	Description
-e <filename and path>	Extracts data from RDBMS
-u <filename and path>	Uploads the decision tree.
-d <service type name | ALL>	Service type name : deletes all the children nodes and relationships of the service type node ALL or all : deletes the all nodes and relationship from the neo4j database

Edit the `GraphDBUtilities.properties` file available under the `${UCA_AUTOMATION_ROOT}/utilities/DecisionTree/conf/` directory.

```
#UCA Automation Inventory database connection details
#Oracle jdbc driver : oracle.jdbc.driver.OracleDriver
#Oracle url : jdbc:oracle:thin:@<hostname>:<port>:<service>
#Postgres jdbc driver : org.postgresql.Driver
#Postgres url : jdbc:postgresql://<hostname>:<port>/<service>
inventory.db.driver= org.postgresql.Driver
inventory.db.url= jdbc:postgresql://<hostname>:<port>/<service>
inventory.db.user=<username>
inventory.db.password=<password>

#Neo4j database connection details
neo4j.db.protocol=http
neo4j.db.host=localhost
neo4j.db.port=7474
neo4j.db.db=db
neo4j.db.data=data
#enables batch transaction of inserts into neo4j db
org.neo4j.rest.batch_transaction=true
#enables http streaming
org.neo4j.rest.stream=true
```

Table 6: Decision Tree Utility configuration descriptors

Properties	Description
inventory.db.driver	Database driver name.
inventory.db.url	The connection URL.
inventory.db.user	The login user name of database.
inventory.db.password	The login password associated with the user name
neo4j.db.protocol	By default it is http.
neo4j.db.host	By default it is localhost. This is the hostname/IP address of the server where neo4j is hosted.
neo4j.db.port	By default it is 7474. The port number where neo4j is hosted.
neo4j.db.db	By default it is db
neo4j.db.data	By default it is data
org.neo4j.rest.batch_transaction	Enables batch transaction of inserts into neo4j
org.neo4j.rest.stream	Enables http streaming

Chapter 6
Install NOM channel adapters

6.1 HPE SA channel adapter

To install and deploy the HPE SA Channel Adapter, follow the instructions in the `UCA HPE SA CA Main Release Guide`.

Edit the `config.properties` file in the `${NOM_INSTANCE}/ips/uca-hpsa-ca-20/etc`.

```
# HPSA connectivity settings
hpsa.host=0.0.0.0
hpsa.port=<HPE SA port>
hpsa.userid=<HPE SA user with StartJob privileges>
hpsa.password=<password for the above HPE SA user>

# UCA Automation controller workflow
hpsa.controller.workflow.name=UCAController

# UCA Automation response handler connectivity settings
hpsa.uca-automation.sync-service.host=0.0.0.0
hpsa.uca-automation.sync-service.port=8191
```

The following is a snippet of the `config.properties:`

```
# HPSA connectivity settings
hpsa.host=0.0.0.0
hpsa.port=8080
hpsa.userid=sa
hpsa.password=sa

# UCA-Automation controller workflow
hpsa.controller.workflow.name=UCAController


# UCA-Automation response handler connectivity settings
hpsa.uca-automation.sync-service.host=0.0.0.0
hpsa.uca-automation.sync-service.port=8191
```

Table 7: HPE SA CA config descriptors

Descriptor	Description
hpsa.host	Hostname /IP address of the server where HPE SA is hosted.
hpsa.port	The listening port of HPE SA
hpsa.userid	The login user name of HPE SA. The user has the permission to start and stop a job, as well as check the status.
hpsa.password	The login password associated with the user name
hpsa.uca-automation.sync-service.host	The default value is 0.0.0.0. This is the hostname/IP address of the internal web service being hosted by HPE SA CA
hpsa.uca-automation.sync-service.port	The default value is 8191. The listening port number of the internal web service hosted by CA.
hpsa.controller.workflow.name	The name of the HPE SA foundation workflow to be invoked in HPE SA. You cannot change the value.

6.2 UCA Automation console channel adapter

To install and deploy the Automation Console Channel Adapter, follow the instructions in the **UCA** `Autoconsole CA Main Release Guide`.

Edit the `config.properties` file in the `${NOM_INSTANCE}/ips/uca-autoconsole-ca-20/etc` directory.

```
uca.uca-automation.host=0.0.0.0
uca.uca-automation.port=12500
uca.console.service=UCA_Automation_Foundation_UCA-V2.1-1A-UCAAutomation/UCAService
uca.console.host=localhost
uca.console.port=<uca-ui.properties - ucaui.gui.port>
```

The following snippet from the `config.properties` file contains sample values:

```
uca.uca-automation.host=0.0.0.0
uca.uca-automation.port=12500
uca.console.service=UCA_Automation_Foundation_UCA-V2.1-1A-UCAAutomation/UCAService
uca.console.host=localhost
uca.console.port=8888
```

Table 8: UCA Console CA config descriptors

Descriptor	Description
uca.uca-automation.host	Host name or the IP address of Automation console CA where the internal webservice is hosted. The default value is 0.0.0.0.
uca.uca-automation.port	Listening port of the internal Automation console CA web service. The default value is 12500.
uca.console.service	Name of the automation console web service.
uca.console.host	The Hostname /IP address of the server where the UCA Automation console is hosted.
uca.console.port	The listening port of the UCA Automation console. See section 6.2, uca-ui.properties - ucaui.gui.port

Chapter 7
Install UMB adapters

7.1 Service Activator UMB Adapter

To install and deploy the Service Activator UMB Adapter, follow the instructions in `Service Activator UMB Adapter 1.0.0 Installation and configuration guide`.

Edit the `adapter.properties` file in the `${SAUMB_INSTANCE}/conf/` directory.

Replace "localhost" with the IP address of the the Kafka broker host.

```
producer.metadata.broker.list=localhost:9092
producer.request.required.acks=1

consumer.zookeeper.connect=localhost:2181
consumer.zookeeper.session.timeout.ms=6000
consumer.zookeeper.sync.time.ms=203
consumer.auto.commit.interval.ms=1000
consumer.auto.offset.reset=smallest
```

Table 9: Service Activator UMB Adapter config descriptors

Descriptor	Description
producer.metadata.broker.list	A list of Kafka broker <host>:<port> information. Set to localhost:9092 by default
producer.request.required.acks	Set to 1 by default, indicating that Kafka is in a mode where messages are acknowledged. This value controls when a producer request is considered completed. Specifically, how many other brokers must have committed the data to their log and acknowledged this to the leader 0: means that the producer never waits for an acknowledgement from the broker. This option provides the lowest latency but the weakest durability guarantees (some data will be lost when a server fails). 1: means that the producer gets an acknowledgement after the leader replica has received the data. This option provides better durability as the client waits until the server acknowledges the request as successful (only messages that were written to the now-dead leader but not yet replicated will be lost). -1: means that the producer gets an acknowledgement after all in-sync replicas have received the data. This

	option provides the best durability, we guarantee that no messages will be lost as long as at least one in sync replica remains.
consumer.zookeeper.connect	List of ZooKeeper <host>:<port> information. Set to localhost:2181 by default
consumer.zookeeper.session.timeout.ms	Set to 6000 by default
consumer.zookeeper.sync.time.ms	Set to 203 by default
consumer.auto.commit.interval.ms	Set to 1000 by default
consumer.auto.offset.reset	Set to smallest by default. Indicates what to do when there is no initial offset in ZooKeeper or if an offset is out of range smallest: automatically reset the offset to the smallest offset largest: automatically reset the offset to the largest offset anything else: throw exception to the consumer

Please refer to UMB Installation and configuration guide for more details on Adapter properties

Edit the hazelcast.xml file in the `${SAUMB_INSTANCE}/conf/` directory.

Replace localhost with the host IP address.

```
<tcp-ip enabled="true">
        <interface>localhost</interface>
<tcp-ip/>
```

Edit the connection.properties in `${SAUMB_INSTANCE}/conf/` directory

```
# Original version: 1.0.0

# HPSA connectivity settings
hpsa.host=0.0.0.0
hpsa.port=8080
hpsa.path=mwfmsoap/WFManagerService
hpsa.userid=sa
hpsa.password=sa

# UCA-Automation controller workflow
hpsa.controller.workflow.name=UCAController
```

```
# Parameters of synchResponse web service provided by this adapter.
events.listen.host=0.0.0.0
events.listen.port=8191
events.listen.path=UCAAutomation/UCAService
```

Table 10: Service Activator UMB Adapter connection properties

Descriptor	Description
hpsa.host	Hostname /IP address of the server where HPE SA is hosted.
hpsa.port	The listening port of HPE SA
hpsa.path	The HPE SA web services interface
hpsa.userid	The login user name of HPE SA. The user has the permission to start and stop a job, as well as check the status.
hpsa.password	The login password associated with the user name
events.listen.host	The default value is 0.0.0.0. This is the hostname/IP address of the UCA Automation web service being hosted in HPE SA CA
events.listen.port	The default value is 8191. The listening port number of the UCA Automation web service hosted by CA.
hpsa.controller.workflow.name	The name of the HPE SA foundation workflow to be invoked in HPE SA. You cannot change the value.
events.listen.path	The UCA Automation web service interface

Chapter 8
UCA Automation licensing

A 60-day Instant-On license is installed by default when UCA-EBC Automation Foundation value pack is started. This license activates all features of the product for a trial period. After the expiration of the trial period, an extended evaluation or a commercial license is needed to continue using the product.

For any questions related with licensing, please contact the UCA Automation product management team.

8.1 Get a UCA Automation license

You need a license key to use the UCA Automation software. Licensing is managed by AutoPassJ, which is automatically installed with UCA for EBC. You must obtain a license key to continue using the product after the 60-day trial period.

The following is the process for getting a license key:

- The system administrator of the product must go the HPE Licensing web site (http://enterpriselicense.hpe.com/redirector/home).
- Download the perpetual license to use the product.
- To request perpetual license keys, you should have the following information:
  - Entitlement Certificate—Contains the HP product number and order number (Entitlement order number).
  - Contact information of the license owner—Details of your company or organization.
- (Optional) Contact the HP Password Center via fax, email, or phone.
- For more information, refer to the Password Request Form and the License Entitlement Certificate. To get product licenses, you should have the License Entitlement Certificate.

8.2 License policy

When the UCA-EBC Automation Foundation Value Pack for EBC Server starts, the system runs a license check for UCA Automation feature.

To activate this feature, you should have a valid license key. The UCA-EBC Automation Foundation value pack does not start if you do not have a valid license key for the UCA Automation feature.

The following table shows the link between UCA Automation product part numbers and the features:

Product part number	Description	Enabled UCA Automation features
JK461AAE	HP UCA Automation Foundation Prod E-LTU	HP UCA Automation Foundation Prod E-LTU HP OSS UCA Expert Production HP OSS UCA Expert DB HP Service Activator Tier X ELTU
JK462AAE	HP UCA Automation Foundation Non-Prod E-LTU	HP UCA Automation Foundation Non-Prod E-LTU HP OSS UCA Expert Production HP OSS UCA Expert DB HP Service Activator Tier X ELTU

When you activate the UCA Automation Instant-On feature, UCA Automation automatically generates a corresponding license key which is added to the `license.txt` file available under the `${UCA_EBC_DATA}/instances/<instance name>/licenses` folder. By default the directory path is `/var/opt/UCA-EBC/instances/default/licenses`.

This `license.txt` file contains all license keys. For information on installing the licenses, refer to the UCA-EBC and HPE Service Activator `Installation Guides`.

8.3 Use Webware website for product licenses

The following procedure discusses how to obtain your product licenses.

- Go to HPE Licensing web site (http://enterpriselicense.hpe.com/redirector/home). Select the link for Hewlett Packard Enterprise Software Licenses and Downloads
- The **HP Passport Sign-in** page appears.
- Sign in using the user ID and password associated with your HP Passport.
- If you do not have an HP Passport account, request for one by clicking the **New users - Please register** link.
- Click **Sign In**.
- The home page of the HP Licensing for Software web site opens.
- Enter your entitlement order number in the **Entitlement order number (EON)** text box.
- You order number is displayed on the License Entitlement Certificate (HP Order Number).
- Click **Go**.
- In the Entitlement column, select the checkboxes for the products for which you want license keys.
- Click **Activate**.

- For each product you selected, enter the number of Licenses to Use (LTUs) in the **Qty** field.
- The number of licenses is limited by the total number of LTUs available for the order.
- For each product you selected, enter the required details in the **Target** field.
- It includes the following: Server host name, IP address for the system where the software is installed, and so on.
- Click **Finish**.
- A confirmation message appears stating that an email containing the license keys has been sent to you. The page also displays the license keys and provides links for emailing and displaying them along with the information regarding the product activation.

8.4 Install license keys for UCA Automation

The following procedure discusses how to install license keys for UCA Automation.

- After you get the UCA Automation license key, copy the license key to the `license.txt` file available under the `${UCA_EBC_DATA}/instances/<instance name>/licenses` folder.
- The default location is `/var/opt/UCA-EBC/instances/default/licenses`.
- If you want to copy more than one license key to the `license.txt` file, append them to the `license.txt` file one after the other until all license keys are copied to the `license.txt` file.
- Restart the UCA for EBC Server to apply the changes made to the `license.txt` file.

8.5 Remove license keys for UCA Automation

The following procedure discusses how to remove license keys for UCA Automation.

- Remove the license keys from the `license.txt` file located in the `${UCA_EBC_DATA}/instances/<instance name>/licenses` folder.
- The default location is `/var/opt/UCA-EBC/instances/default/licenses`.

Chapter 9
Code signing

This software product from HPE is digitally signed and accompanied by Gnu Privacy Guard (GnuPG) signatures. HPE strongly recommends using signature verification on its products, but there is no obligation. Customers have the choice of running this verification or not as per their IT Policies.

9.1 Install and configure Gnu Privacy Guard (GnuGP)

If you do not have GnuPG installed, you should download and install GnuPG. For information about obtaining and installing GnuPG, see http://www.gnupg.org

Before verifying the signatures delivered on the HPE UCA Automation DVD, you should configure GnuGP for accepting the HPE signature. Use the following procedure to configure GnuGP:

- Log into your system.
- Get the HP public key from following location

  https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPLinuxCodeSigning
- Download the compressed HPE GPG Public Keys from the location https://ftp.hp.com/pub/keys/HPE-GPG-Public-Keys.tar.gz. Save the keys in a folder viz. signcheck.
- Uncompress and extract the file content.

```
cd signcheck
gunzip HPE-GPG-Public-Keys.tar.gz
tar -xvf HPE-GPG-Public-Keys.tar
```

- Import the public key 2BAF2262.pub into GnuPG by running the following command

```
gpg --import 2BAF2262.pub
```

- Configure the level of trust for the imported key

```
gpg --edit-key 2BAF2262
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> trust
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? 5
Do you really want to set this key to ultimate trust? (y/N) y

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.

Command> quit
```

9.2 Verify authenticity and integrity in RHEL

This section explains the procedure to verify the signatures of the software packages to assess the integrity of the software before installation.

In the command prompt, go to the home directory on the DVD and run the following command:

```
gpg --verify uca-automation-kit-2.1-linux.tar.sig uca-automation-kit-2.1-linux.tar
```

You should get the following output from the **gpg** command:

```
gpg: Good signature from "Hewlett Packard Enterprise Company RSA-2048-14 <signhp@hpe.com>"
```

Appendix A
Glossary

Term	Description
UCA	Unified Correlation Analyzer
EBC	Event Based Correlation
IP	Installation Package for OSS Open Mediation V7.2
JDK	Java Development Kit
JMS	Java Messaging Service
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
NOM	NextGen OSS Open Mediation
CA	NOM Channel Adapter
PPAS	Postgres Plus Advanced Server
UMB	Unified Mediation Bus