Installing the Billing Adaptor (BOA)

Install Guide

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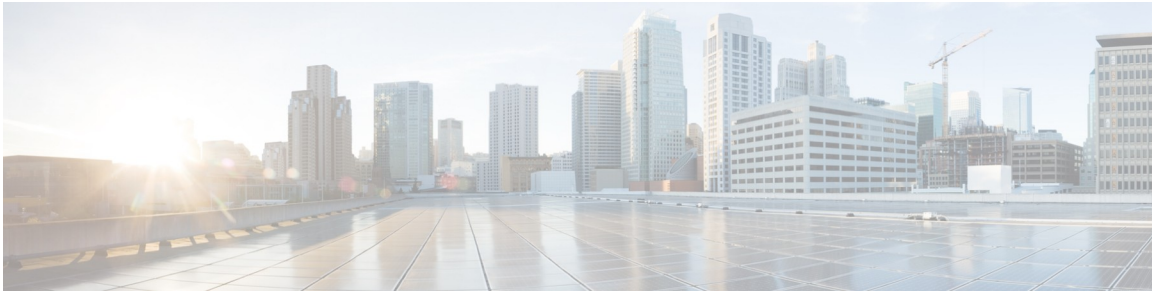

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Revision History

Version	Date	Description
1.0	May 16, 2015	Initial document for BOA 4.0 installation. LEA
1.1	May 28, 2015	Update document to move all configurations to the config.properties file.
1.2	July 2, 2015	Update document to make the configuration variable names match the config.properties file
1.3	Aug 7, 2015	Updated to add installs for all deployments.
1.4	December 10, 2015	Updated to include new configuration parameters for managing a default authorization and automatically trigger a TVOD purchase report
1.5	December 16, 2015	Changing ECS/VGS/UHE PowerKey configuration to support an rpm installation. Adding hardware requirements.
1.6	January 5, 2016	Updated configuration parameters for Vector installation.
1.7	March 4, 2016	Incorporate User/Configuration information. LEA

Overview

Cisco's Business Support System/Operations Support System (BSS/OSS) Adaptor provides a unified interface to the back-end subscriber and billing systems typical of subscription-based service provider deployments. The BSS/OSS Adaptor (BOA) can be co-located with other back-end systems. This eliminates the need for a separate billing system interface for each control system.

Purpose

This document describes how to configure the BOA service for Cisco's Videoscape Control Suite (VCS) Version 4.0.

Prerequisites

Before you can use the procedures in this document, the following tasks must be completed:

- VCS Version 3.0 or greater must be installed which include:
    - VCS Console 4.x.x (if UI is being used)
    - Service Directory 1.2.x (if needed)
    - Jboss EAP 6.x.x
    - Java 1.7.x
    - BOA UI 4.x.x Component (if needed)
    - rpm
- Minimum hardware configuration:

  2-vCPU/4GB RAM/40GB HDD

Additional Software needed for Infinite Home:

HornetQ 2.2.14-7
UPM 5.78.0-114 or better (Mongo 2.6.x or better)

Additional Software needed for VBO:

HornetQ 2.2.14-7
Mongos

UPM(Mongo)
PPS (Mongo)
Oracle: See below for others

Additional Software needed for DCAS:

HornetQ 2.2.14-7
UPM (Oracle)
CCM
NM
CI
BSM
OASM

Installing the Billing Adapter RPM File

Support Matrix

The following table describes the installation features and configuration settings that apply to each interface type. There can be multiple BOA interfaces (described below) active simultaneously, but if a given interface is not going to be exercised, the associated features and configuration settings can and should be disabled or left empty.

				Install Features				***Configuration Settings***			
I/F Type	**Store Auths**	**Use Catalog Import**	**Routing Table**	**UPM**	**Catalog Import**	**Domain Service**	**Report Server**	**HEP**	**CMDC**	**PPS**	**Purchase Connections**
Async WS BOSS WSDL	True or False	True or False		Optional; if **Store Auths**=true, Required	Optional; if **Catalog Import**=true, Required	Optional; if **Store Auths**=true, Required					
Sync WS Household WSDL				Required							
Sync WS Purchase WSDL				Optional				Optional	Optional	Optional	Optional
REST				Required			Optional				
RPC			Required								

Interface Types

Interface type: Asynchronous Web Service – BOSS WSDL

In deployment environments where the asynchronous web service interface is utilized, BOA is responsible for forwarding BOSS commands to the EC or ECS, depending on the command type. This interface is device-centric. With the store authorizations feature flag enabled at installation time, BOA will also store authorizations in UPM. With that feature flag enabled, the UPM and Domain Service configuration entries are required. The BASS Splitter feature is also available for this interface for cases where PPV events are defined and removed via an interface with the Catalog Import component. When the BASS Splitter feature flag is enabled at install time, the Catalog Import configuration entries are required.

Interface type: Synchronous Web Service – Household WSDL

In deployment environments where the synchronous web service interface is utilized with the household WSDL, BOA is responsible for managing households, devices, and authorizations using an interface with UPM. This interface is household-centric. There are no feature flags that apply to this interface and UPM is the only required configuration value.

Interface type: Synchronous Web Service – Purchase WSDL

In deployment environments where the synchronous web service interface is utilized with the purchase WSDL, BOA is responsible for creating and deleting purchases and processing view start/stop events. This interface is household-centric. There are no feature flags that apply to this interface and in order to exercise the full set of purchase WSDL commands, the following configuration values are required. Make sure the Unified HeadEnd (UHE) components are installed prior to installing BOA: **UPM, HEP, CMDC, PPS**, and the **purchase connections**. If a reduced set of purchase WSDL commands are targeted for use, the configuration values may be a subset of that list.

Interface type: REST

In deployment environments where the BOA REST interface is utilized, BOA is responsible for managing households, devices, and authorizations using an interface with UPM. This interface is household-centric. There are no feature flags that apply to this interface and UPM is the only required configuration value. A purchase reporting command is available in this interface, and if it is targeted for use, the **Report Server** configuration value needs to be populated.

Interface type: RPC

In deployment environments where the RPC interface is utilized, BOA is responsible for forwarding BOSS commands received over RPC to either an EC or the ECS, depending on the command type. This interface is device-centric. There are no feature flags that apply to this interface and only the routing table is required among the configuration settings

Installing BOA

Choose your Installation Environment from the options below and perform the installation procedures within the appropriate sections that follow.

Installation Environment	Instructions
Video Back Office (VBO)	Go to the **VBO Installation** section. Page **14**
cDVR	Go to the **cDVR Installation** section. Page **17**
VGS(Unified HeadEnd (UHE))/PowerKey	Go to the **VGS(UHE)/PowerKey Installation** section. Page **18**
Infinite Home	Go to **Infinite Home Installation** section, Page **20**

Configure Jboss

1. Create a file in /etc/jboss-as/conf.d:
2. Type:

   vi boa.conf

   Insert the following:

```
JBOSS_CONFIG=standalone.xml
JAVA_OPTS="-Xms2g -Xmx4g -XX:MaxPermSize=2g"
JAVA_OPTS="$JAVA_OPTS -d64"
JAVA_OPTS="$JAVA_OPTS -Djava.net.preferIPv4Stack=true"
JAVA_OPTS="$JAVA_OPTS -Djava.awt.headless=true"
JAVA_OPTS="$JAVA_OPTS -Djboss.bind.address=0.0.0.0"
export JAVA_OPTS
```

Note: *Depending on the VM configuration, some systems may require the use of the actual IP of the node, rather than listen on all interfaces*

3. Do not insert the NOTE.
4. Save the file:

   :wq!
5. Change ownership to jboss:jboss. Type:

   chown jboss:jboss boa.conf
6. Restart the jboss process. Type:

   service jboss-as restart

Available Configuration Parameters:

Explanation of the parameters:

Database Settings:

db.primaryDbServerIP - Enter the IP address for the primary Mongo Database Server.

db.primaryDbServerPort - Enter the connection port for the primary Mongo Database Server, usually 27017.

db.secondaryDbServerIP - Enter the IP address for the secondary Mongo Database Server.

db.secondaryDbServerPort - Enter the connection port for the secondary Mongo Database Server, usually 27017.

db.database -- Enter the Mongo Database name for the BOA instance.

db.user -- Enter the Mongo Database user name for the BOA instance.

db.password -- Enter the Mongo Database user password for the BOA instance.

Service Connections:

connections.upm.host – Enter the IP address of the UPM server.

connections.upm.port – Enter the port for UPM server communications, default port is 6040.

connections.ci.host – Enter the IP address of the Catalog Import Host.

connections.ci.port – Enter the port for Catalog Import communications, default port is 5155.

connections.hep.host – Enter the IP address for the Headend Purchase (HEP) host.

connections.hep.port – Enter the port for HEP, default port is 6030.

connections.cmdc.host – Enter the IP address for the Catalog Merchandiser Host.

connections.cmdc.port – Enter the port for the CMDC communications, default port is 5600.

connections.pps.host – Enter the IP address for the Personal Planner System (PPS) host.

connections.pps.port – Enter the port for the PPS communications, default port is 6060

connections.vvla.host – Enter the IP address for the VVLA host.

connections.vvla.port – Enter the port for the VVLA communications, default port is 8010

connections.ds.host - Enter the IP address for the DS host.

connections.ds.port – Enter the IP address for the DS port, default port is 6045.

connections.rs.host - Enter the IP address for the RS host.

connections.rs.port - Enter the IP address for the RS port, default port is 6530.

Mutual Authentication Settings:

sec.twoWayAuthEnabled - Enable/disable mutual authentication (true/false).

sec.keystore.truststorePath – Enter the path to the trust store (/opt/cisco/vcs/certs/client-truststore.jks).

sec.keystore.keystorePath – Enter the path to the keystore (/opt/cisco/vcs/certs/keystore.jks).

sec.keystore.password – Enter the password to the keystore.

Purchase Client Connections:

NOTE: Configure both or neither.

purchase.client.sdmp.host -- Enter the IP address for the SDMP billing system.

purchase.client.sdmp.port – Enter the communication port for the SDMP host.

purchase.client.sdmp.path – Enter the path for the SDMP host.

purchase.client.flex.host -- Enter the IP address for the FlexView billing system.

purchase.client.flex.port – Enter the communication port for the FlexView host.

purchase.client.flex.path – Enter the path for the FlexView host.

purchase.retry.rateinseconds – Enter the purchase retry rate in seconds.

purchase.retry.maxcount – Enter the maximum number of purchase retries.

Service Directory Settings:

serviceDirectory.ip – Enter the IP address of the Service Directory application.

serviceDirectory.port – Enter the port of the Service Directory application, default port is 2013.

serviceDirectory.requiredFlag – If this installation is for a deployment where Service Directory is not in use, set this flag to false.

Serial Number Processing:

kd.sn.processingFlag – This flag should only be set to true if special serial number processing is required.

Default Authorization

svod.free.packageName – If a default SVOD package is used to enable free content, this value should be included in the configuration settings with the correct offer key value. With this value set, the ModifyHouseholdAuthorizations command in the web service interface will ensure that this default package is not inadvertently removed.

Automatic TVOD Report Trigger

tvodReport.enableAutoTrigger.billingId – This value should be included in the configuration to enable the automatic triggering of a TVOD report request to the Reporting Service. The arguments for this attribute are the billing ID and the frequency of the report request in hours (e.g. tvodReport.enableAutoTrigger.billingId=sms1, 1). Separate billing IDs can be configured with report requests being triggered for each ID (e.g. tvodReport.enableAutoTrigger=sms1, 1; sms2, 2).

Enabled Services

enabledServices – This parameter should be populated with a comma-separated list of enabled service values if the validation of enabled service values is desired. If the list is populated, only the specified values will be accepted in the REST interface commands to add or remove enabled services. If the list is not populated, the enabled service values will not be validated.

Package Creation:

caproduct.ppv.value – Enter the CA product ID parameter name for PPV packages
caproduct.subscription.value – Enter the CA product ID parameter name for subscription packages
business.rule.ppv.id – Enter the business rule parameter name for PPV packages
business.rule.subscription.id – Enter the business rule parameter name for subscription packages
region.ppv.value – Enter the region parameter name for PPV packages
region.subscription.value – Enter the region parameter name for subscription packages
region.validationFlag – Enable/disable region validation (true/false)

VBO Installation

High Availability (VBO Installation only)

To support **High Availability** BOA uses the Mongo database. **The BOA database and user must be created prior to the BOA install. Do not** complete the DataStore parameters unless using the Mongo Database.

Prerequisites

1. Install/Start the Mongo database Server.
2. Perform the following steps:
   a. Log on to the Mongo DB server.
   b. Execute **mongo** to enter the mongo command line:
      Type: mongo
      Type the following to create the BOA database and add the user/password, the user and password are examples only:

```
use boa
db.addUser( { user: "boauser",
        pwd: "Moon1234",
      roles: [ "readWrite", "dbAdmin" ] } )
```

3. Install all of the Unified HeadEnd (UHE) components if they are going to be used prior to installing BOA.
   IMPORTANT:
4. If the database already exists the BOA Collections must be dropped before proceeding. Do the following to view the BOA collections.
5. Type:
   use boa<cr>
   > show collections; <cr>
   BoaServiceConfiguration
   BoaServiceInstanceInfo
   system.indexes
   system.users

6. Drop the collections by doing the following commands:

```
> db.BoaServiceConfiguration.drop() <cr>
true(expected result)

> db.BoaServiceInstanceInfo.drop() <cr>
true(expected result)
```

Installation Procedures

1. Obtain the BOA rpm.
2. Install the RPM:
   a. Install:
      rpm –ivh <BOA RPM>
   b. Upgrade:
      rpm –Uvh <BOA RPM>
3. Edit the config.properties file as needed.
4. Change directory to /opt/cisco/billingadaptor/conf
5. Copy sample-config.properties to config.properties, type:
   cp sample-config.properties config.properties
6. Type:
   vi config.properties

Configuration Parameters (add additional parameters as needed):

```
#Fri Apr 04 10:45:55 EDT 2014
db.password=password
db.database=BOA
db.primaryDbServerIP=127.0.0.1
db.primaryDbServerPort=27017
db.user=boauser

connections.upm.host=10.1.1.1
connections.upm.port=6040
connections.ds.host=10.1.1.2
connections.ds.port=6045
connections.rs.host=10.1.1.3
connections.rs.port=6530
connections.vvla.host=10.1.1.4
connections.vvla.port=8010
connections.hep.host=10.1.1.5
connections.hep.port=6030
connections.cmdc.host=10.1.1.6
connections.cmdc.port=5600
connections.pps.host=10.1.1.7
connections.pps.port=8010

purchase.client.sdmp.host=10.1.1.8
purchase.client.sdmp.port=8900
purchase.client.sdmp.path=sdmp/service
purchase.client.flex.host=10.1.1.9
purchase.client.flex.port=8900
purchase.client.flex.path=flex/service
purchase.retry.rateinseconds=30
purchase.retry.maxcount=3
```

```
svod.free.packageName=freePkg
serviceDirectory.requiredFlag=false
```

7. To save the changes, type **":wq!".**
8. Change the ownership of the file to jboss:jboss:
   chown jboss:jboss config.properties
9. Start the BOA application:
10. Change directory to /opt/cisco/billingadaptor/bin
11. Type:
    ./billingadaptor.sh deploy

NOTE: Any changes made to the configuration file (config.properties), BOA must be undeployed and redeployed for the changes to take effect.

cDVR Installation

Installation Procedures

1. Obtain the BOA rpm.
2. Install the RPM:
   a. Install:
   rpm –ivh <BOA RPM>
   b. Upgrade:
   rpm –Uvh <BOA RPM>
3. Edit the config.properties file as needed.
4. Change directory to /opt/cisco/billingadaptor/conf
5. Copy sample-config.properties to config.properties, type:
   cp sample-config.properties config.properties
6. Type:
   vi config.properties

Configuration Parameters (add additional parameters as needed):

```
serviceDirectory.requiredFlag=false

connections.upm.host=212.200.18.3
connections.upm.port=4444
connections.rs.host=212.200.18.4
connections.rs.port=5555
```

7. To save the changes, type **":wq!".**

8. Change the ownership of the file to jboss:jboss:
   chown jboss:jboss config.properties
9. Start the BOA application:
10. Change directory to /opt/cisco/billingadaptor/bin
11. Type:
    ./billingadaptor.sh deploy

NOTE: Any changes made to the configuration file (config.properties), BOA must be undeployed and redeployed for the changes to take effect.

ECS VGS(UHE)/PowerKey Installation

Installation Procedures

1. Obtain the BOA rpm.
2. Install the RPM:
   a. Install:
      rpm –ivh <BOA RPM>
   b. Upgrade:
      rpm –Uvh <BOA RPM>
3. Edit the config.properties file as needed.
4. Change directory to /opt/cisco/billingadaptor/conf
5. Copy sample-config.properties to config.properties, type:
   cp sample-config.properties config.properties
6. Type:
   vi config.properties

Configuration Parameters (add additional parameters as needed):

```
#Fri Apr 04 10:45:55 EDT 2014

serviceDirectory.requiredFlag=false

connections.upm.host=10.1.1.1
connections.upm.port=6040
connections.ci.host=10.1.1.2
connections.ci.port=5155

region.validationFlag=true
region.ppv.value=ppvRegionParamName
region.subscription.value=subRegionParamName

caproduct.ppv.value=caProductIdPpv
caproduct.subscription.value=caProductIdSub
business.rule.ppv.id=ppvBusinessRuleId
```

```
business.rule.subscription.id=subBusinessRuleId
```

1. To save the changes, type **":wq!".**
2. Change the ownership of the file to jboss:jboss:
   chown jboss:jboss config.properties
3. Start the BOA application:
4. Change directory to /opt/cisco/billingadaptor/bin
5. Type:
   ./billingadaptor.sh deploy

NOTE: Any changes made to the configuration file (config.properties), BOA must be undeployed and redeployed for the changes to take effect.

Infinite Home Installation

Installation Procedures

1. Obtain the BOA rpm.
2. Install the RPM:
   a. Install:
      rpm –ivh <BOA RPM>
   b. Upgrade:
      rpm –Uvh <BOA RPM>
3. Edit the config.properties file as needed.
4. Change directory to /opt/cisco/billingadaptor/conf
5. Copy sample-config.properties to config.properties, type:
   cp sample-config.properties config.properties
6. Type:
   vi config.properties

Configuration Parameters (add additional parameters as needed):

```
#Fri Apr 04 10:45:55 EDT 2014
kd.sn.processingFlag=true
tvodReport.enableAutoTrigger.billingId=sms1, 1
enabledServices=PURCHASE-TVOD, KD-SERVICES, SKYD-SERVICES, LOCAL-
PVR-ENABLED, IPTV

connections.upm.host=212.200.187.3
connections.upm.port=4594
connections.rs.host=212.200.187.2
connections.rs.port=6530
serviceDirectory.requiredFlag=false
```

7. To save the changes, type **“:wq!”.**
8. Change the ownership of the file to jboss:jboss:
   chown jboss:jboss config.properties
9. Start the BOA application:
10. Change directory to /opt/cisco/billingadaptor/bin
11. Type:
    ./billingadaptor.sh deploy

NOTE: If the VCS Console is being installed for this deployment, the configuration parameters for service directory will need to be included. Also, any changes made to the configuration file (config.properties), BOA must be undeployed and redeployed for the changes to take effect.

Configure the BOA Service

VCS Console Login

1 Open a supported browser.

Notes:

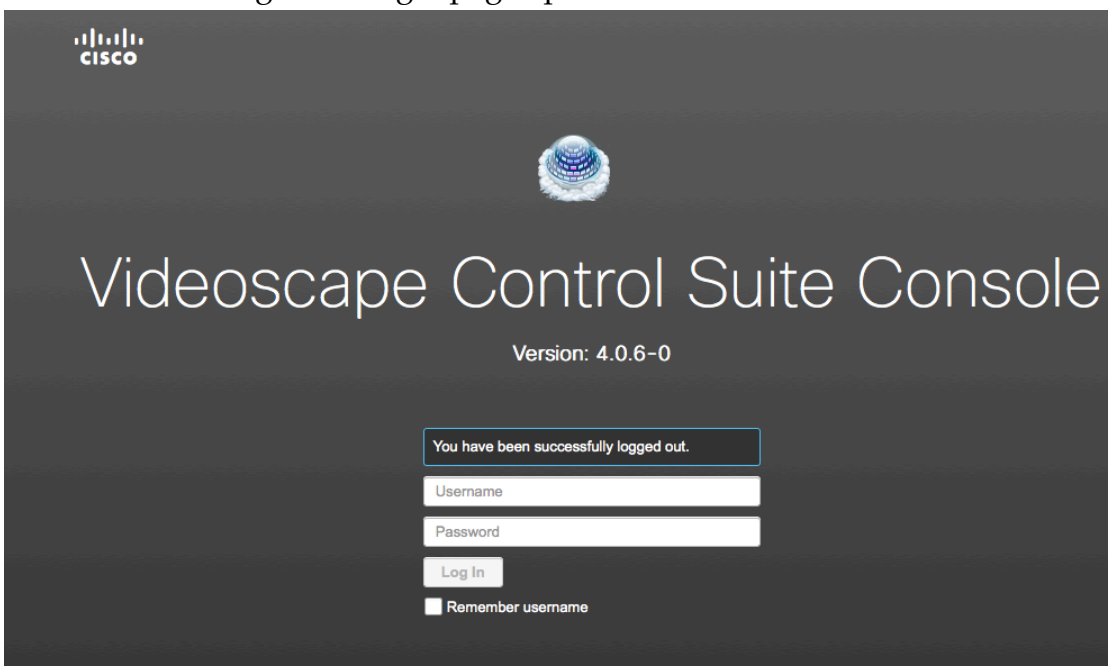
- Internet Explorer, Firefox, and Chrome browsers are supported.
- The CP login page, displayed in the following step, cites the specific versions that are supported.

2 Enter the following command in the address bar:

`https://[VCS UI IP address]/`

Example: **`https://192.0.2.1/`**

Result: The management login page opens.



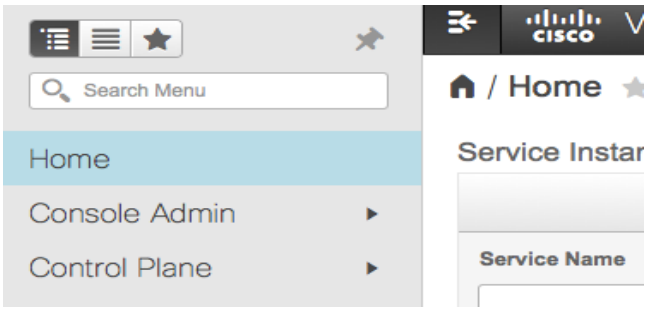
3 Enter the root or BOA user **User Name** and **Password** and click **Login** to log in to the console.

Managing the Billing Adaptor Configuration Settings

BOA uses the information defined on the Billing Adaptor Configuration UI page to connect to the various systems listed on this page. This information is defined initially during the BOA installation procedure. To manage these connections, perform the following steps:

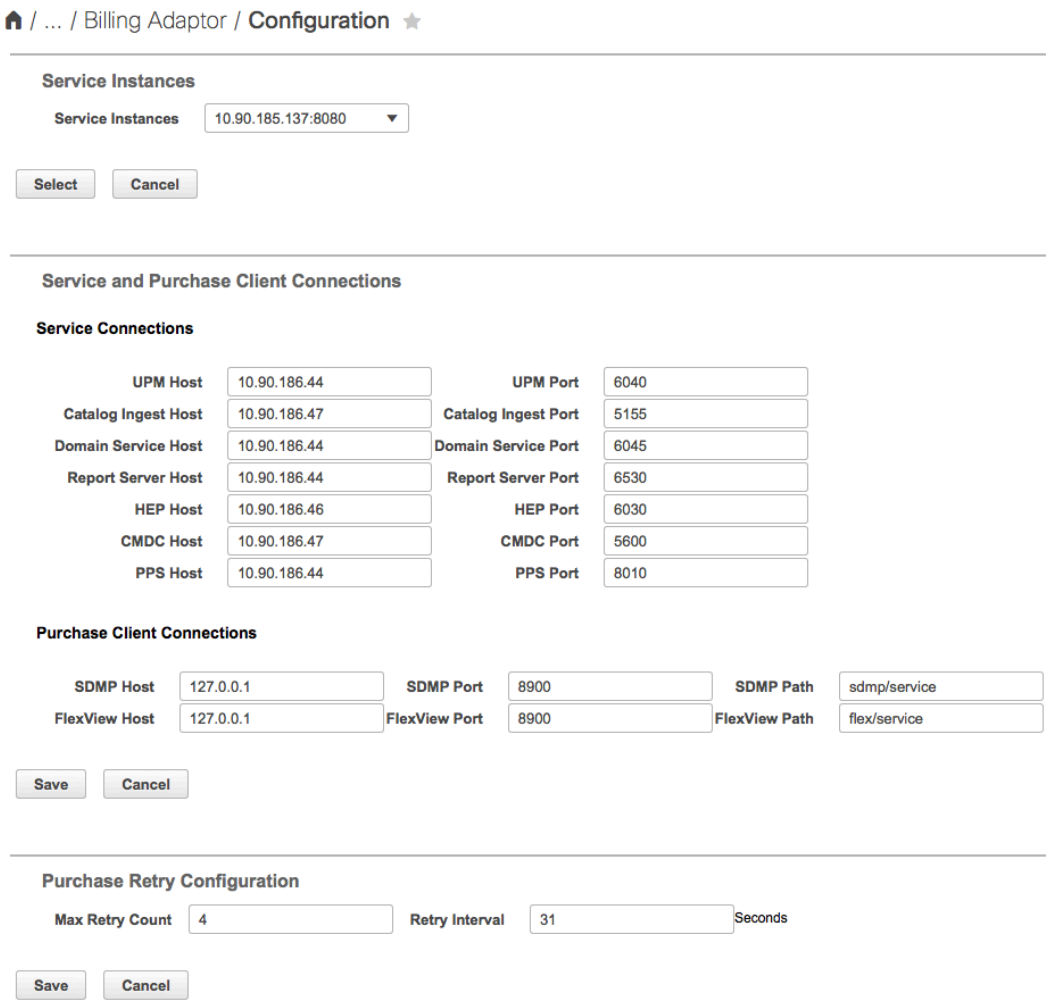
1. Log in to the CP Management interface with a username that provides access to the Billing Adaptor Configuration page.
2. Select the Navigation bar to the left of the Cisco Logo with the arrow.

3. This will open up to the menus:



4. Then from the **Control Plane** menu, under **Billing Adaptor:**

5. Select **Configuration**. The Billing Adaptor Configuration page appears. The values shown in the Billing Adaptor Configuration page that follows are just examples. The System or Network Administrator should be able to provide the correct values if changes to the configuration are necessary.



6 Update as needed the values on this page and click **Save**. A message appears indicating that the updated values saved successfully. The new values will take effect immediately.

Defining the Billing Adaptor Routing Table

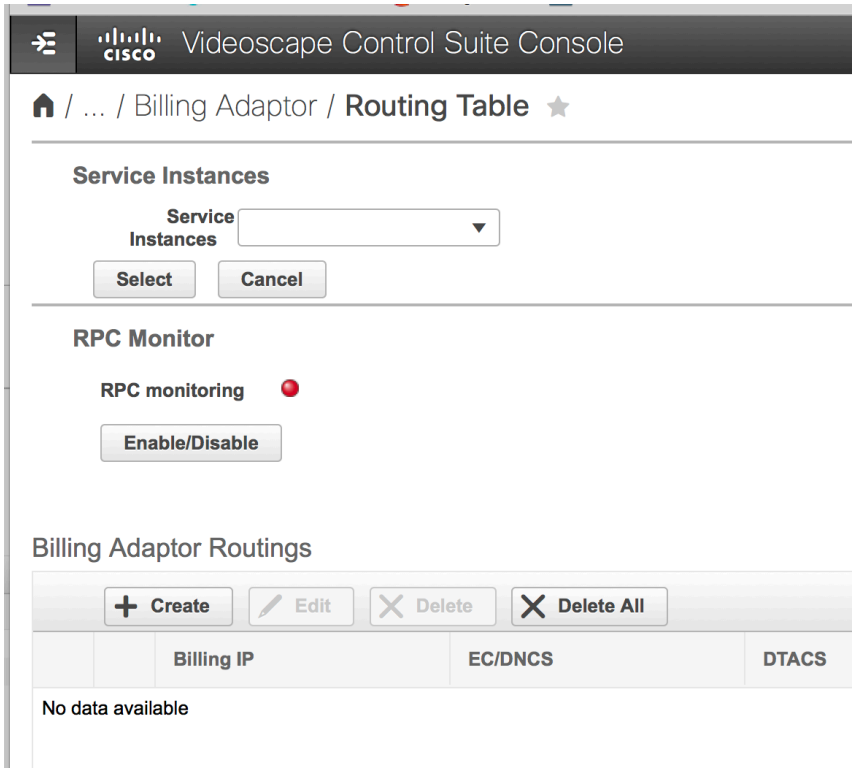
BOA uses the routing configuration data to determine the appropriate EC IP address (and DTACS IP address if DTACS is utilized) to send BOSS transactions. The routes are based upon the billing system that sends the transaction to the BOA. The Videoscape Control Suite Console interface provides a page that supports this BOA routing configuration. To define the BOA Routing Table configuration, complete the following steps:

Note: The System or Network Administrator should be able to provide the IP address of the billing system's interface that communicates with the BOA. They should also be able to provide the IP address for the interface to the appropriate EC/DNCS/DTACS system, if not already known.

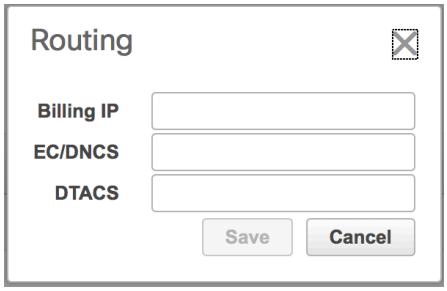
1 Log in to the Videoscape Control Suite Console interface with a username that provides access to the **Billing Adaptor**.

2 Choose **the Right directional arrow**, in the upper left corner of the Videoscape Control Suite Console this will display the Videoscape Control Suite Console menu from this menu under **Billing Adaptor**, select **Routing Table** and the Routing Table window will be displayed.

3 Complete entries as required, then select **Save**.



4 View the Billing Adaptor Routings list in the Billing Adaptor Routing Table page. If you need to create a new billing adaptor route, click **Create** to define this new route.



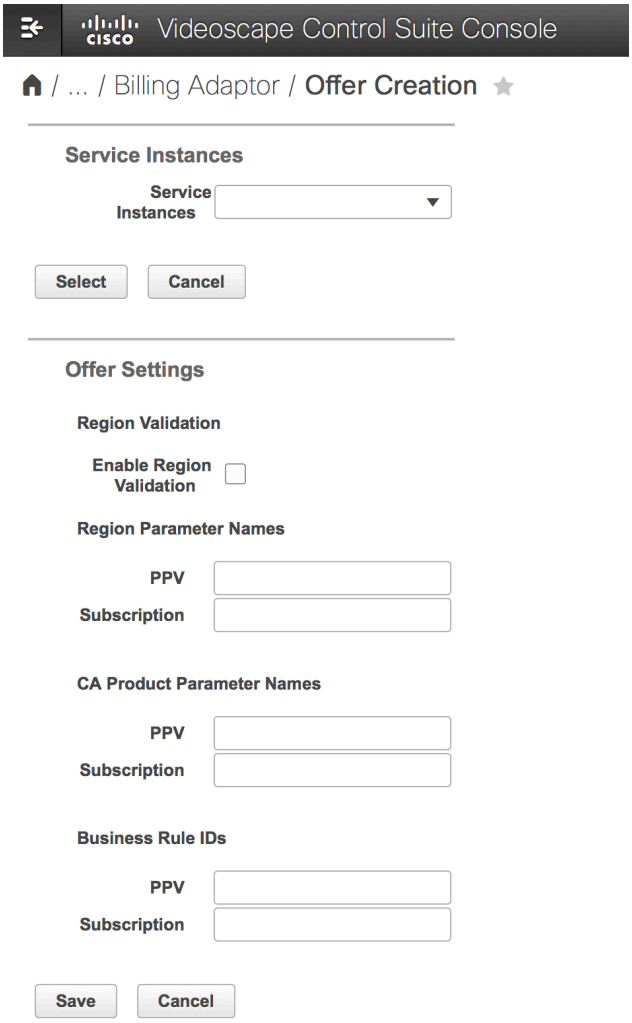
5 Enter the IP address for the billing system, as well as for the EC/DNCS system and/or the DTACS system.

6 Click **Save**. The newly defined route configuration appears in the list, indicating that the new route is now in effect.

Defining Offer Creation

BOA uses the Offer Creation screen to set Region Validation, Region Paramater Names, CA Product Parameter Names, and Business Rule IDs.

1. Log in to the Videoscape Control Suite Console interface with a username that has access to the Billing Adaptor Offer Creation screen.
2. Choose **the Right directional arrow**, in the upper left corner of the Videoscape Control Suite Console this will display the Videoscape Control Suite Console menu from this menu under **Billing Adaptor**, select **Offer Creation** and the Offer Creation window will be displayed.
3. Complete entries as required, then select **Save**.



4. Select the **House** symbol to return to the main screen.

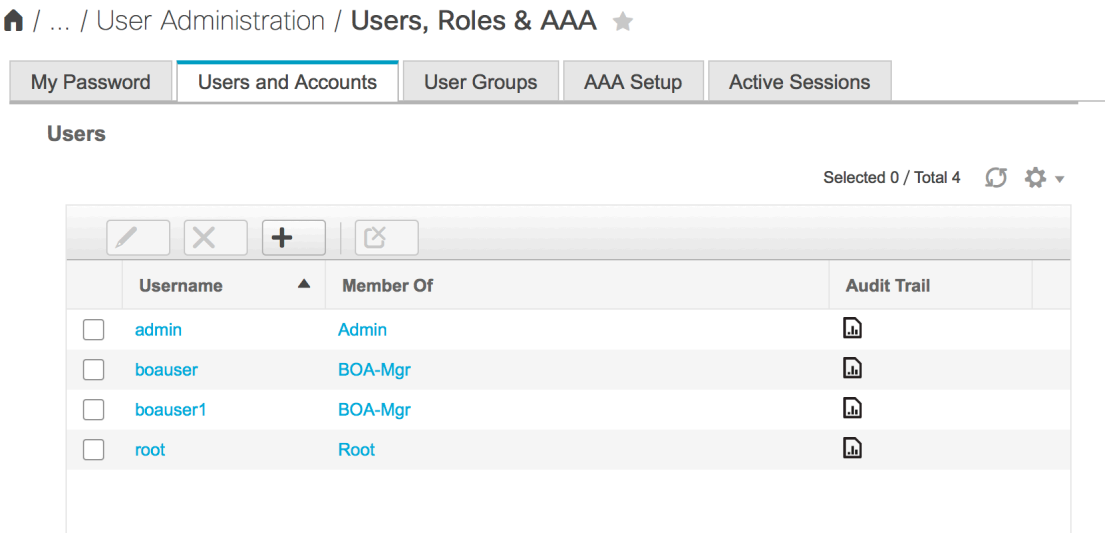
Defining the BOA User and BOA-Mgr User Group

The Videoscape Control Suite Console interface supports role-based user login functionality for the various applications installed, including BOA.

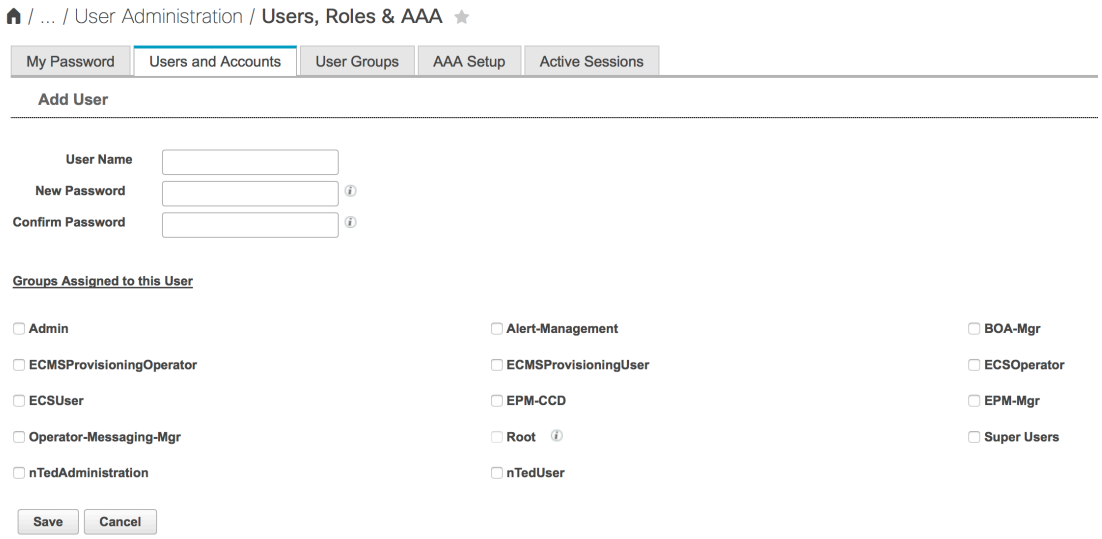
The Videoscape Control Suite Console interface provides pages that support the creation of a BOA-specific username and password, membership in various user groups, and customized service configuration access permissions for specific tasks.

To define a BOA user with customized access permissions, complete the following steps:

1. Log in to the Videoscape Control Suite Console interface as the **root** user.
2. Choose **User Administration** > **Users, Roles & AAA**.
3. Choose **Users and Accounts** from the list of options on the left side of the page. The Users page appears.



4 From the **Users** menu select the plus (+) symbol, the following menu will be displayed:

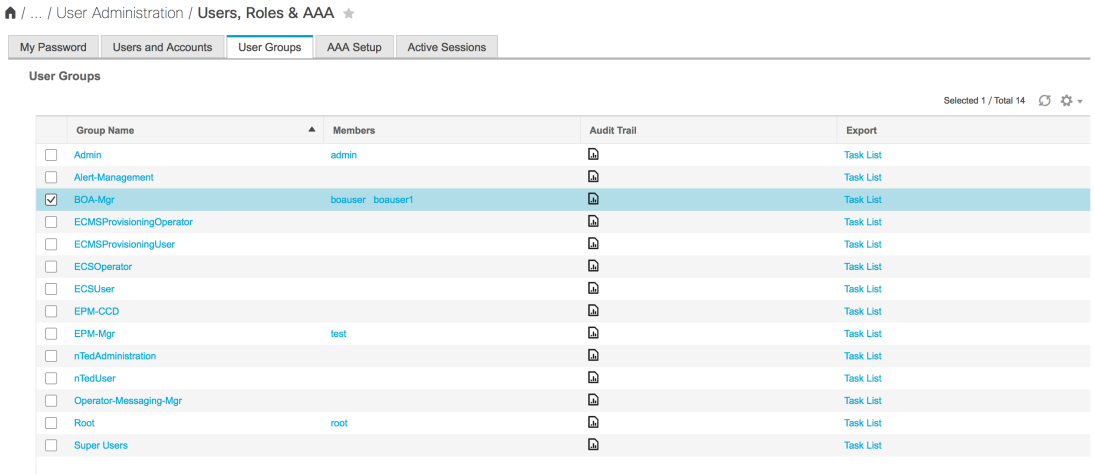


5 Enter a new BOA username and password.

6 Check the **BOA-Mgr** check box to assign this new BOA user to the BOA-Mgr group.

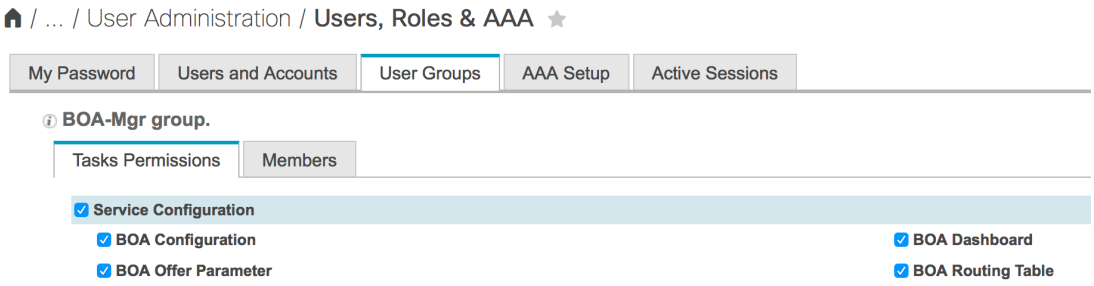
7 Click **Save**. The **Add User successfully** message should appear.

8 Now, choose **User Groups** from the list of options on the left side of the page. The User Groups page appears.



9 Confirm that the new BOA user that you just created in the previous few steps is listed as a **Member** of the **BOA-MGR** group.

10 Choose **BOA-Mgr** from the list of Group Names on the left. The Group Detail: BOA-Mgr page appears.



11 Assign **Task Permissions**, as needed, to the new BOA user by checking the appropriate check box. Then, click **Submit**. The **User Group saved successfully** message should appear.

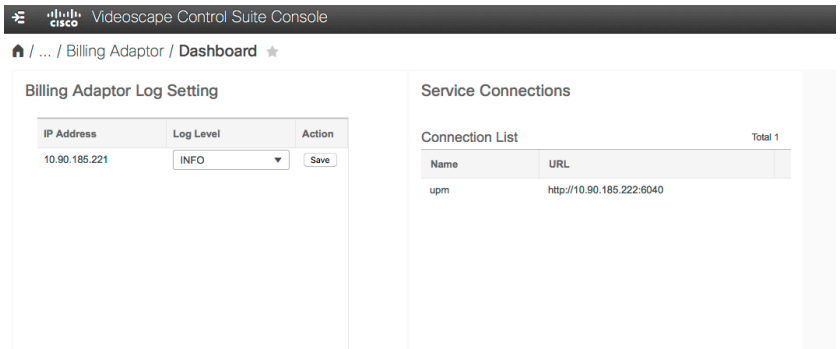
12 Verify the new BOA user, user group, and access permissions by logging out of the CP Management system, and then logging back in as the new user. Check that the new user can access those pages for which permission was assigned.

Modify the BOA Application Log Level Setting

The BOA application log level setting in the CP Management window provides the operator with the ability to change the BOA log message output to different levels of detail. To adjust the BOA application log levels, complete the following steps:

1 Log in to the CP Management interface with a username that provides access to the Billing Adaptor Dashboard page.

2 Under **Billing Adaptor,** choose **Dashboard**. The Billing Adaptor Dashboard page appears.



3 In the **Billing Adaptor Log Setting** area, click the drop-down arrow to view the different log levels.

4 Select the new, desired log level that is different from the current level.

5 Click **Save**. A confirmation message appears. The new log level becomes active.

BillingAdaptor Logging

Logging path: /opt/jboss-as/standalone/log/BillingAdaptor.log

Commands

1. Restart jboss:
   service jboss-as restart/stop/status
2. Deploy BOA:
   /opt/cisco/billingadaptor/bin/billingadaptor.sh deploy
3. Undeploy BOA:
   /opt/cisco/billingadaptor/bin/billingadaptor.sh undeploy
4. Redeploy BOA:
   /opt/cisco/billingadaptor/bin/billingadaptor.sh redeploy
5. Status BOA:
   /opt/cisco/billingadaptor/bin/billingadaptor.sh status