Troubleshoot Cisco CVP OAMP

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Introduction

This document describes some basic steps to troubleshoot and find the root cause of Operation, Administration, Maintenance and Provisioning (OAMP) status issues.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Customer Voice Portal (CVP) Server
- CVP OAMP

Components Used

The information in this document is based on these software versions:

- CVP Server 10.0 and later
- CVP OAMP 10.0 and later

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

OAMP Does Not Show Correct Device Status

In several situations OAMP does not show the correct device status, especially OAMP interaction
to Call Server (or Voice EXtensible Markup Language (VXML) server). In order to troubleshoot this problem, the OAMP and ORM basic design needs to be discussed.

**Basic Design**

This design shows you how the device state communication is implemented:

- Message bus connection between CVP Call Server and CVP Call Server OAMP Resource Manager (ORM).
- CVP Call Server or VXML server sends heartbeat messages to the base subsystem.
- Base subsystem (small green box in the design) sends STATE_EVENT message bus message to ORM with subsystem state and transition reason (For example, State: IN_SERVICE, Reason: NORMAL)
- OAMP polls devices by making remote method invocation against ORM on each Call Server (or VXML Server) for control center statistics, which include the device version, number of active calls, and the subsystem states.
- OAMP aggregates the subsystem states into a single status (Up, Down, Partial, or Unreachable) for display in the OAMP control center).

The messageAdapter.properties file in the %CVP_HOME%\conf folder has the definition of the connection between ORM and CVP services.

**Note:** orm.xml would list all MBeans or known devices. This file rarely needs to be validated.

**Common Troubleshooting**

**Issue 1. Device Does Not Report as Up in Operations Console Control Center**

**Step 1.** Check the ORM logs on the target device machine.

**Step 2.** The ORM logs contain STATE_EVENT log messages. Look for trace messages like this:

```
{Thrd=SubscriptionMgr} ORMSubsystem.handleInform(): Received inform message [Topic: CVP.CONTROLLER.ADMIN.EVENT.STATE | Message type: MsgBus:STATE_EVENT | Message: >>HEADERS: (JMSType)=MsgBus:STATE_EVENT (JMSDestination)=Topic(CVP.CONTROLLER.ADMIN.EVENT.STATE) (JMSTimestamp)=1387209211219 (ServerID)=TESTCVPCS2W.CVPController2:CONTROLLER:CVPCTL2:TESTCVPCS2W.MsgBus002 >>BODY: ActiveCalls=0 CONTROLLER=2;0 VXML2=2;0 timezone=GMT-06:00 ICM2=2;17 CVPCTL2=2;0 SIP2=2;17 local1Offset=-360 version=CVP_9_0 IVR2=2;17 >>STATE: isTabular=false isWriteable=false cursor=-1].
```

If these messages are seen in the ORM logs then, things till ORM are fine, that means that there
are no problems between the Message Bus and the ORM process in the device (Call Server, VXML Server, etc.). The problem is then, between OAMP and the CVP server, the Java Management Extensions (JMX) connection. These steps will help you to confirm it:

Step 1. On the CVP Server (Call Server or VXML Server) launch `jconsole.exe` from `C:\Cisco\CVP\jre\bin`.

Step 2. In the **Remote Process** field, input `localhost:2099`.

Step 3. Leave the username and password blank as shown in the image.

Step 4. Ensure that the connection opens and you are able to view the GUI (and MBeans) as shown in the image.
Step 5. If the connection fails, then check if port 2099 is Up. If not, find out why this port is not Up. It can be that some other 3rd party application uses this port or there can be a firewall or an Operating System (OS) specific issue. There is a scenario where the IP address of the server has been changed after the CVP server has been installed. In this scenario, the connection fails with a message as shown in the image.

Step 6. Open the registry key with Regedit.
Step 7. Navigate to **Apache Software Foundation > Procrun 2.0 > CallServer > Parameters > Options**, check that the `-Djava.rmi.server.hostname` has the right IP address (the local server IP address). Check the same under the **VxmlServer and WebServicesManager > Parameters > Options** key as shown in the images.
Step 8. Open the wrapper file under C:\Cisco\CVP\Conf, and ensure that the parameter Djava.rmi.server.hostname is set to the right server (Local server) as shown in the image.

Step 8.1. Configure the ORM service to Automatic (Delayed Start) as shown in the image.
Step 9. After you make these changes on the registry and on the wrapper file, restart the CVP server and try the JMX connection again.

Step 10. On the other hand, if you are able to establish connection and see MBeans then everything is fine on this server.

Step 11. Proceed to the OAMP server.

Step 12. Launch JConsole in the same way and this time instead of localhost specify the IP address of CVP server. If the connection fails, then there is an issue at the network layer. Check if there is any 3rd party application or firewall that blocks this connection from OAMP to CVP server as shown in the images.
Step 13. If JMX connection from OAMP fails, you see these traces in OAMP logs:

OAMP_OMGR_JMX_CONNECTION_ERROR: Unable to establish JMX connector to URI service:jmx:rmi:///jndi/rmi:// 10.201.198.11:2099/jmxrmi: Connection refused to host: 10.201.198.11; nested exception is:

More information in order to troubleshoot this issue can be found on: CSCu163213

Step 14. If you don’t see the STATE_EVENT messages in ORM logs then there is a problem between ORM and Call Server. Proceed to validate messageAdapter.properties and validate if the required ports are Up (23000 for Call Server and 23001 for VXML server).

Some logs that you can look out for:

13: 10.150.36.10: Jan 17 2015 13:49:59.759 +0530: %CVP_10_5_MSGBUS-1- PLUGIN_INITIALIZATION_FAILURE: SYS_ORM Plugin initialization failed due to being unable to find the server at 10.150.36.10 port=23000. Exception: java.net.ConnectException: Connection refused: connect [id:9]

This confirms that ORM is not listening on port 23000, so Call Server is not able to send STATE_EVENT messages. Open messageAdapter.properties file in a text editor and confirm that connections are properly defined. If this config file is fine, then restart ORM.

Step 15. If connections are not properly defined in messageAdapter.properties then the
configurations are corrupted. Use `reimage.bat` process to reinitialize configuration (don’t forget a save and deploy on OAMP) as shown in the image.

---

**Issue 2. CVP Call Server Resource Manager Does Not Come Up Properly**

The associated process CVP log does not show this entry during CVP Call server startup:

```
Infrastructure-5-PROPERTY_MANAGER_RELOADING_PROPERTIES:
property_store_value=[com.cisco.ccbu.infra.properties.FilePropertyStore@a2a38]: Reloading all property stores
```

Possible cause of this issue is that the property files on this CVP server are corrupted.

**Step 1.** If Resource Manager process is running, redeploy the device from OAMP.

**Step 2.** If Resource Manager process is not running, follow the reimage process on the device.

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**Issue 3. Unable to Add New Gateways in OAMP**

**Step 1.** Take backup of `orm.xml`, `orm.properties`, `system.properties`, `messageAdapter.properties` on OAMP server\ `%CVP_HOME%\conf` dir.

**Step 2.** Run `reimage.bat` file present in OAMP server\ `%CVP_HOME%\bin\TAC` (This only replaces the previous files with fresh ones found in reimage.zip).
Step 3. Restart the ORM and OPSConsoleServer services on OAMP Server.

If not resolved, ask for the backup files and ORM logs with debug enabled:

Edit `%CVP_HOME%\conf\orm.properties`

`orm.logLevel = DEBUG`

`orm.traceMask = -1 (turn on full debugging)`

After the Resource Manager Service has been restarted, the log files output full debugging information, which is located in: `%CVP_HOME%\logs\ORM`

When you save a gateway there is actually an internal Save and Deploy operation. The ORM that the OAMP communicates with for gateway devices is the local OAMP ORM. So, these services need to be restarted.

**Issue 4. Gateways and OAMP Test Connectivity Failure**

**Problem:**

After a VXML or Ingress gateway is added in OAMP and connectivity is tested; If the test fails, this error is seen in the OAMP logs

```%CVP_11_0_OAMP-3-OAMP_OWEB_DEVICE_OPERATION_FAILURE: Unable to process the Gateway operation (Test Sign-in): com.cisco.cvp.oamp.omgr.exception.ORMException: Exception invoking MBean Operation: methodName=processIOSTestSignin, params=[testSigninConfiguration = com.cisco.cvp.oamp.ocom.common.TestSigninConfiguration@584ac0], bReconnectIfNotConnected=true, sig nature= Test signin from OAMP to VXMLServer fails. While this can due to several problems, one of the issue is due to latency. Check the latency between OAMP and Gateway. In addition you can check the default latency configured on the cmdsvc.properties file found on c:\cisco\cvp\conf directory
```

# max timeout value for waiting for login prompt from a device(in ms)

```
#LoginTimeout=2000
```

# Sets the initial value of the socket timeout while doing login (in ms)

```
InitialTransportTimeout=45000
```

# Set the timeout value of the transport. This usually corresponds to the socket's timeout value.(in
TransportTimeout=6000

# Set the delay to sleep before proceeding.(in ms)
#TuneSleepMillis=50

# Set delay after creating socket and before doing any communication.(in ms)
DelayAfterConnect=1000

# Set delay between read process (in ms)

ReadDelay=10

Solution:

If the latency between OAMP and gateway is more than 200 ms, Increase the default delay with these three steps.

Step 1. Open cmdsvc.properties file in C:\Cisco\CVP\conf path.

Step 2. Increase the ReadDelay parameter to 200 (or) more than the latency between CVP and gateway.

Step 3. Recycle the ORM service in CVP OAMP and try test sign-in again.

Log Levels and Trace Mask

In most of the cases, the default level of traces in OAMP and ORM is enough in order to determine the root cause of the problem. However, if the level of traces need to be increased, here are the steps in order to execute this action:

OAMP Logs with DEBUG Enabled

Step 1. Backup %CVP_HOME%\conf\oamp.properties.

Step 2. Edit %CVP_HOME%\conf\oamp.properties

omgr.traceMask=-1
omgr.logLevel=DEBUG
org.hibernate.logLevel=DEBUG
org.apache.logLevel=ERROR
net.sf.ehcache.logLevel=ERROR

Step 3. Restart OPSConsoleServer.

<table>
<thead>
<tr>
<th>Trace Level</th>
<th>Description</th>
<th>Log Level</th>
<th>Trace Mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Product install default. Should</td>
<td>INFO</td>
<td>None</td>
</tr>
</tbody>
</table>
have no/minimal performance impact.

Less detailed trace messages with a small performance impact.

Detailed trace messages with a medium performance impact.

Detailed trace message with a high performance impact.

Detailed trace message with a very high performance impact.

Highest detailed trace message.