Oracle® Communications Offline Mediation Controller

Patch Set Release Notes

Release 12.0
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Oracle Communications Offline Mediation Controller Patch Set Release Notes, Release 12.0

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Preface

This guide includes information about Oracle Communications Offline Mediation Controller 12.0 patch sets.

Audience

This guide is intended for all Offline Mediation Controller users.

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Summary of Customer-Reported Fixes

Learn about the customer-reported bugs that were fixed in the Oracle Communications Offline Mediation Controller 12.0 patch sets.

Topics in this document:

Customer-Reported Fixes in Offline Mediation Controller Patch Set 8

Table 1-1 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 8.

Table 1-1 Customer-Reported Fixes in Offline Mediation Controller Patch Set 8

Bug Number	Description
34534391	The ECE Distribution Cartridge (DC) node was not running when it joined the ECE cluster of an active-active deployment. This has been fixed.
34174204	If a custom JAR already existed in an Offline Mediation Controller cloud native deployment, it was not allowed to copy the custom JAR file with the same name into the deployment during the Helm upgrade. Thus, this became an issue for replacing existing custom JAR files. This has been fixed.
34510966	If custom logging was built with an earlier version of Log4j, it had stopped working after upgrading to an Offline Mediation Controller system that uses a later version of Log4j. This occurred because the Offline Mediation Controller base implementation overwrote the custom logging configurations with the default logging configurations. This has been fixed.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 6

Table 1-2 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 6.

Table 1-2 Customer-Reported Fixes in Offline Mediation Controller Patch Set 6

Bug Number	Description
33724250	An exception occurred while collecting CDR files through FTP. This has been fixed.
33728839	An error occurred while collecting CDR files from a remote server. This has been fixed.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 5

Table 1-3 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 5.

Table 1-3 Customer-Reported Fixes in Offline Mediation Controller Patch Set 5

Bug Number	Description
31748677	There was a logging issue with the Duplicate Check Enhancement Processor that incorrectly indicated it was not considering the configured retention period correctly. This has been fixed.
31938347	If the JDBC Distribution Cartridge encountered an exception such as a unique constraint violation, it was not processing any records unless the cartridge was restarted. This has been fixed.
32704294	ECE Distribution Cartridge was not considering the time zone parameter during date formatting. This was causing the usage to be charged incorrectly to subscribers. This has been fixed.
32946162	ECE Distribution Cartridge was not supporting Multiple Services Credit Control (MSCC) for sending the batch of requests as a single multi-request envelope to ECE server nodes. This has been fixed. The batch size is configurable in the ECE DC cartridge UI. Also, a new throttle parameter, **maxOutstandingRequests**, has been introduced to throttle the request submission to BRS.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 4

Table 1-4 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 4.

Table 1-4 Customer-Reported Fixes in Offline Mediation Controller Patch Set 4

Bug Number	Description
33219030	In Offline Mediation Controller cloud native deployments, importing and exporting the node chain was not working. This has been fixed.
32964440	A high-usage suspension occurred due to bulk Short Message Service (SMS) records coming concurrently from two members that belonged to the same sharing group. Both members were trying to get a lock on the sharing group owner in parallel, which caused a suspension because one member could not get a lock within the retry limit. The ECE Distribution Cartridge (DC) node has been updated to support MSCC to send the batch of requests as a single, multiple request envelope to ECE.
31748677	After the retention time of the duplicate check Enhancement Processor (EP) node had elapsed, duplicate records were reported when they should have been accepted as normal records. This has been fixed.
31777480, 30181184	If a CDR was suspended due to an error and then recycled, the Recycle Processor threw an "XML is not well formed" error whenever a CDR contained any special characters such as ampersand (&). This has been fixed.

31250379	The Aggregation Processor (AP) node would not flush aggregated CDRs on an absolute date and time. For example, it would not flush CDRs one day prior to the billing day of the month.
	This has been fixed by introducing a new Java hook named **storeNARWithAbsoluteTimer** for setting the absolute time for flushing records. For example:
	`String TIME_FORMAT = "yyyy-MM-dd HH:mm:ss";String FlushTimeStr = "2021-10-16 08:31:00";`
	`Long FlushTimeLong;FlushTimeLong = str2TimeInMilliSecs(FlushTimeStr, TIME_FORMAT);`
	`Java.storeNARWithAbsoluteTimer(out, tableIndex, FlushTimeLong);`

31545532	After updating the FTP password in the **general.cfg** file, exceptions were raised in the flow when switching between views in the GUI. This has been fixed.
30301707, 31072533	In the JDBC Distribution Cartridge, the node was stopped when a unique constraint was violated. This has been fixed.
31177917	A very high CPU utilization occurred due to repeated and unnecessary access to the Offline Mediation Controller wallet. This has been fixed.

Table 1-4 (Cont.) Customer-Reported Fixes in Offline Mediation Controller Patch Set 4

Bug Number	Description
30966246	The Administration Client GUI was not functioning property for the Guest, Operator, and Designer user roles. The GUI was not returning any content and displaying a blank page. This has been fixed.
30987426	When starting cartridges from NMShell, incorrect error messages were being logged. This has been fixed.
31046134	The NMShell command for importing node chains was not retaining the original node IDs despite using the correct parameters with the command. This has been fixed.
30625169	Running the Offline Mediation Controller Administration Client GUI as **gui -f** was throwing NullPointerException, causing the process to exit. This has been fixed.
31348651	Offline Mediation Controller Cartridges were failing to move or write files when the output path was a network file system. This has been fixed by leveraging Java NIO.
32235815	The subscriber tracing functionality was not working in the ECE DC node when multiple requests were batched with MSCC for the same subscriber. This has been fixed.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 3

Table 1-5 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 3.

Table 1-5 Customer-Reported Fixes in Offline Mediation Controller Patch Set 3

Bug Number	Description
29366752	In Aggregation Processor, there was no provision to access the session state and flush-related information. This has been fixed. A separate log file in the node directory that stores the flush information along with the timestamp has now been created.
29740683	In Aggregation Processor, there was no provision to override default behavior of the flush timer with the rule file. This has been fixed.
30051473	The ASN.1 Collection Cartridge was slow when processing a relatively large ASN.1 data file. This has been fixed.
30301707	The JDBC Distribution Cartridge node was stopped when there was a unique constraint violation error. This has been fixed by inserting records one-by-one and tackling any errors separately.

Table 1-5 (Cont.) Customer-Reported Fixes in Offline Mediation Controller Patch Set 3

Bug Number	Description
30370719	It was not possible to connect Administration Client remotely to an Administration Server. This has been fixed.
30625169	Administration Client was failing because due to recently added widgets not being in the user privileges map. This has been fixed.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 2

Table 1-6 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 2.

Table 1-6 Customer-Reported Fixes in Offline Mediation Controller Patch Set 2

Bug Number	Description
28806854 29335774	When batch insertion mode was enabled in Java Database Connectivity (JDBC) Distribution Cartridge, the performance of the cartridge was affected. This has been fixed.
28816188	In a Distribution Cartridge (DC) node, with multithreading configurations, once the configured maximum number of records were reached and the output file was closed for writing, it was observed that the data continued to be written into the closed file. This has been fixed.
29023558	In a mediation chain, if any Node Programming Language (NPL) rule file or routing between cartridges was updated, then Local Data Manager (LDM) which transports data from the output directory for one node to the input directory of the other nodes stopped movement of files. This has been fixed.
29540813	After submitting a recycle job from the Suspense Management Center, the recycle job was dequeued by the Recycle Cartridge and was handed over to the Recycle Enhancement Processor (EP) cartridge. Even if the Recycle EP has lost the connection to the database, it continued to process the recycle jobs, leaving the status of the jobs as **recycling** and required a manual intervention to move the status back to **suspended**. This has been fixed.
29540828	If the customer data was lost in Oracle Communications Elastic Charging Engine (ECE), the Public User Identities (PUI) information was still intact. Any usage charging requests from ECE Distribution Cartridge (DC) node of Oracle Communications Offline Mediation Controller was always terminated in a delayed response from ECE, causing ECE to slowdown. This has been fixed.
30117842	In case of a network issue, the Recycle Cartridge stopped working without automatic retries to connect with time out configurations. This has been fixed.

Customer-Reported Fixes in Offline Mediation Controller Patch Set 1

Table 1-7 lists the customer-reported issues that were resolved in Offline Mediation Controller 12.0 Patch Set 1.

Table 1-7 Customer-Reported Fixes in Offline Mediation Controller Patch Set 1

Bug Number	Description
27938697	The Distribution Cartridge (DC) node was displaying the "error processing file" error intermittently. This has been fixed.
28076189	The Enhancement Processor (EP) node did not support more than 20 threads. This has been fixed.
28105656	Offline Mediation Controller was not mapping input record types to the suspended usage record type and hence it was not possible to distinguish suspended records. This has been fixed.
28105679	The memory utilization was not calculated properly. As a result, the node manager reported a fatal memory error even when the threshold was not reached. This has been fixed.
28105692	The performance of Offline Mediation Controller was affected when there were larger number of input files to be processed. A high CPU utilization from EP threads was also observed. This has been fixed.
28311166	The Offline Mediation Controller Oracle Communications Elastic Charging Engine (ECE) Distribution Cartridge (DC) node and EP thread configurations were not supported through user interface. This has been fixed.
28586528	If the same file was sent to Offline Mediation Controller Oracle CDR Format Collection Cartridge (CC) node again for processing, the already processed file was removed. This has been fixed.

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New Features

Learn about the feature enhancements introduced in the Oracle Communications Offline Mediation Controller 12.0 patch sets.

Topics in this document:

New Features in Offline Mediation Controller 12.0 Patch Set 8

Offline Mediation Controller 12.0 Patch Set 8 includes the following enhancements:

Monitoring Node Performance with Prometheus and Grafana

Both on-premises and cloud native versions of Offline Mediation Controller now track and expose the following Node Manager-level statistics through a single endpoint in Prometheus format:

- The total network account records (NARs) processed
- The current NARs processed
- The current processing rate
- The average processing rate

By default, the metric data for all Node Manager components are exposed at **http://localhost:8082/metrics**.

To more easily monitor Node Manager, you can configure Prometheus to scrape the metrics from the endpoint and store them for analysis and monitoring. You can then set up Grafana to display your metric data in a graphical format.

For more information about:

- Monitoring Node Managers in on-premises Offline Mediation Controller, see "Monitoring Node Performance with Prometheus and Grafana" in *Offline Mediation Controller System Administrator's Guide*.

- Monitoring Node Managers in Offline Mediation Controller cloud native, see "Using Prometheus to Monitor Offline Mediation Controller Cloud Native" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

New Grafana Dashboards for Offline Mediation Controller

The Offline Mediation Controller on-premise and cloud native packages now include sample Grafana Dashboard templates that you can use for visualizing Offline Mediation Controller metrics. The package includes the following Grafana Dashboards:

- **OCOMC_JVM_Dashboard.json**: Allows you to view JVM-related metrics for Offline Mediation Controller.
- **OCOMC_Node_Manager_Summary.json**: Allows you to view NAR processing metrics for the Node Manager.
- **OCOMC_Node_Summary.json**: Allows you to view NAR processing metrics for all nodes.
- **OCOMC_Summary_Dashboard.json**: Allows you to view NAR-related metrics for all Offline Mediation Controller components.

To use the sample dashboards, import the JSON files from the *OMC_home***/sampleData/dashboards** directory into Grafana. For information about importing dashboards into Grafana, see "Export and Import" in the *Grafana Dashboards* documentation.

New Features in Offline Mediation Controller 12.0 Patch Set 6

Offline Mediation Controller 12.0 Patch Set 6 includes the following enhancements:

- Scaling Node Manager Pods without Affecting Non-Scalable Pods
- Additional NMShell Command-Line Components
- Customizing File Names for Sequencing
- Connecting Administration Client to Administration Server Cloud Native

Scaling Node Manager Pods without Affecting Non-Scalable Pods

You can now scale up or scale down the number of Node Manager Pod replicas in your Offline Mediation Controller cloud native environment without affecting the non-scalable Node Manager Pods.

For more information, see "Scaling CC, EP, and DC Nodes without Impacting Non-Scalable Nodes (Patch Set 5.1 and Later)" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

Additional NMShell Command-Line Components

Offline Mediation Controller now allows you to perform the following tasks by using NMShell:

- Add one of these types of routes between two nodes: round robin, multicast, modulus, or directed
- Delete an existing route between two nodes
- Change the value of an existing configuration, such as a password, at the node level
- Add back-end only configurations at the node level
- List the node ID and type of all nodes having a specified name

For information, see "Managing Nodes Using NMShell Command-Line Components" in *Offline Mediation Controller System Administrator's Guide*.

Customizing File Names for Sequencing

In previous releases, the file-based sequencing feature in Offline Mediation Controller required your CDR input file names to follow this syntax:

```
sourceFilename[_seqNum].fileExtension
```

You can now customize the file name syntax that is used with file-based sequencing to something else. For information, see "Customizing the Sequencing File Name Syntax" in *Offline Mediation Controller User's Guide*.

Connecting Administration Client to Administration Server Cloud Native

The Offline Mediation Controller documentation now includes the instructions for connecting an on-premise version of Administration Client with Administration Server cloud native. See "Connecting Your Administration Client" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

New Features in Offline Mediation Controller 12.0 Patch Set 5

Offline Mediation Controller 12.0 Patch Set 5 includes the following enhancements:

Scaling Down Node Manager Pods in Cloud Native

You can now scale down the number of Node Manager Pod replicas in your Offline Mediation Controller cloud native environment based on a Pod's CPU or memory utilization. This helps ensure that your Node Manager Pods have enough capacity to handle the current traffic demand while still controlling costs.

For more information, see "Scaling Down Node Manager Pods (Patch Set 5 and Later)" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

Enhancements to Scaling Up of Node Manager Pods

The process for scaling up your Offline Mediation Controller Pods has been simplified.

For more information, see "Scaling Up Node Manager Pods (Patch Set 5 and Later)" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

NMShell Tool Exposed Outside of Pods

In Offline Mediation Controller cloud native, the NMShell tool is now exposed outside of your Pods. Instead of executing the tool inside the Administration Server Pod, you can now run the tool through an NMShell job. This makes it easier to access Offline Mediation Controller cloud native system information, manage nodes, and perform standard operations.

For more information, see "Using NMShell to Automate Deployment of Node Chains (Patch Set 5 and Later)" in *Offline Mediation Controller Installation and Administration Guide*.

JVM GC and Memory Parameters Now Exposed at Pod Level

In Offline Mediation Controller cloud native, you can now set the JVM garbage collection (GC) and JVM memory values at the Pod level. To do so, use the following new keys in the **oc-cn-ocomc-helm-chart/values.yaml** file:

- **ocomc.nodeMgrOptions.gcOptions.globalGC**
- **ocomc.nodeMgrOptions.gcOptions.gc.***x*
- **ocomc.nodeMgrOptions.memoryOptions.globalMem**
- **ocomc.nodeMgrOptions.memoryOptions.mem.***x*

Previously, you set the JVM GC and memory values by changing the internal files in admin-server-pvc and node-manager-pvc and then restarting the Pods.

For more information, see "Configuring Offline Mediation Controller Services" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

Administration Server and Node Manager Service Types Exposed at Pod Level

In Offline Mediation Controller cloud native, you can now assign different service types to the Node Manager Pod and the Administration Server Pod. To do so, use the following new keys in the **oc-cn-ocomc-helm-chart/values.yaml** file:

- **ocomc.service.adminserver.type**
- **ocomc.service.nodemgr.type**

Previously, they were both assigned the same service type.

For more information, see "Configuring Offline Mediation Controller Services" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

Monitoring JVM Metrics with Prometheus and Grafana

Offline Mediation Controller cloud native now tracks and exposes the following JVM metrics for all Node Manager components through a single endpoint in Prometheus format:

- Performance on the Node Manager level
- JVM parameters

The metric data is exposed at **http://***hostname***:***portJVM***/metrics**, where *hostname* is the host name of the machine on which Offline Mediation Controller cloud native is running and *portJVM* is the port number where the JVM metrics are exposed. You can set the port number

by using the new **ocomc.configEnv.metricsPortCN** key in your **override-values.yaml** file for **oc-cn-ocomc-helm-chart**.

You can configure Prometheus to scrape the metrics from the endpoint and store them for analysis and monitoring. You can then set up Grafana to display your metric data in a graphical format.

For more information, see "Using Prometheus to Monitor Offline Mediation Controller Cloud Native" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

New Features in Offline Mediation Controller 12.0 Patch Set 4

Offline Mediation Controller 12.0 Patch Set 4 includes the following enhancements:

- Scaling Up of Node Manager Pods in Cloud Native

Scaling Up of Node Manager Pods in Cloud Native

You can now scale up the number of Node Manager Pod replicas in your Offline Mediation Controller cloud native environment based on the Pod's CPU or memory utilization. This helps ensure that your Node Manager Pods have enough capacity to handle the current traffic demand while still controlling costs.

For more information, see "Scaling Up Node Manager Pods (Patch Set 4 Only)" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

New Features in Offline Mediation Controller 12.0 Patch Set 3

Offline Mediation Controller 12.0 Patch Set 3 includes the following enhancement:

- Deploying Offline Mediation Controller Services on a Cloud Native Environment

Deploying Offline Mediation Controller Services on a Cloud Native Environment

Oracle Communications Offline Mediation Controller now supports its deployment on a cloud native environment.

For more information, see "Overview of the Offline Mediation Controller Cloud Native Deployment" in *Offline Mediation Controller Cloud Native Installation and Administration Guide*.

New Features in Offline Mediation Controller 12.0 Patch Set 2

Offline Mediation Controller 12.0 Patch Set 2 includes the following enhancements:

- Hostname Now Used for Identifying Mediation Hosts
- Additional NMShell Command-Line Components
- Incremental Import and Export of Specific Nodes

Hostname Now Used for Identifying Mediation Hosts

In previous releases, Offline Mediation Controller was using only the IP addresses specified in the **SystemModel.cfg** file in the Administration Server configuration directory (*OMC_home*/

config/adminserver) to identify mediation hosts. The IP addresses in this file could not be changed directly and the workaround contained more steps.

This process has now been simplified. The **SystemModel.cfg** file contains the details of the node managers and the corresponding nodes for one administration server. If the IP address of the node manager is not provided, Offline Mediation Controller reads the host name of the node manager in this file and derives the IP address for identifying the corresponding mediation host. If you change the host name of a node manager in the **SystemModel.cfg** file, Offline Mediation Controller reads the new host name and derives the IP address of the corresponding mediation host.

Additional NMShell Command-Line Components

In previous releases, when you edited a node programming language (NPL) rule file in Offline Mediation Controller NPL Editor, there was only the option to compile and validate the NPL rule file by using NPL Editor. Also, you could not delete any nodes by using NMShell or check the status of an NMShell command.

With this enhancement, you can perform the following by using NMShell command-line components:

- Compile and validate the NPL rule file and make changes in the NPL rule file in case of any validation errors.
- Check the status of the command run.
- Delete all nodes or a specific node.

See the following topics for more information:

- Compiling the NPL Rule File by Using NMShell
- Checking NMShell Command Status
- Deleting Nodes

Compiling the NPL Rule File by Using NMShell

To compile the NPL rule file by using NMShell:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.
2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.
3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.
4. When prompted, enter the user name and password.

   You are connected to Administration Server.

5. Enter the following command:

   ```
   compileNpl -f npl_file_name -d complied_npl_class  -majorType major_type_of_the_node
   -minorType minor_type_of_the_node -id node_id
   ```

   where:

   - **-f** *npl_file_name* specifies the absolute path of the NPL file that you want to compile.
   - **-d** *complied_npl_class* specifies the absolute path of the compiled NPL class after running the command.
   - **-majorType** *major_type_of_the_node* specifies the major type of the node for which the NPL rule file is compiled. This parameter is not applicable if node ID is defined using the ID argument.
   - **-minorType** *minor_type_of_the_node* specifies the minor type of the node for which the NPL rule file is compiled. This parameter is not applicable if node ID is defined using the ID argument.
   - **-id** *node_id* specifies the unique ID assigned to the node for which the NPL rule file is compiled. This parameter is not applicable if **-majorType** and **-minorType** are specified.

   The NPL rule file is compiled. If the compilation fails, update the rule file and recompile.

   You can store the compiled NPL rule file in the **classpath** directory in the **config** folder of the node and update the **general.cfg** file to use the compiled NPL rule file.

> **Note:**
>
> After compiling the NPL rule file, you must start and stop nodes only by using NMShell command-line components. Using the GUI to start or stop nodes uses only the attributes and NPL that are defined in GUI components.

Checking NMShell Command Status

To check the status of the last NMShell command run:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.
2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.
3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.
4. When prompted, enter the user name and password.

   You are connected to Administration Server.

5. Enter the following command:

   ```
   cmd -status
   ```

   This command returns the following results:

   - **-1** specifies that the last run command failed or there are no commands run before.
   - **0** specifies that the last run command was successful.

> **Note:**
>
> When multiple nodes are started or stopped by using NMShell, the status of the command can be retrieved only by running the **status** command. See "Checking Node Status" for more information.
>
> **cmd -status** confirms only whether the last run command was successful or failed.

Deleting Nodes

To delete nodes:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.
2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.
3. Enter the following command:

   login *server_hostname port*

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.
4. When prompted, enter the user name and password.

   You are connected to Administration Server.
5. Do one of the following:

   - To delete all the nodes in the mediation host, enter the following command:

     ```
     deleteNodes
     ```

     All the nodes for the currently running mediation host are deleted.
   - To delete all the nodes managed by a specific node manager, enter the following command:

     deleteNode -ip *mediation_hostname* **-p** *port*

     - *mediation_hostname* is the mediation host's IP address or host name.
     - *port* is the mediation host port number.

All the nodes for the specified mediation host are deleted.

- To delete a specific node, enter the following command:

  deleteNode *node_id_1 node_id_2...*

  All the specified nodes are deleted.

Incremental Import and Export of Specific Nodes

In previous releases, you had to export or import node configuration and customization from all the mediation hosts configured in Node Manager even if the configuration or customization for only one node chain was modified.

With this enhancement, you can export or import node configuration and customization from one or more node chains under the Node Manager by using the Offline Mediation Controller user interface (GUI) or NMShell command-line components.

See the following topics for more information:

- Exporting Node Chain Configuration and Customization by Using GUI
- Importing Node Chain Configuration and Customization by Using GUI
- Exporting Node Chain Configuration and Customization by Using NMShell
- Importing Node Chain Configuration or Customization by Using NMShell

> **Note:**
>
> If you terminate the export or import process (by using GUI or NMShell) or if the system fails or an error occurs repeatedly, intermediate files, data files, and folders are created in the nodes directory in *OMC_home*. You need to create an offline copy of these files manually and delete the nodes before running the command again.

Exporting Node Chain Configuration and Customization by Using GUI

To export the node chain configuration and customization by using GUI:

1. Log on to Offline Mediation Controller Administration Client.

   The Node Hosts & Nodes (logical view) screen appears.
2. In the **Mediation Hosts** table, select a host.
3. In the **Nodes on Mediation Host** section, select a node from which you want to export the configuration and customization.
4. Right-click on the node and select **Export Node Chain** or click **Export Node Chain** on the node host panel.

   The Export Configuration dialog box appears.
5. In the **Directory** field, enter the full path or browse to the directory to which you want to export the node chain configuration and customization.
6. Click **Export**.

The node chain configuration and customization are exported to the **export**_*timestamp*.**xml** and **export**_*timestamp*.**nmx** file respectively.

Importing Node Chain Configuration and Customization by Using GUI

To import the node chain configuration and customization by using GUI:

1. Log on to Offline Mediation Controller Administration Client.

   The Node Hosts & Nodes (logical view) screen appears.
2. In the **Mediation Hosts** table, select a host.
3. In the **Nodes on Mediation Host** section, right-click and select the following as appropriate or select from the node host panel:
   - **Import Node Chain Customization**
   - **Import Node Chain Configuration**

   The Import Configuration dialog box appears.
4. In the **Import File** field, enter the full path or browse to the **.xml** or **.nmx** file from which you want to import the node chain configuration or customization.

   The node managers display under the Old Node Manager column in the Node Manager mapping pane.
5. Select a Node Manager from the list and click **Map**.

   The Map dialog box appears.
6. Enter **Name**, **IP address** or **host name**, and **Port number** for the new Node Manager.
7. Repeat step 5 and step 6 for the rest of the node managers in the list.
8. Select Regenerate Node id(s) to regenerate the node ID of the nodes for which the configuration or customization is imported.
9. After mapping all node managers, click **Import**.

The node chain configuration and customization is imported into the selected node manager. After the import, backup of existing nodes is created in the *OMC_home***/importbackup** directory.

Exporting Node Chain Configuration and Customization by Using NMShell

To export the node chain configuration and customization:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.
2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.
3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:
   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.

4. When prompted, enter the user name and password.

   You are connected to Administration Server.

5. Enter the following command:

   ```
   export [-n mediation_name@host_name:port] -f filename [-c value -nc y -id node_id]
   ```

   where:

   - **-n** *mediation_name@mediation_hostname***:***port* exports the mediation host's node configuration or node customization.

     where:

     – *mediation_name* is the mediation host's name configured in Node Manager.

     – *mediation_hostname* is the mediation host's IP address or host name.

     – *port* is the port number at which the mediation host communicates with Node Manager.

     To export multiple hosts, enter the mediation hosts separated by comma (,).

   - **-f** *filename* specifies the name and path of the output files. Do not include the file extension.

   - **-c** *value* specifies whether to export both the node configuration and customization or only the node configuration.

     where *value* is:

     – **Y** to export both the node configuration and node customization. Two files are generated; a *filename***.xml** file with the node configuration and a *filename***.nmx** file with the node customization. This is default.

     – **N** to export only the node configuration. One file is generated: a *filename***.xml** file with the node configuration.

   - **-nc y** specifies to export only the node chain configuration and customization.

   - **-id** *node_id* specifies to export the node chain configuration and customization for the specified *node_id*. *node_id* is the unique ID assigned to the node when the node configuration is saved. You can add one or more *node_ids* as comma separated values.

   For example:

   ```
   export -n abc@localhost:55109 -f .../testnodechain/test/exportfile -c y -nc y -id
   31a80o-16it-jrzysls9
   ```

   The node configuration and customization from the **31a80o-16it-jrzysls9** node chain in the mediation host (**abc@localhost:55109**) are exported successfully to the specified file.

Importing Node Chain Configuration or Customization by Using NMShell

To import the node chain configuration or customization:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.

> **Note:**
>
> Ensure that Administration Server and Node Manager are available in the same *OMC_home* directory. If Node Manager is in a different directory, the node IDs are regenerated during the import by default and a backup of the old node chain is not created.

2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.

3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.

4. When prompted, enter the user name and password.

   You are connected to Administration Server.

> **Note:**
>
> Ensure that you stop the nodes for which you want to import the customization or configuration before importing the node chain configuration or customization. See "Stopping Nodes" for more information.

5. Enter the following command:

   ```
   import -n mediation_name@mediation_hostname:port -f filename -c value -nc y -r y
   ```

   where:

   - **-n** *mediation_name@mediation_hostname***:***port* specifies the mediation host configured in Node Manager.

     where:

     – *mediation_name* is the mediation host's name configured in Node Manager.

     – *mediation_hostname* is the IP address or host name of the mediation host you are importing to.

     – *port* is the port number at which the mediation host you are importing to communicates with Node Manager.

     The command verifies whether the mediation host exists in Node Manager. If the mediation host does not exist, the command generates an error.

   - **-f** *filename* specifies the name and path of the input file. Use *filename***.xml** file to import the node configuration and use *filename***.nmx** file to import the node customization.
   - **-c** *value* specifies whether to import the node customization or the node configuration.

where *value* is:

  - **Y** to import only the node customization. Use this value with the *filename***.nmx** file.
  - **N** to import only the node configuration. Use this value with the *filename***.xml** file.

- **-nc y** specifies to import only the node chain customization or configuration.
- **-r y** specifies to regenerate the *node_id* of the nodes for which the configuration or customization is imported. This value must be set if you importing node chain configuration or customization.

The node chain configuration or customization is imported into the specified mediation host. After the import, backup of existing nodes is created in the *OMC_home***/importbackup** directory.

For example:

```
import -n linux1@10.10.10.111:55109 -f import.xml -c N -nc y -r y
```

The node chain configuration is imported from the **import.xml** file into the specified mediation hosts (**linux1@10.10.10.111:55109**).

After importing the node chain configuration or customization, you need to manually map the nodes that are not part of the imported node chain and delete undesired nodes.

New Features in Offline Mediation Controller 12.0 Patch Set 1

Offline Mediation Controller 12.0 Patch Set 1 includes the following enhancements:

- Configurable Location for Storing ECE Response Records
- ECE Distribution Cartridge Can Be Configured for Disaster Recovery
- Support for Filtering Delayed Response Records from ECE
- Enhanced NMShell Command-Line Components
- Offline Mediation Controller Is Now Certified with Oracle Unified Directory 12.2
- Xalan-Java is Not Supported

Configurable Location for Storing ECE Response Records

By default, the Offline Mediation Controller Oracle Communications Elastic Charging Engine (ECE) Distribution Cartridge (DC) node writes the ECE response records to the files in the default output directory of the ECE DC node; for example, the success response records are written to the file in the *OMC_home***/ocomc/output/***ecedc_NodeID***/success** directory, where:

- *OMC_home* is the directory in which you installed Offline Mediation Controller.
- *ecedc_NodeID* is the unique identifier of the ECE DC node.

With this enhancement, you can configure a custom location for storing the ECE response records. If a custom location is not configured, the ECE DC node writes the records to the files in the default output directory of the ECE DC node.

You can configure the location for storing the ECE response records by using the following options in the **Output Directory Configuration** tab in the **Node Configuration** section:

Table 2-1 Output Directory Configuration Options for ECE Response Records

Field	Description
Duplicate request directory	Enter the path to the directory where all the files containing the duplicate response records must be stored.
Success response directory	Enter the path to the directory where all the files containing the success response records must be stored.
Suspense directory	Enter the path to the directory where all the files containing the suspense response records must be stored.
No-response directory	Enter the path to the directory where all the files containing the no response records must be stored.
Delayed response directory	Enter the path to the directory where all the files containing the delayed response records must be stored.

For more information on the ECE DC node, see the discussion about the ECE cartridge pack in *Offline Mediation Controller Cartridge Packs*.

ECE Distribution Cartridge Can Be Configured for Disaster Recovery

The ECE DC node creates usage requests based on the call detail record (CDR) input stream, which are then submitted to ECE for rating. In case the node manager or system fails during this process, you might lose the input CDR data and may not be able to create the usage requests.

To recover input CDRs and to allow failover in case of system failure, you can now configure the ECE DC for disaster recovery. This ensures that the CDR files are retained in the system until the ECE DC node receives a success response from ECE.

To configure the ECE DC node for disaster recovery:

1. Open the *OMC_home***/web/htdocs/AdminServerImpl.properties** file in a text editor.
2. Set the following entry to **true**:

   ```
   com.nt.udc.admin.server.AdminServerImpl.disasterRecovery true
   ```

3. Save and close the file.
4. Restart Administration Server and Administration Client.

In this case, when the node manager or system fails, the CDRs for which the response has not been received from ECE are stored in the recovery (**.archdel**) files. The recovery files are stored in the input directory of the ECE DC node (which is the *OMC_home***/ocomc/input/***ecedc_NodeID* directory). You can use the **RatedEventsChecker** utility to reprocess the recovery files. For more information, see "Support for Filtering Delayed Response Records from ECE".

After you restart the system, you can copy the NAR files from the *outputdir* directory of the **RatedEventsChecker** utility to the input directory of the ECE DC node for reprocessing the records.

Support for Filtering Delayed Response Records from ECE

In the previous releases, the ECE DC node was reprocessing all the delayed response records from ECE irrespective of the response received, such as success or failure.

With this enhancement, you can avoid the reprocessing of the delayed response records which are already processed by ECE by filtering the delayed response records based on the response received. You can perform this by using the **NARComparator** and **RatedEventsChecker** utilities.

The **NARComparator** utility compares the network accounting records (NARs) in *delayedresponsedir* and *noresponsedir* directories:

- If the session ID of the NAR in the *delayedresponsedir* directory matches the session ID of the NAR in the *noresponsedir* directory, **NARComparator** writes the NAR to the file in the *filteroutdir***/success** directory.
- If no match is found, **NARComparator** writes the NAR to the file in the *filteroutdir***/reprocess** directory.
- If any error occurs during this process, **NARComparator** writes the NAR to the file in the *filteroutdir***/error** directory.

The **RatedEventsChecker** utility checks if the *narfield* values in the *inputdir* directory exist in the Oracle Communications Billing and Revenue Management (BRM) database. This utility compares the *narfield* values of the NARs in the *inputdir* directory with the values stored in the *columnname* in the BRM database. If no match is found, the NAR is copied to the file in the *outputdir***/reprocess** directory for reprocessing the records.

> **Note:**
>
> After running the **RatedEventsChecker** utility, you must copy the files in the *outputdir***/reprocess** directory to the input directory of the NAR CC node (which is the *OMC_Home***/suspense** directory) for reprocessing the response records. And, ensure the following:
>
> - The InputRec block of the NAR CC Node Programming Language (NPL) is compatible with NAR fields specified in the output file generated by **RatedEventsChecker**.
> - The OutputRec block of NAR CC NPL is compatible with the InputRec block of the ECE DC NPL.

You can configure the **NARComparator** and **RatedEventsChecker** utilities by using the *OMC_home***/ocomc/web/htdocs/NarComparator.properties** and *OMC_home***/ocomc/web/htdocs/RatedEventsChecker.properties** files respectively.

For more information, see the following:

- Configuring NARComparator and RatedEventsChecker
- Filtering Delayed Response Records

Configuring NARComparator and RatedEventsChecker

To configure the **NARComparator** and **RatedEventsChecker** utilties:

1. Open the *OMC_home***/ocomc/web/htdocs/NarComparator.properties** file.
2. Edit the configuration entries listed in Table 2-2:

Table 2-2 NARComparator Configuration Entries

Entry	Description
noresponsedir	Specify the path to the directory in which you want to store the no response records.
delayedresponsedir	Specify the path to the directory in which you want to store the delayed response records.
filteroutdir	Specify the path to the directory in which you want to store the response records filtered by **NARComparator**.
narfilesuffix	Specify the string to append at the end of the NAR file name; for example, .arch,.archdel.

3. Save and close the file.
4. Open the *OMC_home***/ocomc/web/htdocs/RatedEventsChecker.properties** file.
5. Edit the configuration entries listed in Table 2-3:

Table 2-3 RatedEventsChecker Configuration Entries

Entry	Description
dbuser	Specify the name of the BRM database user.
dbhost	Specify the host name or IP address of the BRM database user.
dbport	Specify the number for the Oracle database port.
dbsid	Specify the Oracle database alias.
dbservicename	Specify the BRM database service name.
JDBCUrl	Specify the Oracle JDBC URL to use to connect to the BRM database. **jdbcUrl="jdbc:oracle:thin@//***hostname***:***port***:***sid***"** where *hostname* and *port* are the host name and port number for the computer on which the database queue resides, and *sid* is the name of the BRM database service.
JDBCDriver	Specify the Oracle JDBC driver to use to connect to the BRM database; for example, oracle.jdbc.driver.OracleDriver.
inputdir	Specify the path to the directory in which you want to store the NAR files from the *filteroutdir***/reprocess** directory filtered by **NARComparator**.
outputdir	Specify the path to the directory in which you want to store the response records filtered by **RatedEventsChecker**.
inputfilesuffix	Specify the string to append at the end of the input file name; for example, .arch,.archdel.
tablename	Specify the name of the BRM database table in which the NAR session IDs are stored; for example, EVENT_T.
columnname	Specify the name of the column in the BRM database table that must be used for comparing NAR session IDs; for example, NETWORK_SESSION_ID.
narfield	Specify the name of the NAR field that must be used for comparing NAR session IDs; for example, **session_id**.

6. Save and close the file.

Filtering Delayed Response Records

To filter the delayed response records received from ECE:

1. Copy the NAR files from the no response directory of the ECE DC node into the *noresponsedir* directory specified in the *OMC_home***/ocomc/web/htdocs/NarComparator.properties** file.
2. Copy the NAR files from the delayed response directory of the ECE DC node into the *delayedresponsedir* directory specified in the *OMC_home***/ocomc/web/htdocs/NarComparator.properties** file.
3. Go to the *OMC_home***/bin/tools** directory.
4. Enter the following command, which compares the NARs in the *noresponsedir* and *delayedresponsedir* directories:

   ```
   ./NARComparator
   ```

5. Verify that the success, error, and reprocess response records are written to the NAR files in the respective subdirectories of the *filteroutdir* directory.

   The location of the *filteroutdir* directory is specified in the *OMC_home***/ocomc/web/htdocs/NarComparator.properties** file.
6. Copy the **ojdbc-***version***.jar** into the *OMC_home***/ocomc/3rdparty_jars/** directory; where *version* is the latest version of Java certified with Offline Mediation Controller.

   See the discussion about Offline Mediation Controller system requirements in the *Offline Meditation Controller Installation Guide* for the Java version.
7. Copy the NAR files from the *filteroutdir***/reprocess** directory into the *inputdir* directory specified in the *OMC_home***/ocomc/web/htdocs/RatedEventsChecker.properties** file.
8. Go to the *OMC_home***/bin/tools** directory.
9. Enter the following command, which compares the NARs in the directories of the ECE DC node:

   ```
   ./RatedEventsChecker -p BRMdbPassword
   ```

   where *BRMdbPassword* is the password of the BRM database user.
10. Verify that the response records are written to the reprocess directory in the *outputdir* directory specified in the *OMC_home***/ocomc/web/htdocs/RatedEventsChecker.properties** file.

Enhanced NMShell Command-Line Components

In previous releases, you could only start or stop all the nodes in the currently running mediation host by using the NMShell command-line components.

Offline Mediation Controller now allows you to perform the following tasks by using NMShell:

- Start or stop all nodes in the mediation host.
- Start or stop all nodes for a specific node manager.
- Start or stop specific nodes by using the node ID.
- Check the status of a node; for example, stopped, running, and suspended.

For more information, see:

- Starting Nodes
- Stopping Nodes
- Checking Node Status

Starting Nodes

To start nodes:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Installation Guide*.
2. Go to *OMC_home*/**bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.
3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.
4. When prompted, enter the user name and password.

   You are connected to Administration Server.
5. Do one of the following:

   - To start all nodes in the mediation host, enter the following command:

     ```
     startNodes
     ```

     All the nodes for the currently running mediation host are started.
   - To start all nodes managed by a specific node manager, enter the following command:

     ```
     startNode -ip mediation_hostname -p port
     ```

     – *mediation_hostname* is the mediation host's IP address or host name.

     – *port* is the mediation host port number.

     All the nodes for the specified mediation host are started.
   - To start a specific node, enter the following command:

     ```
     startNode node_id_1 node_id_2...
     ```

     All the specified nodes are started.

Stopping Nodes

To stop nodes:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Installation Guide*.
2. Go to *OMC_home*/**bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.

3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.

4. When prompted, enter the user name and password.

   You are connected to Administration Server.

5. Do one of the following:

   - To stop all the nodes in the mediation host, enter the following command:

     ```
     stopNodes
     ```

     All the nodes for the currently running mediation host are stopped.

   - To stop all the nodes managed by a specific node manager, enter the following command:

     ```
     stopNode -ip mediation_hostname -p port
     ```

     – *mediation_hostname* is the mediation host's IP address or host name.

     – *port* is the mediation host port number.

     All the nodes for the specified mediation host are stopped.

   - To stop a specific node, enter the following command:

     ```
     stopNode node_id_1 node_id_2...
     ```

     All the specified nodes are stopped.

Checking Node Status

To check the status of nodes:

1. Start Administration Server and Node Manager daemons. See the discussion about starting component daemons in *Offline Mediation Controller Installation Guide*.
2. Go to *OMC_home***/bin/tools** and enter the following command:

   ```
   ./NMShell
   ```

   The prompt changes to **nmsh>**.

3. Enter the following command:

   ```
   login server_hostname port
   ```

   where:

   - *server_hostname* is the IP address or host name of the computer on which Administration Server is running.
   - *port* is the Administration Server port number.

4. When prompted, enter the user name and password.

   You are connected to Administration Server.

5. Do one of the following:
   - To check the status of all the nodes in the mediation host, enter the following command:

     ```
     status
     ```

     The status of all the nodes for the currently running mediation host is displayed.
   - To check the status of all the nodes managed by a specific node manager, enter the following command:

     ```
     status -ip mediation_hostname -p port
     ```

     – *mediation_hostname* is the mediation host's IP address or host name.
     – *port* is the mediation host port number.

     The status of all the nodes for the specified mediation host is displayed.
   - To check the status of a specific node, enter the following command:

     ```
     status node_id_1 node_id_2...
     ```

     The status for all the specified nodes is displayed.

Offline Mediation Controller Is Now Certified with Oracle Unified Directory 12.2

Offline Mediation Controller 12.0 is now certified with Oracle Unified Directory 11.1.2.3.0 and 12.2.

Xalan-Java is Not Supported

Currently, Offline Mediation Controller 12.0 is certified with Xalan-Java 2.7.2.

With this patch, Xalan-Java is not supported in Offline Mediation Controller 12.0.

3
Known Problems

Learn about the known problems in Oracle Communications Offline Mediation Controller 12.0 patch sets.

Topics in this document:

Known Problems in Offline Mediation Controller

There are no known problems in Offline Mediation Controller 12.0 Patch Sets.