

# Oracle® Communications Policy Controller

Release Notes

Release 6.1

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This document provides release notes for Oracle Communications Policy Controller 6.1.

- [New Features](#)
- [Fixes in This Release](#)
- [Known Issues](#)
- [Documentation Updates](#)

## New Features

This section describes new features and feature enhancements in this release of Policy Controller.

### Integration with the Billing and Revenue Management SPR/OCS Features

Policy Controller has been integrated with the Oracle Communications Billing and Revenue Management (BRM) subscriber profile repository and online charging system (SPR/OCS) features. You can use BRM as the repository for subscriber profile and charging information that you use to dynamically shape subscriber traffic. Policy Controller can both request data and accept notifications from BRM.

For details see the discussion on working with subscriber profile and charging information in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

### Integration with Third-Party Web- and Diameter-Based SPR/OCSs

Policy Controller now supports additional SPR/OCSs for storing and using dynamic subscriber profile and charging data. Policy Controller can both request data and accept notifications from these SPR/OCSs:

- A third-party Diameter-based SPR/OCS.
- A third-party Web-based SPR/OCS.

For details see the discussion on working with subscriber profile and charging information in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Support for Implicit Rule Removal

In previous versions of Policy Controller, once profiles were applied to a subscriber they were kept in force until they were specifically removed. Starting in this release, Policy Controller interprets rules at the start of every session and thereafter during the session as needed to determine which profiles to apply. Each time Policy Controller interprets the rules it applies the applicable profiles and implicitly removes any that do not apply. So now, there is no need to explicitly specify an action to remove this a policy.

For examples of using implicit rule removal see the discussion on strategies for creating rules in *Oracle Communications Service Broker Policy Controller Implementation Guide*. For instructions on using the older explicit rule removal with this release, see the discussion on supporting explicit rule removal in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Support for Application Detection and Control

New in this release Policy Controller can take advantage of the application detection and control capabilities of your Traffic Detection Functions. It can now detect and act on the service data flow from specific applications.

## Policy Profiles Renamed to PCC Profiles and ADC Profiles Created

The “Policy Profiles” used to set bandwidth limits and specify charging information in previous releases have been renamed to “Policy Charging and Control profiles” (PCC profiles). This change is reflected in the Policy Designer interface and Policy Controller documentation.

New in this release, “application detection and control profiles” or “ADC profiles” have been added to take advantage of the Deep Packet Inspection (DPI) features of your TDF. ADC profiles specify QoS levels and redirect service data flow for specific applications. These ADC profiles set QoS limits like PCC profiles, but no charging information is required and you can redirect the service data flow to a URL or other Web address of your choosing.

For details see the discussions about Policy Controller and creating application and detection and control profiles in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Deployments Now Contain Profiles and Rules and All Supporting Data

New in this release Policy Controller saves all PCC and ADC profiles, rules, rulesets, and ruleset support data in **.rap** files. You use these **.rap** files to manage, validate, import, export, and deploy all of this data. In previous releases, Policy Controller only saved rules and rulesets in **.rules** files.

For details see the discussion on managing deployments in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Support for Custom Gx Event Triggers

Policy Controller now allows you to add your own custom values for the Gx Event-Trigger AVPs to use in Policy Designer rules.

## Support for Custom Diameter AVPs Configuration Using the Administration Console

You can now add custom Diameter AVPs to the Policy Controller Diameter stack using the Administration Console.

For more information on adding custom Diameter AVPs, see the discussion on adding custom Diameter AVPs in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Support for Monitoring Statistics

New in this release Policy Controller supports monitoring:

- Statistics on the messages and sessions that it handles.
- The status of the network entities that it communicates with.

For details, see the discussion on monitoring Policy Controller using runtime MBeans in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Support for Service Data Records

Policy Controller now generates these types of service data records (SDRs) that you use to monitor network and application events:

- Network SDRs: Mainly used for messages exchanged with other entities in the network, for example: the Policy Enforcement Rules Function (PCEF), Application Function (AF), or an internal or external Subscriber Profile Repository (SPR).
- Application SDRs: Used to record data specific to the Policy Controller application. Each SDR contains fields specific to Policy Controller.

For details see the discussion on working with service data records in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Enhanced Overload Protection

Service Broker overload protection is now enhanced as follows:

- All Service Broker products (Service Controller, Online Mediation Controller, and Policy Controller) now use the same overload protection based on the Oracle AXIA foundation. Previously, only Service Controller had an overload protection capability.
- In addition to overload protection at the system-wide level, now any runtime MBean for Service Controller, Online Mediation Controller, or Policy Controller can be configured as Key Overload Indicators. This enables flexibility for enforcing product-specific overload protection.
- The Administration console GUI panels have been changed under these nodes:
  - Platform and Interworking Module settings: Expand Platform then OCSB then Processing Tier then Tier Management an then Monitoring | Overload Protection | Overload and Tracing
  - Policy Controller settings: Expand PCRF then OCSB then Session Parameters and then Statistics

- A new runtime **SystemStatusRuntimeMBean** is available to poll the status of the system. It has these attributes: **CurrentLoadState**, **ExceededThresholds**, and **ForceOverload**.

For details see the discussions on implementing overload protection in *Oracle Communications Service Broker Policy Controller Implementation Guide*, and *Oracle Communications Service Broker System Administrator's Guide*.

## Rule Enhancements

Policy Controller rules have been improved as follows:

- Additional rule output parameters. Each Policy Controller rule action can now include additional actions. For examples, see the discussion on strategies for creating rules in *Oracle Communications Service Broker Policy Controller Implementation Guide*.
- The ability to redirect Gx service data flow to a URL or other web address. The redirection does not end the session, so the subscriber can return to using services afterward. You can redirect individual subscribers, or all service data flow for a specific service.
- The ability to send SMSs as output actions. The Policy Controller rule actions now include **SendSMS** that you can use to send an SMS message within a subscriber session. This is useful for alerting subscribers to actions they must take to continue the session.

For details see the discussions on strategies for creating rules and on configuring Policy Controller to send SMS messages in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Policy Designer Interface Reorganized and Improved

These Policy Designer interface improvements are new in this release:

- The Policy Designer tabs now reflect changed:
  - The **Deployments** tab has been moved to the right of the interface.
  - The **Rule Editor** tab has been renamed to **Rules**.
  - A new **Policy and Charging Control Profiles** tab has been added to create PCC profiles.
  - A new **Application Detection and Control Profiles** tab has been added to create ADC profiles.
  - The **Profile Editor** tab has been removed and its functionality added to the new **Policy and Charging Control Profiles** and **Application Detection and Control Profiles** tabs.
  - The new **Policy and Charging Control Profiles** and **Application Detection and Control Profiles** tabs both contain new **Profile/Rule Relationships** columns. These columns display the number of rules each profile is used in, and hovering over this column displays the names of these rules.
  - The new **Policy and Charging Control Profiles** and **Application Detection and Control Profiles** tabs contain **Clone** buttons that you use to make copies of existing profiles.

- The **Quality of Service** tab has been removed and its features added to the new **Policy and Charging Control Profiles** and **Application Detection and Control Profiles** tabs.
- There are now Advanced features for:
  - The entire Policy Designer Rules tab
  - The active Ruleset
  - An Individual Rule
  - Rule actions
- The import, export, and deploy options have been removed from the **Deployments** tab and are now on the upper right corner of the Policy Designer interface above the tabs. This reflects the Policy Designer's new ability to export PCC and ADC profiles in addition to rules, rulesets, and their supporting data.
- Accessibility features have been added to Policy Designer. They are available from the upper right corner of the interface.
- Policy Controller rules now use **installPCCProfile** as the default action for each rule's operation. Use the ruleset Advanced features to select other options.
- IN and OUT rule action prefixes removed. Instead conditions are automatically filtered by the rule action specified.
- The Deployments tab now displays a version number for each deployment and a new **Note** field allows you add brief comments for each. Thirty deployments are displayed by default but this number is configurable.
- Policy profile names now only accept alphanumeric characters and do not accept any special character except the underscore (\_).

For details see the discussion on working with the policy designer interface in *Oracle Communications Service Broker Policy Controller Implementation Guide*.

## Coherence Upgrade

Policy Controller now incorporate Oracle Coherence Release 3.7.1.5.

See the *Oracle Coherence Release 3.7.1.5* documentation set for more information.

## Coherence Configuration Using the Administration Console

You can now configure coherence and set up IP unicast or IP multicast using the Administration Console. For more information about configuring coherence, see "Configuring Coherence" in *Oracle Communications Service Broker System Administrator's Guide*.

## Unified Configuration MBeans Naming Convention

The name of all of the Policy Controller configuration MBeans have been unified. Configuration MBeans have been renamed as follows:

MBeans of type=`com.convergin` are now of type=`oracle.axia.cm.ConfigurationMBean`  
 MBean attributes are now represented by individual MBeans  
 Hyphens (-) and underscores (\_) have been replaced by capital letters.

Examples:

remote\_system\_reconnect\_period is now remoteSystemReconnectPeriod  
info-keep-alive-interval is now infoKeepAliveInterval  
announcement-info-table is now announcementInfoTable  
x\_wcs\_additional\_header\_content is now xwcsAdditionalHeaderContent

## Oracle Database and Oracle Berkeley DB Persistence

Policy Controller now provides integrated support for Oracle Database and Oracle Berkeley DB persistence. Policy Controller features introduced in release 6.0 can use either mechanism for their data storage requirements.

For more information about data persistence, see *Oracle Communications Service Broker Installation Guide*.

## Components Version Updates

Table 1 lists components that have been upgraded in this release, including the name of the component and the old and new version numbers.

**Table 1 Components Version Updates**

Name	Old Version Number	New Version Number
Berkeley Database	4.1.16	4.1.21
JDK	Java SE 6 update 30	Java SE 6 update 35
JRockit JDK	JRockit 28.2.0	JRockit 28.2.5
Oracle Coherence	Coherence 3.7.1.1	Coherence 3.7.1.6

For more information on software requirements, see *Oracle Communications Service Broker Installation Guide*.

## Oracle Berkeley DB Now Optional

An option has been added in the installation wizard “Available Product Components” screen that enables users to skip installing BDB if it will not be used in the deployment.

## Support for 64-bit Operating Systems

Policy Controller can now be installed only on a 64-bit architecture. Previously Policy Controller could be installed on either 32-bit or 64-bit architectures.

## Support For Multiple Domain Combinations

You can now choose any combination of the domain types: Service Controller, Policy Controller, Online Mediation Controller. Previously, you could select either a single product or a pre-defined combination of products such as Policy Controller and Online Mediation Controller.

## **Support of Service Mode Option by Multi-domain Deployments**

If you create a multi-domain deployment with separate processing and signaling domains, you can choose whether to turn service continuity on or off. Previously, the service mode option was available only for unified domains.

**Note:** Turning service continuity off improves performance significantly.

## **Installation of Only an Administration Console or a Managed Server**

The Policy Controller installer now enables you to install on a host only an Administration Server or only one managed server. This new feature simplifies setting up redundant, highly-available computer tiers.

Previously, on a given host you were required to install both the Administration Server and a managed server.

## **Installation Modes Consolidated**

The console installation mode is no longer supported because of its similarity to silent installation. Previously, there were three Policy Controller installation modes: graphical wizard, console (interactive), and silent (response file).

## **XML Configuration Data for Software Bundles Updates are Now Stored in a Separate JAR File**

Previously, XML configuration data for a software bundle was stored inside the JAR file of the bundle that owns the configuration.

Now only the initial XML configuration data is stored inside the software bundle, and subsequent configuration updates are stored in a separate JAR file in the domain. Decoupling the software bundle and configuration changes for that bundle simplifies software upgrading, patching, and configuration versioning.

## **New Configuration Versioning Architecture**

Policy Controller configuration versioning is now achieved by storing a copy of each version of the configuration JAR in an archive. This enhancement is seen on the file system: *domains/archive*.

## **Enhanced Configuration Validation**

Previously, configuration validation was performed differently if made through online or offline mode.

Now Policy Controller validates the current configuration if made through either online or offline mode.

## **Configurable SNMP Traps**

The Administration Console now displays GUI panels that enable users to define their own mappings from JMX notifications to SNMP traps. Any JMX notification generated by the Policy Controller managed servers can be mapped to an SNMP trap.

## Weighted Load Strategy to Distribute Messages along Network Entities

To distribute messages among different network entities that share the same alias, Signaling Service Units (SSU) use the weighted load strategy. This strategy determines a peer that receives a message based on the weight that you assign to the peer. The weight determines a relative share of the traffic that the peer should receive.

For more information about the weighted load strategy, see chapters dedicated to specific SSUs in *Oracle Communications Service Broker Signaling Server Units Configuration Guide*.

## Credential Store For Protecting System Passwords

The Credential Store feature has been added to Policy Controller that you use to securely and conveniently encrypt and store system passwords, certificates, and keys required to interact with external nodes and services. Credential Store includes a credential file to store subscriber keys and credentials, and a master password file that Policy Controller uses to decrypt the credentials. You can select the encryption algorithm your implementation requires and locate these credentials anywhere in Policy Controller. For ease of management, credentials for all Policy Controller bundles in a domain are stored in a single file.

For details see “Using Credential Store to Secure Subscriber Credentials” in *Oracle Communications Service Broker System Administrator’s Guide*.

## Diameter SSU and SIP SSU Configuration Screens Changed in the Administration Console

Policy Controller now provides a more convenient way to set up Diameter nodes and SIP network access points in the Diameter SSU and SIP SSU configuration.

For more information about configuring Diameter SSU and SIP SSU, see the discussions on configuring a Diameter Signaling Server Unit and a SIP Signaling Server Unit in *Oracle Communications Service Broker Signaling Server Units Configuration Guide*.

## Specify IP Addresses of Servers in a Domain Using the Administration Console

You can now specify whether you want to use IP unicasting or multicasting for communication between servers in domains using the Administration Console.

For more information on specifying the communication method, see “Managing Clusters” in *Oracle Communications Service Broker System Administrator’s Guide*.

## Configuration MBeans Naming Changes

Most Policy Controller configuration MBeans have been renamed as follows:

MBeans of type=`com.convergin` are now type=`oracle.axia.cm.ConfigurationMBean`  
MBean attributes are now represented by individual MBeans

MBeans that contained a hyphen (-) or an underscore (\_) symbol now use camel case.

Examples:

```
remote_system_reconnect_period is now remoteSystemReconnectPeriod
```

info-keep-alive-interval is now infoKeepAliveInterval  
 announcement-info-table is now announcementInfoTable  
 x\_wcs\_additional\_header\_content is now xwcsAdditionalHeaderContent

## Fixes in This Release

Table 2 describes known problems from the previous release that have been resolved in this release. SR numbers and BugIDs are provided if applicable, and each fix is described.

**Table 2 Fixes in This Release**

SR Number	BugDB ID	Description
NA	8941118	If a network outage occurs on the network interface that handles cluster communication, the affected Service Controller servers will recover automatically when the outage is resolved. The servers no longer need to be restarted manually.
NA	11825282, 13075127	In the Diameter SSU, the first time you add a server to the Default Route of a Diameter node, the new server was inserted in the second row of the Servers table. The added server was therefore not effective.  The Diameter SSU configuration screens have been improved and this problem is now resolved.
NA	12903091	When the web Administration Console was accessed, occasionally, the two main user interface tabs, <b>Platform</b> and <b>Studio</b> , did not show.  This problem is now solved.
NA	13551191	When selected a different tab other than the default in the top most tab pane in the Administration Console, and then selected a tab within it, and going back and forth on the navigation tree, caused the tab to be displayed without content.  This problem is now solved.
NA	13509468	Configuration fields in the Administration Console of type Boolean no longer use text input fields, but rather a clear selection between <b>True</b> and <b>False</b> .
NA	13422985	All menu items are now displayed correctly when first starting the Administration Console user interface and the Orchestration Studio user interface
NA	13570563	The entry fields for editing the credentials in the Administration Console are now open for edit when in Lock and Edit state.
NA	13514438	When creating an SSL enabled domain, the creation script now prompts for the SSL keystore password only once.

## Known Issues

This section describes known issues in this release.

### Unsupported Sy Operations Cause Compilation Errors

BugID: 15983567

Attempting to use unsupported Sy operations in Policy Controller rules causes compilation errors such as these:

```
weblogic.kernel.Default (self-tuning)' LocalRulesEngine - Failed to process
  rule dictionary
oracle.ocsb.app.rcc.feature.pcrf.rules.RuleGenerationException: Compilation
failure
atoracle.ocsb.app.rcc.feature.pcrf.rules.LocalRulesEngine.doRuleCompilation(Loc
```

The rules are not applied during the operation, but the session is not damaged. The *Oracle Communications Service Broker Policy Controller Protocol Compliance Statement* lists the supported Sy operations.

## Missing Subscriber Causes Null Pointer Exception

BugID: 14235047

Testing for a subscriber profile value for a non-existent subscriber causes null pointer exceptions. To avoid this, always test whether the value exists before testing the specific value itself. For example this rule tests whether a subscriber has a value for date of birth before testing whether that date is the 10th of the month:

```
Sp.dateOfBirth != null and
AND
Sp.dateOfBirth.dayOfMonth == 10
```

## Protocol Values Not Initially Displayed in Condition Browser

Bugid: 14333141

The Policy Controller rules Condition Browser does not automatically display all actions available for a specific protocol. In order to display all actions, use the first rule test to specify the protocol. For example, test for a protocol with a rule like this:

```
If Gx isn't Null
```

Once you have specified a protocol, the following lines in the rule display all of the protocol's options.

## Spurious Administration Console Error Message

BugID: 12809541, 12857070

On certain hardware, primarily SPARC running a Solaris operating system, an exception is thrown and printed to the standard output when the Administration Console is started.

The console recovers and is fully functional when started even with this error. This exception can be ignored.

## GUI Display Problems in Some Browsers

BugID: 13262544

In the Policy Designer UI the tool icons for **Add**, **Remove**, and **Edit** disappear when an item is selected in a bucketset when using Chrome or Internet Explorer.

The work-around is to use Firefox or to first click another tab and then click the **BucketSets** tab again.

## Error Presented When Installing on Solaris

The following error may be presented when you are installing on Solaris:

```
ERROR: Unable to convert from "UTF-8" to "ISO8859-1" for NLS!
```

```
Bus Error (core dumped)
```

This indicates that the SUNWuiu8 package is missing.

To install SUNWuiu8:

1. Make sure you can access the Sailors operating system CD from the machine.
2. Log in to the server.
3. On the CD, change directory to **Product**.
4. As root user, execute the command:

```
paged -d . SUNWuiu8
```

## Standalone Administration Console is Not Supported

Previously, you could run the Administration Console in a standalone mode which appeared as a Java client. The Administration Console modes that are now available: Web-browser access and scripting.

## Netra 6000 High Availability Manager is Disabled

The Service Broker Netra 6000 High Availability Manager is disabled in this release.

## Documentation Updates

This section covers the major updates to the documentation set:

### Signaling Server Units Configuration Guide

*Oracle Communications Service Broker Signaling Domain Configuration Guide* was renamed to *Oracle Communications Service Broker Signaling Server Units Configuration Guide*.

### Policy Controller Protocol Implementation Conformance Statement (PICS)

A Policy Controller Protocol Implementation Conformance Statement (PICS) is added, providing statement about the Policy Controller's compliance with standard policy protocols.

### Improvements to the Policy Controller Implementation Guide

*Oracle Communications Service Broker Policy Controller Implementation Guide* has been enhanced and expanded to explain new Policy Controller capabilities and describe how to use them:

- The introduction has been expanded to encompass the latest product improvements.
- A new chapter has been added to explain the different options you have for subscriber profile storage and charging.

- A new chapter has been added to explain how you use the new Policy Controller statistics monitoring feature.
- A new chapter has been added explaining how to add and use custom Diameter AVPs in your policy rules.
- A new chapter has been added explaining how to work with the Policy Designer interface. This chapter explains general information on how to use this interface, and explains the options and settings common to both PCC and ADC profiles.
- A new chapter has been added that explains how to create PCC profiles that you use to set QoS limits and charging information for service data flow.
- A new chapter has been added that explains how to create the new ADC profiles that you use to redirect specific kinds of traffic to URLs.
- The Creating Rules and Rulesets chapter has been divided into two chapters and the information expanded. The new Strategies for Creating Rules chapter explains the concepts behind creating rules, and provides an expanded set of sample rules illustrating a variety of real world use cases. The new Creating Rules and Rulesets chapter explains the details of creating rules and their supporting data using Policy Designer.
- A new chapter has been added to explain how to configure and generate Service Data Records (SDRs) to capture Policy Controller statistics. This chapter introduces these new data records, explains their format, offers examples, and explains how to generate them.
- The Policy Controller protocol conformance information has been split out into a separate *Oracle Communications Service Broker Policy Controller Protocol Implementation Conformance Statement* book.

## JavaDoc Consolidated

JavaDoc for:

- Platform MBean Java API Reference
- Modules MBean Java API Reference
- SVC and VPN MBean Java API Reference

has been added and consolidated into one single set.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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