Oracle Communications IP Service Activator™ Cartridge
Version 5.2.4

Cisco CatOS Cartridge Guide

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Contents

Preface 5
About this document 5
Audience 5
Before contacting Oracle Global Customer Support (GCS) 5
Contacting Oracle Global Customer Support (GCS) 6
Downloading products and documentation 6
Downloading a media pack 6
IP Service Activator publications 7
Cartridge Overview 8
Features 9
Legend 9
General IP Service Activator features 9
VLAN 10
Layer 2 QoS 10
Interface Configuration Management 11
Cisco hardware and software 12
Operating systems 12
Installing the Cartridge 13
Installing configuration policies 13
Device Configuration 14
Supported authentication methods 14
Manual preconfiguration 14
Sample configuration 14
Appendix A: Options Framework 16

Preface

About this document

This document outlines the tasks involved in installing and configuring the IP Service Activator Cisco CatOS Cartridge.

This guide consists of the following chapters:

Cartridge overview

Cartridge installation and setup

Device configuration

Options framework

Audience

This guide is intended for network managers and technical consultants responsible for implementing the IP Service Activator within a network using the Cisco devices.

Before contacting Oracle Global Customer Support (GCS)

If you have an issue or question, Oracle recommends reviewing the product documentation and articles on MetaLink in the Top Technical Documents section to see if you can find a solution. MetaLink is located at http://metalink.oracle.com.

In addition to MetaLink, product documentation can also be found on the product CDs and in the product set on Oracle E-Delivery.

Within the product documentation, the following publications may contain problem resolutions, work-arounds and troubleshooting information:

- Release Notes
- Oracle Installation and User's Guide
- README files

Contacting Oracle Global Customer Support (GCS)

You can submit, update, and review service requests (SRs) of all severities on MetaLink, which is available 24 hours a day, 7 days a week. For technical issues of an urgent nature, you may call Oracle Global Customer Support (GCS) directly.

Oracle prefers that you use MetaLink to log your SR electronically, but if you need to contact GCS by telephone regarding a new SR, a support engineer will take down the information about your technical issue and then assign the SR to a technical engineer. A technical support representative for the Oracle and/or former Oracle Communications products will then contact you.

Note that logging a new SR in a language other than English is only supported during your local country business hours. Outside of your local country business hours, technical issues are supported in English only. All SRs not logged in English outside of your local country business hours will be received the next business day. In order to obtain the broadest access to skilled technical support, Oracle advises you to log new SRs in English.

Oracle GCS can be reached locally in each country. Refer to the Oracle website for the support contact information in your country. The Oracle support website is located at http://www.oracle.com/support/contact.html.

Downloading products and documentation

To download the Oracle and/or former MetaSolv products and documentation, go to the Oracle E-Delivery site, located at http://edelivery.oracle.com.

You can purchase a hard copy of Oracle product documentation on the Oracle store site, located at http://oraclestore.oracle.com.

For a complete selection of Oracle documentation, go to the Oracle documentation site, located at http://www.oracle.com/technology/documentation.

Downloading a media pack

To download a media pack from Oracle E-Delivery

1. Go to http://edelivery.oracle.com.
2. Select the appropriate language and click **Continue**.
3. Enter the appropriate **Export Validation** information, accept the license agreements and click **Continue**.
4. For **Product Pack**, select **Oracle Communications Applications**.
5. For **Platform**, select the appropriate platform for your installation.
6. Click **Go**.

7. Select the appropriate media pack and click **Continue**.
8. Click **Download** for the items you wish to download.
9. Follow the installation documentation for each component you wish to install.

IP Service Activator publications

The IP Service Activator documentation suite includes a full range of publications. Refer to the IP Service Activator *Release Notes* for more information.

Cartridge Overview

IP Service Activator cartridges enable you to quickly, cost-effectively, and seamlessly support your existing services and to continuously evolve to support emerging services and business needs. The cartridges operate in conjunction with the IP Service Activator core product. These cartridges offer the following benefits:

- Reduced time to market—Time to market of new services is reduced through simplified development, implementation, and extension of cartridges on customer sites.
- Extendable—Cartridges can be extended to include additional services and components that deliver business value without requiring changes to the original cartridge.
- Simplified effort—The effort and technical knowledge that is required to perform customizations is reduced.
- Ease of installation—Cartridges can be installed without interfering with the existing IP Service Activator installed base.

Features

The following tables display the features and services supported by the IP Service Activator Cisco CatOS cartridge.

Legend

Feature support is indicated in each table, according to the following legend:

Icon	Definition
●	Supported
◖	Partially supported
○	Not supported

General IP Service Activator features

IP Service Activator Feature	Cisco CatOS Cartridge
Configuration Protocol Support	
Telnet	●
SSH	●
SNMP	○
Vendor Proprietary	○
Device Discovery	
SNMP	●
Discovery Module	○
Device Configuration	
Configuration Audit	●
Command Re-issue	●
Auto ID Migration	○
Save Running Configuration	●
Configuration Version	●
Configuration Options	●
Synonyms	●
Command Thresholding	●
Threshold Activated Configuration Control	●
Supported Services	
Interface Configuration Management	◖
QoS	◖
Layer 3 MPLS VPN	○
Point-to-Point CCC	○
Point-to-Point VLL Martini	○
VPLS	○
SAA	○
Netflow	○
Dynamic User VPN	○
IPSec	○
VRF-aware IPSec	○
LSP	○

VLAN	●
Base Configuration Policies	○
Layer 2 QoS	●
Qos Attachment	○
VRF Route Maps	○
VPN and IP Multicast Module	○
Configuration Template Manager	●
SDK	
Service Cartridge SDK	●
Configuration Policy SDK	●

VLAN

IP Service Activator Feature	Cisco CatOS Cartridge
VLAN (TLS L2 Site)	○
Tagged VLAN	○
Untagged VLAN	○
VLAN Module	○
Tagged VLAN	○
Untagged VLAN	○
Queue-in-Queue VLAN	○
vlanDefinitions	●
VLAN State	●
VLAN Media (Type): Ethernet	●
Maximum Transmission Unit (MTU)	●
Security Association Identifier (SAID)	●
vlanInterface	●
Tagged VLAN: Encapsulation Type	●
Encapsulation Type: dot1 q	●
Encapsulation Type: isl	●
Tagged VLAN: Switchport No negotiate	●
Tagged VLAN: Native VLAN	●
Tagged VLAN: VLAN Range	●
Untagged VLAN	●
Queue-in-Queue VLAN	●

Layer 2 QoS

IP Service Activator Feature	Cisco CatOS Cartridge
catOSPolicingRule Configuration Policy	●
Policing Rule IP Classification Criteria	●
Classification based on Trust Type	●
Classification based on DiffServ Code Point	●
Classification based on Source IPv4 Address	●
Classification based on Destination IPv4 Address	●
Policing Rule MAC Classification Criteria	●
Classification based on Trust Type	●
Classification based on DiffServ Code Point	●
Classification based on Source MAC Address	●
Classification based on Destination MAC Address	●

Policing Rule IPX Classification Criteria	●
Classification based on Trust Type	●
Classification based on DiffServ Code Point	●
Classification based on Source MAC Address	●
Classification based on Destination MAC Address	●
Classification based on Protocol	●
Classification based on Source IPX Address	●
Classification based on Destination IPX Address	●
rate-limit Configuration Policy	O
qosCosAttachment Configuration Policy	O

Interface Configuration Management

IP Service Activator Feature	Cisco CatOS Cartridge
Subinterface Creation	
atmSubInterfaceData	O
frSubInterfaceData	O
vlanSubInterfaceData	O
Interface Decoration	
plPosInterfaceData	O
plSerialInterfaceData	O
ciscoUniversalInterface	O
ciscoEthernetPortCharacteristics	●
Interface Creation and Decoration	
loopbackInterfaceData	O
virtualTemplateInterface	O
basicRateInterfaceData	O
dialerInterface	O
multilinkInterface	O
Channelized Interface Creation	
e1ChannelizedInterface	O
e1Controller	O
e3ChannelizedSerialInterface	O
e3Controller	O
stm1ChannelizedSerialInterface	O
stm1Controller	O
t1ChannelizedSerialInterface	O
t1Controller	O
t3ChannelizedSerialInterface	O
t3Controller	O
Other	
backUpInterfacePolicy	O
dialerList	O
dlswDevice	O
dlswEthernetInterface	O
dlswTokenRingInterface	O
hsrp	O
pppMultilink	O
sgbp	O

Cisco hardware and software

Refer to the IP Service Activator *Release Notes* for complete information on the Cisco platforms supported with the IP Service Activator Cisco CatOS cartridge.

Operating systems

Refer to the *Release Notes* for complete information about supported operating systems for the Cisco CatOS cartridge.

Installing the Cartridge

Refer to the IP Service Activator *Setup Guide* for complete cartridge installation and un-installation procedures.

Installing configuration policies

IP Service Activator supports extensible configuration policies that are visible through the GUI. The configuration policies include one CFG file and one or more zipped HTML files. Configurations are delivered to the network through these configuration policies. Refer to the IP Service Activator *Online Help* for more information on configuration policies.

Device Configuration

Supported authentication methods

The supported authentication methods are listed in the following table:

Device access		All devices
Telnet	TACACS+	✓
SSH	SSH with password authentication	✓

Manual preconfiguration

To configure Cisco devices, see the Cisco documentation at:
http://www.cisco.com/public/support/tac/documentation.html

Sample configuration

Following is a sample Cisco device configuration:

```
!
#system
set system name  rot6509-2
!
#!
#mac address reduction
set spantree macreduction enable
!
#vtp
set vtp mode transparent
set vlan 1 name default type ethernet mtu 1500 said 100001 state active
set vlan 46 name test_46 type ethernet mtu 1500 said 100046 state active
set vlan 67 name nm type ethernet mtu 1500 said 100067 state active
set vlan 69 name vlan69 type ethernet mtu 1500 said 10069 state suspend
set vlan 87 name k,nlm,n type ethernet mtu 1500 said 79 state active
set vlan 89 name m,rt,er type ethernet mtu 1500 said 89 state active
set vlan 99 name mgmt type ethernet mtu 1500 said 100099 state active
set vlan 103 name vlan103 type ethernet mtu 1500 said 1001 state active
```

```
set vlan 147 name bnmbnm type ethernet mtu 789 said 1000 state active

set vlan 199 name vlan198 type ethernet mtu 1500 said 100199 state active

set vlan 678 name vlan678 type ethernet mtu 1500 said 1000678 state active

set vlan 1002 name fddi-default type fddi mtu 1500 said 101002 state active

set vlan 1004 name fddinet-default type fddinet mtu 1500 said 101004 state active stp ieee

set vlan 1005 name trnet-default type trbrf mtu 1500 said 101005 state active stp ibm

set vlan 2,5-6,20-21,30,45,50,60,68,71,75,80,100,107,141,150,202,250-251,345,349,458,465-
468,500,555,856

set vlan 1003 name token-ring-default type trcrf mtu 1500 said 101003 state active mode srb
aremaxhop 7 stemaxhop 7 backupcrf off

!
```

Appendix A: Options Framework

By using the options framework in the Cisco CatOS Cartridge, you can control the variations in configuration style for different device types and CatOS. These options are registered by the cartridge unit in the **MIPSA_registry** entry file. For example:

```
…
<!-- CiscoCatos 6500 device series with IOS 7.6(15)-->
<cartridgeUnit>
<name>com.metasolv.serviceactivator.cartridges.ciscoCatos.units.cu1.wsc6509.7.6(15)</name>
<driverType>catos</driverType>
<deviceType>Cisco wsc6509</deviceType>
<osVersion>7.6(15)</osVersion>
<smToDmQuery>com/metasolv/serviceactivator/cartridges/ciscoCatos/units/cu1/sm2dm.xq</smToDmQue
ry>
<dmValidation>com/metasolv/serviceactivator/cartridges/ciscoCatos/units/cu1/dmValidation.xq</d
mValidation>
<dmToCliQuery>com/metasolv/serviceactivator/cartridges/ciscoCatos/units/cu1/annotatedDm2Cli.xq
</dmToCliQuery>
<capabilities>com/metasolv/serviceactivator/cartridges/ciscoCatos/capabilities/catos_default.x
ml</capabilities>
<options>com/metasolv/serviceactivator/cartridges/ciscoCatos/options/6500-7.6_15.xml</options>
<errorMessages>com/metasolv/serviceactivator/cartridges/ciscoCatos/messages/errorMessages.xml<
/errorMessages>
<warningMessages>com/metasolv/serviceactivator/cartridges/ciscoCatos/messages/warningMessages.
xml</warningMessages>
<successMessages>com/metasolv/serviceactivator/cartridges/ciscoCatos/messages/successMessages.
xml</successMessages>
</cartridgeUnit>
…
```

The **<options>** entry references an option configuration file in the “classpath” application. For example, the **Cisco_6500-7.6(15)T.xml** file is located in the directory **Config/networkProcessor/com/oracle/ipsa/options**. For example:

```
- <base:options xsi:type="CartridgeOptions"
xmlns="http://www.metasolv.com/serviceactivator/ciscoCatos/options"
xmlns:base="http://www.metasolv.com/serviceactivator/options"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">


<cartridge.ciscoCatos.l2qos.policer.burstRate.maximum>256000</cartridge.ciscoCatos.l2qos.police
r.burstRate.maximum>


<cartridge.ciscoCatos.l2qos.copyAclConfig.fileName>6500.acl</cartridge.ciscoCatos.l2qos.copyAc
lConfig.fileName>
  </base:options>
```

The following table details the configuration options for the Cisco CatOS Cartridge. Oracle recommends that you configure the options at deployment. For the options files to be valid, you must enter the options definitions in the order below. The default value is used if an option is not defined.

Note: Changing an option value for a device that has existing configurations provisioned by the IP Service Activator could result in the configurations being removed and re-added using the new configuration style.

Option	Default Value	Description	SM2DM	DM2CLI
cartridge.ciscoCatos.vlanidvalue.minimum	1	Cisco CatOS VLAN ID Minimum Value Specify the minimum acceptable VLAN ID value. **Impact:** A fault will be raised if the VLAN ID value is less than the minimum value.	Supported	Not supported
cartridge.ciscoCatos.vlanidvalue.maximum	4094	Cisco CatOS VLAN ID Maximum Value Specify the maximum acceptable VLAN ID value. **Impact:** A fault will be raised if the VLAN ID value is greater than the maximum value.	Supported	Not supported
cartridge.ciscoCatos.excludedvlanidvalue.minimum	4095	Cisco CatOS Excluded VLAN ID Minimum Value Specify the lower end of the VLAN ID exclusion range. **Impact:** A fault will be raised if the VLAN ID value is within the exclusion range.	Supported	Supported
cartridge.ciscoCatos.excludedvlanidvalue.minimum1005	4095	Cisco CatOS Excluded VLAN ID Minimum Value for Tagged Ports	Supported	Not supported

Option	Default Value	Description	SM2DM	DM2CLI
		Specify the lower end of the VLAN ID exclusion range for tagged ports. **Impact:** A fault will be raised if the VLAN ID value is within the exclusion range.		
cartridge.ciscoCatos.excludedvlanidvalue.maximum	0	Cisco CatOS Excluded VLAN ID Maximum Value Specify the upper end of the VLAN ID exclusion range. **Impact:** A fault will be raised if the VLAN ID value is within the exclusion range.	Supported	Supported
cartridge.ciscoCatos.l2qos.policer.burstRate.maximum	256000	Cisco CatOS Policing Rule Maximum Burst Rate Specify the maximum allowable burst rate for L2 QoS policing rules. **Impact:** A fault will be raised if the burst rate is greater than the maximum value.	Supported	Not supported
cartridge.ciscoCatos.l2qos.copyAclConfig.fileName	None	Cisco CatOS ACL Configuration File Specify the filename to use when saving the access list configuration.	Supported	Not supported
cartridge.ciscoCatos.12qos.macAcl.trust-dscp.isSupported	true	Cisco CatOS trust-dscp support for the macAcl command as 'set qos acl mac maqcACL trust-dscp' Indicates if the "set qos acl mac maqcACL trust-	Supported	Not supported

Option	Default Value	Description	SM2DM	DM2CLI
		dscp" command is supported for macAcl configurations in L2 QoS policing rules true: command "set qos acl mac maqcACL trust-dscp" false: fault "trust-dscp is not supported with MAC Classification Rule in catOSPolicingRule Policy" **Impact:** Changing this value will change the support for "set qos acl mac maqcACL trust-dscp" commands		