Oracle Communications IP Service Activator™ Cartridge
Version 5.2.4

Huawei Cartridge Guide

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ORACLE

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About this guide

The Huawei Cartridge Guide provides detailed technical information about the IP Service Activator Huawei cartridge, including supported features, device configuration information and a sample device configuration.

Audience

This guide is intended for network managers and technical consultants responsible for implementing Oracle Communications IP Service Activator within a network using Huawei routers.

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.

Accessing Oracle products

This section contains information on downloading Oracle products and documentation.

Downloading products and documentation

To download the Oracle and/or former MetaSolv products and documentation, go to the Oracle eDelivery 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 the Oracle E-Delivery website

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 *IP Service Activator Release Notes* for more information.

Cartridge Overview

Oracle Communications IP Service Activator cartridges enable you to quickly, cost-effectively, and seamlessly support your existing services, and also continuously evolve to support emerging services and business needs. The cartridges operate in conjunction with 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 install base.

Features

This chapter outlines IP Service Activator support of Huawei devices. The IP Service Activator supported features are listed in the following tables.

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	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
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	●	●	●

Layer 3 MPLS VPN

IP Service Activator Feature	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
Layer 3 MPLS VPN Support	●	●	●
Topology			
Mesh	●	●	●
Hub and spoke	●	●	●
Management	●	●	●
Addressing			
Public IP	●	●	●
Private IP	●	●	●
Unnumbered	●	●	●
Interface description	●	●	●
VRF Table			
VRF export map reference	○	●	●
VRF import map reference	○	●	●
VRF DHCP Helper	○	○	○
VRF Description	●	●	●
VRF Label	○	○	○
VRF Route Targets	●	●	●
VRF Table Name	●	●	●
VRF Route Distinguisher	●	●	●
VRF route limit (max routes)	○	○	○
EIBGP Multi-path load sharing	○	○	○
EBGP Multi-path load sharing	○	○	○
EIGRP Multi-path load sharing	○	○	○
IBGP Multi-path load sharing	○	○	○

IBGP unequal-cost	○	○	○
VRF Import (max paths)	○	○	○
VRF Target	○	○	○
VRF Reduction	●	●	●
Force install	●	●	●
Shareable	●	●	●
OSPF Router ID	○	○	○
Interface-less VRF	○	○	○
Static routing	●	●	●
Static Global routes	●	●	●
Static Local Routes (redistribution)	●	●	●
Static Permanent routes	○	○	○
Static Tag Value	○	○	○
Static next hop IP address	●	●	●
Static next hop interface	●	●	●
Static next hop IP and interface	●	●	●
Static Route to Null0	●	●	●
BGP			
BGP Network Statements	○	○	○
BGP Aggregate Statements	○	○	○
eBGP	●	●	●
EBGP AS override	○	●	●
EBGP Site of Origin	○	○	○
Remove private AS	●	●	●
EBGP Update source	○	○	○
EBGP Multihop	●	●	●
EBGP Allow AS in	●	●	●
EBGP PE-CE MD5 authentication	●	●	●
EBGP Local AS	○	○	○
EBGP Local AS No prepend	○	○	○
EBGP Neighbor Description	○	○	○
EBGP Soft Reconfiguration	○	○	○
EBGP Prefix Limit	○	●	●
EBGP Prefix Limit Restart	○	○	○
EBGP Prefix filters	●	●	●
EBGP Standard community attributes	●	●	●
EBGP Extended community attributes	○	●	●
EBGP Timers	○	○	○
Keep alive	○	○	○
Hold Timer	○	○	○
EBGP Neighbor Advertisement Interval	○	○	○
EBGP Inbound Route Map	●	●	●
External Route Map	●	●	●
Generated Route Map	○	○	○
EBGP Local preference	○	○	○
EBGP Site of Origin route-map	○	○	○
Route Map Name	○	○	○
EBGP Outbound Route Map	●	●	●
External Route Map	●	●	●
EBGP Route dampening	●	●	●
Redistribution into BGP	●	●	●
BGP Redistribution Metric and Policy from Connected	●	●	●
BGP Redistribution Metric and Policy from Static	●	●	●
BGP Redistribution Metric and Policy from RIP	○	○	○
BGP Redistribution Metric and Policy from OSPF	○	○	○
BGP Redistribution Metric and Policy from EIGRP	○	○	○

Default Route	O	O	O
OSPF	O	O	O
OSPF Area Type	O	O	O
OSPF NSSA Type 7 Redistribution	O	O	O
OSPF Maximum Paths	O	O	O
OSPF Cost	O	O	O
OSPF BGP Redistribution tag	O	O	O
OSPF Distribute in filter	O	O	O
OSPF Distribute out filter	O	O	O
OSPF SPF Throttling	O	O	O
OSPF MD5 authentication	O	O	O
OSPF Summary Addresses	O	O	O
Suppress Advertise	O	O	O
Tag Value	O	O	O
Redistribution into OSPF	O	O	O
OSPF Redistribution Metric and Policy from Connected	O	O	O
OSPF Redistribution Metric and Policy from Static	O	O	O
OSPF Redistribution Metric and Policy from RIP	O	O	O
OSPF Redistribution Metric and Policy from BGP	O	O	O
OSPF Redistribution Metric and Policy from EIGRP	O	O	O
Default Route	O	O	O
RIP	O	O	O
RIP Ignore Routes from Source	O	O	O
RIP Passive Interface	O	O	O
Redistribution into RIP	O	O	O
RIP Redistribution Metric and Policy from Connected	O	O	O
RIP Redistribution Metric and Policy from Static	O	O	O
RIP Redistribution Metric and Policy from OSPF	O	O	O
RIP Redistribution Metric and Policy from BGP	O	O	O
RIP Redistribution Metric and Policy from EIGRP	O	O	O
Default Route	O	O	O
EIGRP	O	O	O
EIGRP Device ASN	O	O	O
EIGRP Site ASN	O	O	O
EIGRP Site of Origin	O	O	O
EIGRP Route-map name for SOO	O	O	O
EIGRP MD5 Authentication	O	O	O
EIGRP Maximum Paths	O	O	O
EIGRP Redistribution	O	O	O
EIGRP Redistribution Metrics and Policy from Connected	O	O	O
EIGRP Redistribution Metrics and Policy from Static	O	O	O
EIGRP Redistribution Metrics and Policy from BGP	O	O	O
EIGRP Redistribution Metrics and Policy from OSPF	O	O	O
EIGRP Redistribution Metrics and Policy from RIP	O	O	O

Layer 2 VLL

IP Service Activator Feature	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
Circuit Cross Connect	○	○	○
ATM AAL5	○	○	○
ATM Cell	○	○	○
Ethernet	○	○	○
Ethernet VLAN	○	○	○
Frame	○	○	○
HDLC	○	○	○
PPP	○	○	○
Martini Point-to-Point			
ATM AAL5	○	●	●
ATM Cell	○	●	●
Ethernet	○	○	○
Ethernet VLAN	○	●	●
Frame	○	●	●
Port Based	○	●	●
Port and VLAN Tagged	○	●	●

QoS

Note: QoS is only supported for Frame Relay interfaces.

IP Service Activator Feature	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
Layer 3 Qos Support	●	●	○
Access Rule Support	○	○	○
Inbound Access Rule Support	○	○	○
Outbound Access Rule Support	○	○	○
Logging	○	○	○
Suppress Management Traffic terms	○	○	○
Named ACL support	○	○	○
Numbered ACL support	○	○	○
Guarantees Supported	○	○	○
Limits Supported	○	○	○
Access Rule Classification Criteria	○	○	○
Access Rule Classification based on Source IPv4 Address	○	○	○
Access Rule Classification based on Source Ipv6 Address	○	○	○
Access Rule Classification based on Destination IPv4 Address	○	○	○
Access Rule Classification based on Destination Ipv6 Address	○	○	○
Access Rule Classification based on Source IP Port	○	○	○
Access Rule Classification based on Destination IP Port	○	○	○

Access Rule Classification based on IP Protocol	O	O	O
Access Rule Classification based on DiffServ Codepoints	O	O	O
Access Rule Classification based on IPv4 Precedence Codepoints	O	O	O
Access Rule Classification based on Ipv6 Precedence Codepoints	O	O	O
Access Rule Classification based on IPv4 TOS Codepoints	O	O	O
Access Rule Classification based on Ipv6 TOS Codepoints	O	O	O
Access Rule Classification based on URL	O	O	O
Access Rule Classification based on MIME Type	O	O	O
Access Rule Classification based on Application protocol	O	O	O
Access Rule Classification based on Application Type	O	O	O
Access Rule Classification based on Domain Name	O	O	O
Access Rule Classification based on 802.1p User Priority	O	O	O
Access Rule Classification based on MPLS EXP value	O	O	O
Access Rule Classification based on TCP Flag values	O	O	O
Access Rule Classification based on ICMP Flag values	O	O	O
Access Rule Classification based on Fragments	O	O	O
Traffic Classification Rules	O	O	O
Inbound Traffic Classification Rule Support	O	O	O
Outbound Traffic Classification Rule Support	O	O	O
Named ACL support	O	O	O
Traffic Classification Rule Criteria	O	O	O
Traffic Classification based on Source MAC Address	O	O	O
Traffic Classification based on Destination MAC Address	O	O	O
Traffic Classification based on Source IPv4 Address	O	O	O
Traffic Classification based on Source IPv6 Address	O	O	O
Traffic Classification based on Destination IPv4 Address	O	O	O
Traffic Classification based on Destination IPv6 Address	O	O	O
Traffic Classification based on Source IP Port	O	O	O
Traffic Classification based on Destination IP Port	O	O	O
Traffic Classification based on IP Protocol	O	O	O
Traffic Classification based on all DiffServ Code Points	O	O	O
Traffic Classification based on IPv4 Precedence Codepoints	O	O	O
Traffic Classification based on IPv6 Precedence Codepoints	O	O	O
Traffic Classification based on IPv4 TOS Codepoints	O	O	O
Traffic Classification based on IPv6 TOS Codepoints	O	O	O
Traffic Classification based on URL	O	O	O
Traffic Classification based on MIME Type	O	O	O
Traffic Classification based on Application protocol	O	O	O
Traffic Classification based on Application Type	O	O	O
Traffic Classification based on Domain Name	O	O	O
Traffic Classification based on 802.1p User Priority	O	O	O
Traffic Classification based on MPLS EXP value	O	O	O
Traffic Classification based on TCP Flag bits	O	O	O
Traffic Classification based on ICMP Flag values	O	O	O
Traffic Classification based on fragments	O	O	O
Traffic Classification Marking	O	O	O
Marking DiffServ Code Points	O	O	O
Marking IPv4 IP Precedence	O	O	O
Marking Ipv6 IP Precedence	O	O	O
Marking IPv4 TOS	O	O	O
Marking Ipv6 TOS	O	O	O
Marking 802.1p User Priority	O	O	O
Marking: MPLS Experimental Bit	O	O	O

Marking: Topmost MPLS Experimental Bit	O	O	O
Discard Class	O	O	O
Trust Type	O	O	O
Traffic Policing Rules	O	O	O
Inbound Traffic Policing Rule Support	O	O	O
Outbound Traffic Policing Rule Support	O	O	O
Policing Rule: Named ACL support	O	O	O
Policing Rule Classification Criteria	O	O	O
Policing Classification based on Source MAC Address	O	O	O
Policing Classification based on Destination MAC Address	O	O	O
Policing Classification based on Source IPv4 address	O	O	O
Policing Classification based on Source IPv6 address	O	O	O
Policing Classification based on Destination IPv4 Address	O	O	O
Policing Classification based on Destination IPv6 Address	O	O	O
Policing Classification based on Source IP Port	O	O	O
Policing Classification based on Destination IP Port	O	O	O
Policing Classification based on IP Protocol	O	O	O
Policing Classification based on all DiffServ Code Points	O	O	O
Policing Classification based on IPv4 Precedence Codepoints	O	O	O
Policing Classification based on IPv6 Precedence Codepoints	O	O	O
Policing Classification based on IPv4 TOS Codepoints	O	O	O
Policing Classification based on IPv6 TOS Codepoints	O	O	
Policing Classification based on URL	O	O	O
Policing Classification based on MIME Type	O	O	O
Policing Classification based on Application protocol	O	O	O
Policing Classification based on Application Type	O	O	O
Policing Classification based on Domain Name	O	O	O
Policing Classification based on 802.1p User Priority	O	O	O
Policing Classification based on MPLS EXP value	O	O	O
Policing Classification based on TCP flags	O	O	O
Policing Classification based on ICMP Flag values	O	O	O
Policing Classification based on fragments	O	O	O
Policing Rule Marking Actions	O	O	O
Policing: Marking DiffServ Code Points	O	O	O
Policing: Marking IPv4 IP Precedence	O	O	O
Policing: Marking IPv6 IP Precedence	O	O	O
Policing: Marking IPv4 TOS	O	O	O
Policing: Marking IPv6 TOS	O	O	O
Policing: Marking 802.1p User Priority	O	O	O
Policing: Marking: MPLS Experimental Bit	O	O	O
Policing: Marking Topmost MPLS Experimental Bit	O	O	O
Standard PHB Group Support	O	O	O
PHB WRR	O	O	O
PHB WRR Inbound	O	O	O
PHB WRR Outbound	O	O	O
PHB Priority Queuing	O	O	O
PHB Priority Queuing Inbound	O	O	O
PHB Priority Queuing Outbound	O	O	O
PHB Weighted Fair Queuing	O	O	O
PHB WFQ Inbound	O	O	O
PHB WFQ Outbound	O	O	O
PHB-WFQ Class-based Queuing Support	O	O	O
PHB-WFQ Discard Eligibility Marking	O	O	O
PHB-WFQ PQ Percentage Bandwidth Support	O	O	O

PHB-WFQ Low Priority Queue Percentage Bandwidth Support	O	O	O
PHB-WFQ Per-queue WRED Support	O	O	O
PHB-WFQ Per-queue Tail Drop Limits	O	O	O
PHB Congestion Avoidance: WRED	O	O	O
PHB Inbound WRED	O	O	O
PHB Outbound WRED	O	O	O
PHB WRED: DSCP Support	O	O	O
PHB WRED: IPv4 Precedence	O	O	O
PHB WRED: IPv6 Precedence	O	O	O
PHB WRED: Parameters	O	O	O
PHB WRED: Min Threshold	O	O	O
PHB WRED: Max Threshold	O	O	O
PHB WRED: Weight Factor	O	O	O
PHB WRED: Exponential Weight Constant	O	O	O
PHB: Explicit Congestion Notification	O	O	O
PHB Rate Limiting	O	O	O
PHB Inbound Rate Limiting	O	O	O
PHB Outbound Rate Limiting	O	O	O
PHB Rate Limit Average	O	O	O
PHB Rate Limit Burst Rate	O	O	O
PHB Rate Limit Burst Interval	O	O	O
PHB Frame Relay Fragmentation	O	O	O
PHB FRF.12	O	O	O
PHB Frame Relay Traffic Shaping	O	O	O
PHB FRTS – CIR	O	O	O
PHB FRTS – MINCir	O	O	O
PHB FRTS – BC	O	O	O
PHB FRTS - BE	O	O	O
PHB Inbound CIR	O	O	O
PHB Inbound MINCIR	O	O	O
PHB Inbound BC	O	O	O
PHB Inbound BE	O	O	O
PHB BECN	O	O	O
PHB FECN	O	O	O
PHB Frame Relay Hold-Queue depth	O	O	O
PHB ATM Traffic Shaping	O	O	O
PHB Outbound ATM Traffic Shaping	O	O	O
PHB Inbound ATM Traffic Shaping	O	O	O
PHB ATM Service Classes	O	O	O
PHB ATM Service Class – UBR	O	O	O
PHB ATM Service Class – CBR	O	O	O
PHB ATM Service Class - RT VBR	O	O	O
PHB ATM Service Class - NRT VBR	O	O	O
PHB ATM Service Class – ABR	O	O	O
PHB ATM Service Class - VC-Class Map Generation	O	O	O
PHB ATM Service Class - VC-Class Map Explicit Naming	O	O	O
PHB ATM Hold-Queue Depth	O	O	O
PHB ATM TX-Ring Limit Support	O	O	O
MQC-PHB Support	●	●	O
MQC-PHB Classification Criteria	●	●	O
Traffic Classification Explicit ACL Number Specification	O	O	O
Traffic Classification Explicit ACL Name Specification	O	O	O
Traffic Classification based on Source MAC Address	O	O	O
Traffic Classification based on Destination MAC Address	O	O	O
Traffic Classification based on Source IPv4 Address	●	●	O

Traffic Classification based on Source IPv6 Address	O	O	O
Traffic Classification based on Destination IPv4 Address	●	●	O
Traffic Classification based on Destination IPv6 Address	O	O	O
Traffic Classification based on Source IP Port	●	●	O
Traffic Classification based on Destination IP Port	●	●	O
Traffic Classification based on IP Protocol	●	●	O
Traffic Classification based on all DiffServ Code Points	●	●	O
Traffic Classification based on URL	●	●	O
Traffic Classification based on MIME Type	●	●	O
Traffic Classification based on Application protocol	●	●	O
Traffic Classification based on MPLS EXP value	O	O	O
Traffic Classification based on ATM Cell Loss Priority	O	O	O
Traffic Classification - Nested Class Map	●	●	O
Traffic Classification Match Any Support	●	●	O
Traffic Classification Exclude Option	O	O	O
Traffic Classification based on TCP Flag Bits	O	O	O
Traffic Classification based on ICMP Flag values	O	O	O
Traffic Classification based on IPv4 IP Precedence	O	O	O
Traffic Classification based on IPv6 IP Precedence	O	O	O
Traffic Classification based on fragments	O	O	O
Traffic Classification RTP Protocol Port	O	O	O
Compound Traffic Classification	O	O	O
LLQ	●	●	O
LLQ Inbound	O	O	O
LLQ Outbound	●	●	O
LLQ Absolute Bandwidth Support	●	●	O
LLQ Percentage Bandwidth Support	●	●	O
LLQ Percentage Remaining Bandwidth Support	O	O	O
LLQ Device Default Bandwidth	O	O	O
LLQ Burst Support	O	O	O
Class Based Weighted Fair Queue CBWFQ	●	●	O
CBWFQ Inbound	O	O	O
CBWFQ Outbound	●	●	O
CBWFQ Absolute Bandwidth Support	●	●	O
CBWFQ Percentage Bandwidth Support	●	●	O
CBWFQ Remaining Percentage Bandwidth Support	O	O	O
CBWFQ Queue Limit Support	O	O	O
Fair-queue Flow queue-limit Default	O	O	O
Fair-queue Flow queue-limit Limit	O	O	O
CBWFQ Max Reserved Bandwidth	O	O	O
MQC-PHB Default WFQ	O	O	O
MQC-PHB Default WFQ Inbound	O	O	O
MQC-PHB Default WFQ Outbound	O	O	O
MQC-PHB Default Reserved Bandwidth Control	O	O	O
MQC-PHB Single Rate Policing	O	O	O
MQC-PHB Single Rate Policing Inbound	O	O	O
MQC-PHB Single Rate Policing Outbound	O	O	O
MQC-PHB Single Rate Policing Absolute Rate	O	O	O
MQC-PHB Single Rate Policing Percent Rate	O	O	O
Default CBS	O	O	O
Default EBS	O	O	O
MQC-PHB Two Rate Policing	O	O	O
MQC-PHB Two Rate Policing Inbound	O	O	O
MQC-PHB Two Rate Policing Outbound	O	O	O
MQC-PHB Two Rate Policing Absolute Rate	O	O	O
MQC-PHB Two Rate Policing Percent Rate	O	O	O

MQC-PHB Policing Actions	O	O	O
MQC-PHB Policing: Drop	O	O	O
MQC-PHB Policing: Set IPv4 IP Precedence	O	O	O
MQC-PHB Policing: Set Ipv6 IP Precedence	O	O	O
MQC-PHB Policing: Set DiffServ Code Points	O	O	O
MQC-PHB Policing: Set MPLS Exp	O	O	O
MQC-PHB Policing: Set FR DE	O	O	O
MQC-PHB Policing: Set ATM CLP	O	O	O
MQC-PHB Shaping Support	O	O	O
MQC-PHB Shaping: Inbound	O	O	O
MQC-PHB Shaping: Outbound	O	O	O
MQC-PHB Shaping: Default Shaping	O	O	O
MQC-PHB Shaping: Shape Average	O	O	O
MQC-PHB Shaping: Shape Peak	O	O	O
MQC-PHB Shaping: Default Bc	O	O	O
MQC-PHB Shaping: Default Be	O	O	O
MQC-PHB Maximum Number of Shaping Buffers	O	O	O
MQC-PHB: FRTS Support	O	O	O
MQC-PHB: FRTS Inbound	O	O	O
MQC-PHB: FRTS Outbound	O	O	O
MQC-PHB: FRTS MINCir	O	O	O
MQC-PHB: FRTS BECN	O	O	O
MQC-PHB: FRTS FECN	O	O	O
MQC-PHB Marking Support	●	●	O
MQC-PHB Marking Inbound	O	O	O
MQC-PHB Marking Outbound	●	●	O
MQC-PHB Marking: DiffServ Code Point Support	●	●	O
MQC-PHB Marking: MPLS Experimental Bit Support	●	●	O
MQC-PHB Marking TopMost MPLS EXP Support	O	O	O
MQC-PHB Marking Frame Relay Discard Eligibility Bit Support	O	O	O
MQC-PHB Marking ATM Cell Loss Priority Support	O	O	O
MQC-PHB Marking IPv4 IP Precedence	O	O	O
MQC-PHB Marking Ipv6 IP Precedence	O	O	O
MQC-PHB Marking IPv4 TOS	O	O	O
MQC-PHB Marking Ipv6 TOS	O	O	O
MQC-PHB Marking IPv4 Discard Class	O	O	O
MQC-PHB Marking IPv6 Discard Class	O	O	O
MQC-PHB Marking Trust Type	O	O	O
MQC-PHB Congestion Avoidance	●	●	O
MQC-PHB Inbound congestion avoidance	O	O	O
MQC-PHB Outbound congestion avoidance	●	●	O
Tail Drop Limit	O	O	O
Tail Drop Default	O	O	O
MQC-PHB WRED Device Default Parameters	●	●	O
MQC-PHB WRED IP Precedence Support	O	O	O
MQC-PHB WRED DSCP Support	O	O	O
MQC-PHB Nesting Support	●	●	O
MQC-PHB Inbound Nesting	O	O	O
MQC-PHB Outbound Nesting	O	O	O
MQC-PHB Header Compression	O	O	O
MQC-PHB RTP Header Compression Support	O	O	O
MQC-PHB TCP Header Compression Support	O	O	O

LSP

IP Service Activator Feature	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
LSP Module	○	●	●
Primary Tunnel	○	●	●
Backup Tunnel	○	○	○
Bypass Tunnel	○	○	○
Setup Priority	○	●	●
Hold Priority	○	●	●
Affinity	○	●	●
IGP Metric	○	●	●
Fast Reroute	○	●	●
Record Route	○	●	●
LDP Enabled	○	●	●

IPSec

IP Service Activator Feature	Huawei VRP Cartridge - CU1	Huawei VRP Cartridge - CU2	Huawei VRP Cartridge - CU3
IPSec Module	○	○	○
ipsecmodule Configuration Policy	●	○	○
IP Sec	●	○	○
IP Tunnel	●	○	○

Unsupported features

The following features are not currently supported with the IP Service Activator Huawei Cartridge:

- VLAN
- VPLS
- Layer 2 QoS
- Service Assurance
- Netflow
- DU VPN
- VRF-aware IPSec

- VRF and IP Multicast
- VRF Route Maps
- Interface Configuration Management
- Base Configuration Policies

Huawei hardware and software

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

Operating systems

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

Installing the Cartridge

Refer to the Oracle Communications IP Service Activator *Setup Guide* for the cartridge installation and uninstallation procedures.

Device Configuration

Supported authentication methods

The supported authentication methods are listed in the following table as an example.

Device Access		All Devices
Telnet	TACACS+	✓
	None	
SSH	SSH	

Manual pre-configuration

To configure the necessary functionality on the device, refer to Huawei documentation – go to http://support.huawei.com/support/ and click on the **Documentation** link.

Sample configuration

The following is a sample Huawei cartridge configuration.

```
#
ip vpn-instance IPSA_1:1242
 route-distinguisher 1:1242
 vpn-target 1:1472 export-extcommunity
 vpn-target 1:1472 import-extcommunity
#
interface Serial1/0.52
 ip binding vpn-instance IPSA_1:1242
 ip address 7.7.17.1 255.255.255.252
#
bgp 888
 undo synchronization
 #
 ipv4-family vpn-instance IPSA_1:1242
```

```
  import-route static med 10 route-policy static_policy
  import-route direct med 20 route-policy connected_policy1
  undo synchronization
  group Serial1-0.52 external
  peer Serial1-0.52 as-number 100
  peer Serial1-0.52 allow-as-loop
  peer Serial1-0.52 password simple A123456
  peer Serial1-0.52 route-policy import_map1 import
  peer Serial1-0.52 route-policy export_map1 export
  peer Serial1-0.52 ip-prefix in_prefix1 import
  peer Serial1-0.52 ip-prefix out_prefix1 export
  peer Serial1-0.52 ebgp-max-hop 6
  peer 7.7.8.2 group Serial1-0.52
#
ip route-static vpn-instance IPSA_1:1242 1.2.3.1 255.255.255.255 Serial 1/0.52 7.7.8.2
preference 1
#
```