

## Huawei Cartridge Guide

This guide provides detailed technical information about the Oracle Communications IP Service Activator Huawei cartridge, including supported features, device configuration, and a sample device configuration.

### About This Guide

This guide consists of the following sections:

- [Cartridge Overview](#)
- [IP Service Activator Huawei Cartridge Features](#)
- [Installing the Cartridge](#)
- [Device Configuration](#)

### Cartridge Overview

IP Service Activator cartridges enable you to support your existing services, emerging services, and business needs. The cartridges operate in conjunction with the IP Service Activator core product. For more information, see *IP Service Activator Concepts*.

### IP Service Activator Huawei Cartridge Features

The following tables list the features and services supported by the IP Service Activator Huawei cartridge.

#### General IP Service Activator Features

[Table 1-1](#) lists the support for general IP Service Activator features on the Huawei cartridge.

**Table 1-1 General IP Service Activator Features**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Configuration Protocol Support	Telnet	Yes
Configuration Protocol Support	Secure Shell (SSH)	Yes
Configuration Protocol Support	Simple Network Management Protocol (SNMP)	No
Configuration Protocol Support	Vendor Proprietary	No
Device Discovery	SNMP	Yes
Device Discovery	Discovery Module	No
Device Configuration	Configuration Audit	Yes
Device Configuration	Command Reissue	Yes
Device Configuration	Auto ID Migration	No
Device Configuration	Save Running Configuration	Yes
Device Configuration	Configuration Version	No
Device Configuration	Configuration Options	No
Device Configuration	Synonyms	Yes
Device Configuration	Command Thresholding	Yes
Device Configuration	Threshold Activated Configuration Control	Yes
Supported Services	Interface Configuration Management	No
Supported Services	Quality of Service (QoS)	Partially
Supported Services	Layer 3 Multi Protocol Label Switching (MPLS) VPN	Yes
Supported Services	Point-to-Point Circuit Cross Connect (CCC)	No
Supported Services	Point-to-Point Virtual Leased Line (VLL) Martini	Yes
Supported Services	Virtual Private LAN Service (VPLS)	No
Supported Services	Service Assurance Agent (SAA)	No
Supported Services	Netflow	No
Supported Services	Dynamic User VPN	No
Supported Services	IPsec	Yes
Supported Services	Virtual Routing and Forwarding (VRF)-Aware IPsec	No
Supported Services	Label Switched Path (LSP)	Yes
Supported Services	VLAN	No
Supported Services	Base Configuration Policies	No
Supported Services	Layer 2 QoS	No

**Table 1-1 (Cont.) General IP Service Activator Features**

Area	IP Service Activator Feature	Supported on Huawei VRP Cartridge
Supported Services	QoS Attachment	No
Supported Services	VRF Route Maps	No
Supported Services	VPN and IP Multicast Module	No
Supported Services	Configuration Template Manager	Yes
Configuration Management	Configuration Archiving and Versioning	Yes
Configuration Management	Configuration Restore	Yes
Configuration Management	Service Configuration Auditing	Yes
Configuration Management	Service Configuration Traceability	Yes
Configuration Management	Service Repair	Yes
Configuration Management	Real-time Configuration Change Tracking	No
SDK	Service Cartridge Software Development Kit (SDK)	Yes
SDK	Configuration Policy SDK	Yes

## Layer 3 MPLS VPN

[Table 1-2](#) lists the Layer 3 MPLS VPN support on the Huawei cartridge.

**Table 1-2 Layer 3 MPLS VPN Support**

Area	IP Service Activator Feature	Supported on Huawei VRP Cartridge
<b>Layer 3 MPLS VPN Support</b>	<b>Layer 3 MPLS VPN Support</b>	Yes
Topology	Mesh	Yes
Topology	Hub and Spoke	Yes
Topology	Management	Yes
Addressing	Public IP	Yes
Addressing	Private IP	Yes
Addressing	Unnumbered	Yes
Addressing	Interface Description	Yes
VRF Table	VRF Export Map Reference	Yes
VRF Table	VRF Import Map Reference	Yes
VRF Table	VRF Dynamic Host Configuration Protocol (DHCP) Helper	No
VRF Table	VRF Description	Yes

**Table 1-2 (Cont.) Layer 3 MPLS VPN Support**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
VRF Table	VRF Label	No
VRF Table	VRF Route Targets	Yes
VRF Table	VRF Table Name	Yes
VRF Table	VRF Route Distinguisher	Yes
VRF Table	VRF Route Limit (Max Routes)	No
VRF Table	External Border Gateway Protocol (EBGP) Multipath Load Sharing	No
VRF Table	Enhanced Interior Gateway Routing Protocol (EIGRP) Multipath Load Sharing	No
VRF Table	Internal Border Gateway Protocol (IBGP) Multipath Load Sharing	No
VRF Table	EBGP and IBGP (EIBGP) Multipath Load Sharing	No
VRF Table	IBGP Unequal-cost	No
VRF Table	VRF Import (Max Paths)	No
VRF Table	VRF Target	No
VRF Table	VRF Reduction	Yes
VRF Table	Force Install	Yes
VRF Table	Shareable	Yes
VRF Table	Open Shortest Path First (OSPF) Router ID	No
VRF Table	Interface-less VRF	No
Routing Options	Routing Options	No
Routing Options	Autonomous System (AS)	No
Routing Options	Autonomous System Number (ASN) Loops	No
Routing Options	Independent Domain	No
Routing Options	Load Balancing	No
Routing Options	Multipath	No
Routing Options	Multipath Unequal Cost	No
Routing Options	Multipath External and Internal Border Gateway Protocol (BGP)	No
Static Routing	Static Routing	Yes
Static Routing	Static Global Routes	Yes
Static Routing	Static Local Routes (Redistribution)	Yes
Static Routing	Static Permanent Routes	No

**Table 1-2 (Cont.) Layer 3 MPLS VPN Support**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Static Routing	Static Tag Value	No
Static Routing	Static Next Hop IP Address	Yes
Static Routing	Static Next Hop Interface	Yes
Static Routing	Static Next Hop IP and Interface	Yes
Static Routing	Static Route to Null0	Yes
BGP	BGP Network Statements	Yes
BGP	BGP Aggregate Statements	No
eBGP	EBGP AS Override	Yes
eBGP	EBGP Site of Origin	No
eBGP	Remove Private AS	Yes
eBGP	EBGP Update Source	No
eBGP	EBGP Multihop	Yes
eBGP	EBGP Bidirectional Forwarding Detection (BFD)	No
eBGP	EBGP Allow AS in	Yes
eBGP	EBGP Provider Edge (PE) -Customer Edge (CE) MD5 Authentication	Yes
eBGP	EBGP Local AS	No
eBGP	Advertise Address Family	No
eBGP	EBGP Local AS No Prepend	No
eBGP	EBGP Neighbor Description	No
eBGP	EBGP Soft Reconfiguration	No
eBGP	EBGP Router as Next Hop	No
eBGP	EBGP Neighbor Weight	No
eBGP	EBGP Filters	Yes
eBGP	EBGP Default Route	No
eBGP	EBGP Prefix Limit	Yes
eBGP	EBGP Prefix Limit Restart	No
eBGP	EBGP Prefix Filters	Yes
eBGP	EBGP Standard Community Attributes	Yes
eBGP	EBGP Extended Community Attributes	Yes
eBGP	EBGP Timers	No
eBGP	Keep Alive	No
eBGP	Hold Timer	No
eBGP	EBGP Neighbor Advertisement Interval	No

**Table 1-2 (Cont.) Layer 3 MPLS VPN Support**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
eBGP	EBGP Inbound Route Map	Yes
eBGP	EBGP Neighbor Site of Origin (SOO)	Yes
eBGP	External Route Map	Yes
eBGP	Generated Route Map	No
eBGP	EBGP Local Preference	No
eBGP	EBGP Site of Origin Route-map	No
eBGP	Route Map Name	No
eBGP	EBGP Outbound Route Map	Yes
eBGP	External Route Map	Yes
eBGP	EBGP Route Dampening	Yes
eBGP	Redistribution into Border Gateway Protocol (BGP)	Yes
eBGP	BGP Redistribution Metric and Policy from Connected	Yes
eBGP	BGP Redistribution Metric and Policy from Static	Yes
eBGP	BGP Redistribution Metric and Policy from Routing Information Protocol (RIP)	No
eBGP	BGP Redistribution Metric and Policy from OSPF	No
eBGP	BGP Redistribution Metric and Policy from EIGRP	No
eBGP	Default Route	No
eBGP	EBGP Neighbor Transport Connection Mode Active/Passive	No
eBGP	EBGP Neighbor Transport PathMTUDiscover	No
eBGP	EBGP Neighbor Transport Single Session/Multi Session	No
eBGP	EBGP Neighbor	No
eBGP	EBGP Log Updown	No
OSPF	OSPF	No
OSPF	OSPF Area	No
OSPF	OSPF Area Type	No
OSPF	OSPF not-so-stubby area (NSSA) Type 7 Redistribution	No
OSPF	OSPF Maximum Paths	No

**Table 1-2 (Cont.) Layer 3 MPLS VPN Support**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
OSPF	OSPF Cost	No
OSPF	OSPF Process ID	No
OSPF	OSPF BGP Redistribution Tag	No
OSPF	OSPF Distribute in Filter	No
OSPF	OSPF Distribute out Filter	No
OSPF	OSPF Shortest Patch First (SPF) Throttling	No
OSPF	OSPF MD5 Authentication	No
OSPF	OSPF Summary Addresses	No
OSPF	Suppress Advertise	No
OSPF	Tag Value	No
OSPF	Redistribution into OSPF	No
OSPF	OSPF Redistribution Metric and Policy from Connected	No
OSPF	OSPF Redistribution Metric and Policy from Static	No
OSPF	OSPF Redistribution Metric and Policy from RIP	No
OSPF	OSPF Redistribution Metric and Policy from BGP	No
OSPF	OSPF Redistribution Metric and Policy from EIGRP	No
OSPF	Default Route	No
RIP	RIP Ignore Routes from Source	No
RIP	RIP Passive Interface	No
RIP	Redistribution into RIP	No
RIP	RIP Redistribution Metric and Policy from Connected	No
RIP	RIP Redistribution Metric and Policy from Static	No
RIP	RIP Redistribution Metric and Policy from OSPF	No
RIP	RIP Redistribution Metric and Policy from BGP	No
RIP	RIP Redistribution Metric and Policy from EIGRP	No
RIP	Default Route	No
EIGRP	EIGRP	No

**Table 1-2 (Cont.) Layer 3 MPLS VPN Support**

Area	IP Service Activator Feature	Supported on Huawei VRP Cartridge
EIGRP	EIGRP Device ASN	No
EIGRP	EIGRP Site ASN	No
EIGRP	EIGRP Site of Origin	No
EIGRP	EIGRP Route-map Name for SOO	No
EIGRP	EIGRP MD5 Authentication	No
EIGRP	EIGRP Maximum Paths	No
EIGRP	EIGRP Redistribution	No
EIGRP	EIGRP Redistribution Metric and Policy from Connected	No
EIGRP	EIGRP Redistribution Metric and Policy from Static	No
EIGRP	EIGRP Redistribution Metric and Policy from BGP	No
EIGRP	EIGRP Redistribution Metric and Policy from OSPF	No
EIGRP	EIGRP Redistribution Metric and Policy from RIP	No

## Layer 2 VLL

[Table 1-3](#) lists the Layer 2 VLL support on the Huawei cartridge.

**Table 1-3 Layer 2 VLL Support**

Area	IP Service Activator Feature	Supported on Huawei VRP Cartridge
Circuit Cross Connect	Circuit Cross Connect (CCC)	No
Circuit Cross Connect	Asynchronous Transfer Mode (ATM) AAL5	No
Circuit Cross Connect	ATM Cell	No
Circuit Cross Connect	Ethernet	No
Circuit Cross Connect	Ethernet VLAN	No
Circuit Cross Connect	Frame	No
Circuit Cross Connect	High-Level Data Link Control (HDLC)	No
Circuit Cross Connect	Point-to-Point Protocol (PPP)	No
Martini Point-to-Point	ATM AAL5	Yes
Martini Point-to-Point	ATM Cell	Yes

**Table 1-3 (Cont.) Layer 2 VLL Support**

Area	IP Service Activator Feature	Supported on Huawei VRP Cartridge
Martini Point-to-Point	Ethernet	No
Martini Point-to-Point	Ethernet VLAN	Yes
Martini Point-to-Point	Frame	Yes
Martini Point-to-Point	Port Based	Yes
Martini Point-to-Point	Port and VLAN Tagged	Yes

## Quality of Service

[Table 1-4](#) lists the Quality of Service (QoS) support for the Huawei cartridge.

**Table 1-4 QoS Support**

IP Service Activator Feature	Supported on Huawei VRP Cartridge
<b>Layer 3 QoS Support</b>	Yes
<b>Access Rule Support</b>	No
Inbound Access Rule Support	No
Outbound Access Rule Support	No
Logging	No
Suppress Management Traffic Terms	No
Named Access Control List (ACL) Support	No
Numbered ACL Support	No
Guarantees Supported	No
Limits Supported	No
Access Rule Classification Criteria	No
Access Rule Classification Based on Source IPv4 Address	No
Access Rule Classification Based on Source IPv6 Address	No
Access Rule Classification Based on Destination IPv4 Address	No
Access Rule Classification Based on Destination IPv6 Address	No
Access Rule Classification Based on Source IP Port	No
Access Rule Classification Based on Destination IP Port	No
Access Rule Classification Based on IP Protocol	No
Access Rule Classification Based on DiffServ Codepoints	No
Access Rule Classification Based on IPv4 Precedence Codepoints	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Access Rule Classification Based on IPv6 Precedence Codepoints	No
Access Rule Classification Based on IPv4 Type of Service (TOS) Codepoints	No
Access Rule Classification Based on IPv6 TOS Codepoints	No
Access Rule Classification Based on URL	No
Access Rule Classification Based on Multipurpose Internet Mail Extensions (MIME) Type	No
Access Rule Classification Based on Application protocol	No
Access Rule Classification Based on Application Type	No
Access Rule Classification Based on Domain Name	No
Access Rule Classification Based on 802.1p User Priority	No
Access Rule Classification Based on MPLS EXP Value	No
Access Rule Classification Based on Transmission Control Protocol (TCP) Flag Values	No
Access Rule Classification Based on Internet Control Message Protocol (ICMP) Flag Values	No
Access Rule Classification Based on Fragments	No
<b>Traffic Classification Rules</b>	No
Inbound Traffic Classification Rule Support	No
Outbound Traffic Classification Rule Support	No
Named ACL Support	No
Traffic Classification Rule Criteria	No
Traffic Classification Based on Source MAC Address	No
Traffic Classification Based on Destination Media Access Control (MAC) Address	No
Traffic Classification Based on Source IPv4 Address	No
Traffic Classification Based on Destination IPv4 Address	No
Traffic Classification Based on Source IP Port	No
Traffic Classification Based on Destination IP Port	No
Traffic Classification Based on IP Protocol	No
Traffic Classification Based on all DiffServ Code Points	No
Traffic Classification Based on IPv4 Precedence Codepoints	No
Traffic Classification Based on IPv4 TOS Codepoints	No
Traffic Classification Based on URL	No
Traffic Classification Based on MIME Type	No
Traffic Classification Based on Application protocol	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Traffic Classification Based on Application Type	No
Traffic Classification Based on Domain Name	No
Traffic Classification Based on 802.1p User Priority	No
Traffic Classification Based on MPLS EXP Value	No
Traffic Classification Based on TCP Flag Bits	No
Traffic Classification Based on ICMP Flag Values	No
Traffic Classification Based on QoS Group	No
Traffic Classification Based on Fragments	No
<b>Traffic Classification Marking</b>	No
Marking DiffServ Code Points	No
Marking IPv4 IP Precedence	No
Marking IPv6 IP Precedence	No
Marking IPv4 TOS	No
Marking IPv6 TOS	No
Marking 802.1p User Priority	No
Marking: MPLS Experimental Bit	No
Marking: Topmost MPLS Experimental Bit	No
Discard Class	No
Trust Type	No
<b>Traffic Policing Rules</b>	No
Inbound Traffic Policing Rule Support	No
Outbound Traffic Policing Rule Support	No
Policing Rule: Named ACL Support	No
Policing Rule Classification Criteria	No
Policing Classification Based on Source MAC Address	No
Policing Classification Based on Destination MAC Address	No
Policing Classification Based on Source IPv4 Address	No
Policing Classification Based on Destination IPv4 Address	No
Policing Classification Based on Source IP Port	No
Policing Classification Based on Destination IP Port	No
Policing Classification Based on IP Protocol	No
Policing Classification Based on all DiffServ Code Points	No
Policing Classification Based on IPv4 Precedence Codepoints	No
Policing Classification Based on IPv4 TOS Codepoints	No
Policing Classification Based on URL	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Policing Classification Based on MIME Type	No
Policing Classification Based on Application Protocol	No
Policing Classification Based on Application Type	No
Policing Classification Based on Domain Name	No
Policing Classification Based on 802.1p User Priority	No
Policing Classification Based on MPLS EXP Value	No
Policing Classification Based on TCP Flags	No
Policing Classification Based on ICMP Flag Values	No
Policing Classification Based on Fragments	No
Policing Rule Marking Actions	No
Policing: Marking DiffServ Code Points	No
Policing: Marking IPv4 IP Precedence	No
Policing: Marking IPv4 TOS	No
Policing: Marking 802.1p User Priority	No
Policing: Marking: MPLS Experimental Bit	No
Policing: Marking Topmost MPLS Experimental Bit	No
<b>Standard Per Hop Behaviour (PHB) Group Support</b>	No
PHB Weighted Round Robin (WRR)	No
PHB WRR Inbound	No
PHB WRR Outbound	No
PHB Priority Queuing (PQ)	No
PHB Priority Queuing Inbound	No
PHB Priority Queuing Outbound	No
PHB Weighted Fair Queuing (WFQ)	No
PHB WFQ Inbound	No
PHB WFQ Outbound	No
PHB-WFQ Class-based Queuing Support	No
PHB-WFQ Discard Eligibility Marking	No
PHB-WFQ PQ Percentage Bandwidth Support	No
PHB-WFQ Low Priority Queue Percentage Bandwidth Support	No
PHB-WFQ Per-queue Weighted Random Early Detection (WRED) Support	No
PHB-WFQ Per-queue Tail Drop Limits	No
PHB Congestion Avoidance: WRED	No
PHB Inbound WRED	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
PHB Outbound WRED	No
PHB WRED: Differentiated Services Code Point (DSCP) Support	No
PHB WRED: IPv4 Precedence	No
PHB WRED: IPv6 Precedence	No
PHB WRED: Parameters	No
PHB WRED: Min Threshold	No
PHB WRED: Max Threshold	No
PHB WRED: Weight Factor	No
PHB WRED: Exponential Weight Constant	No
PHB: Explicit Congestion Notification	No
PHB Rate Limiting	No
PHB Inbound Rate Limiting	No
PHB Outbound Rate Limiting	No
PHB Rate Limit Average	No
PHB Rate Limit Burst Rate	No
PHB Rate Limit Burst Interval	No
PHB Frame Relay Fragmentation (FRF)	No
PHB FRF.12	No
PHB Frame Relay Traffic Shaping (FRTS)	No
PHB FRTS - Committed Information Rate (CIR)	No
PHB FRTS - MINCIR	No
PHB FRTS - Committed Burst (BC)	No
PHB FRTS - Excess Burst (BE)	No
PHB Inbound CIR	No
PHB Inbound MINCIR	No
PHB Inbound BC	No
PHB Inbound BE	No
PHB Backwards Explicit Congestion Notification (BECN)	No
PHB Forward Explicit Congestion Notification (FECN)	No
PHB Frame Relay Hold-Queue Depth	No
PHB ATM Traffic Shaping	No
PHB Outbound ATM Traffic Shaping	No
PHB Inbound ATM Traffic Shaping	No
PHB ATM Service Classes	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
PHB ATM Service Class - Unspecified Bit Rate (UBR)	No
PHB ATM Service Class - Constant Bit Rate (CBR)	No
PHB ATM Service Class - Real Time (RT) Variable Bit Rate (VBR)	No
PHB ATM Service Class - Non-Real Time (NRT) VBR	No
PHB ATM Service Class - Available Bit Rate (ABR)	No
PHB ATM Service Class - VC-Class Map Generation	No
PHB ATM Service Class - VC-Class Map Explicit Naming	No
PHB ATM Hold-Queue Depth	No
PHB ATM TX-Ring Limit Support	No
<b>Modular Quality of Service Command-Line Interface (MQC) -PHB Support</b>	Yes
MQC-PHB Classification Criteria	Yes
Traffic Classification Explicit ACL Number Specification	No
Traffic Classification Explicit ACL Name Specification	No
Traffic Classification Based on Source MAC Address	No
Traffic Classification Based on Destination MAC Address	No
Traffic Classification Based on Source IPv4 Address	Yes
Traffic Classification Based on Source IPv6 Address	No
Traffic Classification Based on Destination IPv4 Address	Yes
Traffic Classification Based on Destination IPv6 Address	No
Traffic Classification Based on Source IP Port	Yes
Traffic Classification Based on Destination IP Port	Yes
Traffic Classification Based on IP Protocol	Yes
Traffic Classification Based on all DiffServ Code Points	Yes
Traffic Classification Based on URL	Yes
Traffic Classification Based on MIME Type	Yes
Traffic Classification Based on Application Protocol	Yes
Traffic Classification Based on MPLS EXP Value	No
Traffic Classification Based on ATM Cell Loss Priority	No
Traffic Classification - Nested Class Map	Yes
Traffic Classification Match Any Support	Yes
Traffic Classification Exclude Option	No
Traffic Classification Based on TCP Flag Bits	No
Traffic Classification Based on ICMP Flag Values	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
Traffic Classification Based on IPv4 IP Precedence	No
Traffic Classification Based on IPv6 IP Precedence	No
Traffic Classification Based on Fragments	No
Traffic Classification Routing Table Protocol (RTP) Protocol Port	No
Compound Traffic Classification	No
Low Latency Queuing (LLQ)	Yes
LLQ Inbound	No
LLQ Outbound	Yes
LLQ Absolute Bandwidth Support	Yes
LLQ Percentage Bandwidth Support	Yes
LLQ Percentage Remaining Bandwidth Support	No
LLQ Device Default Bandwidth	No
LLQ Burst Support	No
Class Based Weighted Fair Queue (CBWFQ)	Yes
CBWFQ Inbound	No
CBWFQ Outbound	Yes
CBWFQ Absolute Bandwidth Support	Yes
CBWFQ Percentage Bandwidth Support	Yes
CBWFQ Remaining Percentage Bandwidth Support	No
CBWFQ Queue Limit Support	No
Fair-queue Flow Queue-limit Default	No
Fair-queue Flow Queue-limit Limit	No
CBWFQ Max Reserved Bandwidth	No
MQC-PHB Default WFQ	No
MQC-PHB Default WFQ Inbound	No
MQC-PHB Default WFQ Outbound	No
MQC-PHB Default Reserved Bandwidth Control	No
MQC-PHB Single Rate Policing	No
MQC-PHB Single Rate Policing Inbound	No
MQC-PHB Single Rate Policing Outbound	No
MQC-PHB Single Rate Policing Absolute Rate	No
MQC-PHB Single Rate Policing Percent Rate	No
Default Committed Burst Size (CBS)	No
Default Excess Burst Size (EBS)	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
MQC-PHB Two Rate Policing	Yes
MQC-PHB Two Rate Policing Inbound	Yes
MQC-PHB Two Rate Policing Outbound	Yes
MQC-PHB Two Rate Policing Absolute Rate	Yes
MQC-PHB Two Rate Policing Percent Rate	Yes
MQC-PHB Policing Actions	Yes
MQC-PHB Policing: Drop	Yes
MQC-PHB Policing: Set IPv4 IP Precedence	No
MQC-PHB Policing: Set IPv6 IP Precedence	No
MQC-PHB Policing: Set DiffServ Code Points	Yes
MQC-PHB Policing: Set MPLS Exp	No
MQC-PHB Policing: Set FR DE	No
MQC-PHB Policing: Set ATM CLP	No
MQC-PHB Shaping Support	No
MQC-PHB Shaping: Inbound	No
MQC-PHB Shaping: Outbound	No
MQC-PHB Shaping: Default Shaping	No
MQC-PHB Shaping: Shape Average	No
MQC-PHB Shaping: Shape Peak	No
MQC-PHB Shaping: Default Bc	No
MQC-PHB Shaping: Default Be	No
MQC-PHB Maximum Number of Shaping Buffers	No
MQC-PHB: FRTS Support	No
MQC-PHB: FRTS Inbound	No
MQC-PHB: FRTS Outbound	No
MQC-PHB: FRTS MINCir	No
MQC-PHB: FRTS BECN	No
MQC-PHB: FRTS FECN	No
MQC-PHB Marking Support	Yes
MQC-PHB Marking Inbound	No
MQC-PHB Marking Outbound	Yes
MQC-PHB Marking: DiffServ Code Point Support	Yes
MQC-PHB Marking: MPLS Experimental Bit Support	Yes
MQC-PHB Marking TopMost MPLS EXP Support	No
MQC-PHB Marking Frame Relay Discard Eligibility Bit Support	No

**Table 1-4 (Cont.) QoS Support**

<b>IP Service Activator Feature</b>	<b>Supported on Huawei VRP Cartridge</b>
MQC-PHB Marking ATM Cell Loss Priority Support	No
MQC-PHB Marking IPv4 IP Precedence	No
MQC-PHB Marking IPv6 IP Precedence	No
MQC-PHB Marking IPv4 TOS	No
MQC-PHB Marking IPv6 TOS	No
MQC-PHB Marking IPv4 Discard Class	No
MQC-PHB Marking IPv6 Discard Class	No
MQC-PHB Marking QoS Group	No
MQC-PHB Marking Trust Type	No
MQC-PHB Congestion Avoidance	Yes
MQC-PHB Inbound Congestion Avoidance	No
MQC-PHB Outbound Congestion Avoidance	Yes
Tail Drop Limit	No
Tail Drop Default	No
MQC-PHB WRED Device Default Parameters	Yes
MQC-PHB WRED IP Precedence Support	No
MQC-PHB WRED DSCP Support	No
MQC-PHB Nesting Support	Yes
MQC-PHB Inbound Nesting	No
MQC-PHB Outbound Nesting	No
MQC-PHB Header Compression	No
MQC-PHB RTP Header Compression Support	No
MQC-PHB TCP Header Compression Support	No

## Layer 2 VPN

[Table 1-5](#) lists the Layer 2 VPN support on the Huawei cartridge.

**Table 1-5 Layer 2 VPN Support**

<b>Area</b>	<b>IP Service Activator Feature</b>	<b>Supported on IP Service Activator Huawei Cartridge</b>
Layer 2 VPN Support	Layer 2 VPN Support	No
Topology	Mesh	No
Topology	Hub and Spoke	No
Topology	Management	No

**Table 1-5 (Cont.) Layer 2 VPN Support**

Area	IP Service Activator Feature	Supported on IP Service Activator Huawei Cartridge
Topology	H-VPLS	No
Signaling	BGP	No
Signaling	LDP	No
Discovery	Auto-discovered	No
Discovery	Explicit	No
MAC Table	Table size	No
MAC Table	Limit action	No
MAC Table	Limit notification	No
MAC Table	Aging time	No
MAC Table	Aging type	No
VSI	Profile	No
VSI	Route distinguisher: explicit	No
VSI	Route distinguisher: auto	No
VSI	Bridge domain	No
VSI	Bridge group	No
VSI	Ve range	No
VSI	Ve ID	No
VSI	VPN ID	No
Cross-connect	Group name	No
Cross-connect	Virtual circuit ID	No
Cross-connect	Point-to-point name	No
Cross-connect	Pseudowire name	No
Neighbor	IP Address (IPv4)	No
Neighbor	Pseudowire class	No
Neighbor	Pseudowire ID	No

## Label Switched Path

[Table 1-6](#) lists the Label Switched Path (LSP) support on the Huawei cartridge.

 **Note:**

IGP metric ranges are as follows: Absolute: 1 to 65535; Relative: -10 to 10.

**Table 1-6 LSP Support**

IP Service Activator Feature	Supported on Huawei VRP Cartridge
<b>LSP Module</b>	Yes
Primary Tunnel	Yes
Backup Tunnel	No
Bypass Tunnel	No
Setup Priority	Yes
Hold Priority	Yes
Affinity	Yes
Interior Gateway Protocol (IGP) Metric	Yes
Fast Reroute	Yes
Record Route	Yes
Label Distribution Protocol (LDP) Enabled	Yes

## IPsec

[Table 1-7](#) lists the IPsec support on the Huawei cartridge.

**Table 1-7 IPsec Support**

IP Service Activator Feature	Supported on Huawei VRP Cartridge
ipseccommand Configuration Policy	Yes
IPsec	Yes
IP Tunnel	Yes

## Configuring Huawei Options

The Huawei sample registry file is installed to the following location:

*install\_dir***Samples/huaweiSampleRegistry/sampleMIPSA\_registry.xml**

The Huawei sample options file is installed to the following location:

*install\_dir***Samples/huaweiSampleRegistry/options/huawei\_options.xml**

where *install\_dir* is the directory where you installed IP Service Activator.

To configure Huawei options:

1. Modify the following registry file:

*install\_dir***Config/NetworkProcessor/MIPSA\_registry.xml**

2. Add a Huawei capabilities file. For example:

```

<cartridgeUnit>
  <name>com.metasolv.serviceactivator.cartridges.huawei</name>
  <driverType>huawei</driverType>
  <deviceType useRegex="true">Huawei.*</deviceType>
  <osVersion useRegex="true">.*</osVersion>
  <smToDmQuery>com/metasolv/serviceactivator/cartridges/huawei/transforms/
sm2dm.xq</smToDmQuery>
  <dmValidation>com/metasolv/serviceactivator/cartridges/huawei/transforms/
dmValidation.xq</dmValidation>
  <dmToCliQuery>com/metasolv/serviceactivator/cartridges/huawei/transforms/
annotatedDm2Cli.xq</dmToCliQuery>
  <capabilities>huawei/capabilities/huawei_vrp3.xml</capabilities>
  <options>huawei/options/huawei_options.xml</options>
  <errorMessages>huawei/messages/errorMessages.xml</errorMessages>
  <warningMessages>huawei/messages/warningMessages.xml</warningMessages>
  <successMessages>huawei/messages/successMessages.xml</successMessages>
</cartridgeUnit>

```

**Table 1-8** lists the options that you can set in the Huawei cartridge file. The default value is used if an option is not defined.

**Table 1-8 Huawei Options**

Options	Default Value	Possible Values	Description
cartridge.huawei.qos.interface.defaultBandwidth.enable	true	true false	Indicates whether the command <code>qos reserved-bandwidth pct 100</code> should be generated by default for an interface associated with qos service. By default, the command is generated (option value of <b>true</b> ).
cartridge.huawei.qos.traffic.classifier.operator.generateForOneMatch	true	true false	Indicates whether the command <code>traffic classifier</code> should have operator or/and, if there is only one match. By default, the operator is generated (option value of <b>true</b> ).
cartridge.huawei.qos.traffic.policy.always.generate.undoShareMode	false	true false	Indicates whether the command <code>traffic policy</code> should have <code>undo share-mode</code> sub-command generated. By default, it does not have that sub-command.

**Table 1-8 (Cont.) Huawei Options**

Options	Default Value	Possible Values	Description
cartridge.huawei.qos.traffic.policy.always.generate.statisticsEnable	false	true false	Indicates whether the command <code>traffic policy should have statistics enable</code> sub-command generated. By default it does not have that sub-command.

## 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

For complete information on the Huawei platforms supported with the Huawei cartridge, see *IP Service Activator Installation Guide*.

## Operating Systems

For complete information on the supported operating systems for the Huawei cartridge, see *IP Service Activator Installation Guide*.

## Installing the Cartridge

For cartridge installation procedures, see *IP Service Activator Installation Guide*.

## Device Configuration

You must have your MPLS core setup to support VPNs. To configure the necessary functionality on Huawei devices, see the Huawei documentation. You can click on the **Documentation** link on the following URL:

<http://support.huawei.com/support/>

### Configuring the Network Processor to Accept Exact Names

You can configure the Network Processor to accept QOS names exactly as you enter them. Typically, Huawei devices restrict the length of some QOS-related names.

[Table 1-9](#) lists the QOS names.

**Table 1-9 QOS Names**

Name	Affected Command on Huawei Cartridge
Classifier Name	<code>traffic classifier <i>name</i></code>
FR Class Name	<code>fr class name</code> <code>fr-class <i>name</i> (interface context)</code>
QOS Policy Name	<code>qos policy <i>name</i></code> <code>apply policy <i>name</i> (fr class context)</code>
Behavior Name	<code>traffic behavior <i>name</i></code>

The limit for the length of these names is 1-31 characters. Even when you enter a name that is shorter than the limit, the Huawei device applies a method to shorten it.

To allow the Network Processor to accept QOS names as entered:

1. Go to the `/opt/OracleCommunications/ServiceActivator/Config/networkProcessor/com/Oracle/serviceactivator/networkprocessor` directory.
2. In the `default.properties` file, find the `huaweiAutoAdjustQOSNames` property.
3. Change the value to **false**.
4. Save and close the file.

The Network Processor now accepts the QoS names as you enter them.

#### **Note:**

If this property is set to false and you enter a name that exceeds the 31-character limit, you receive an error message.

## Supported Authentication Methods

The IP Service Activator Huawei cartridge supports the following authentication methods on all devices:

- Telnet with TACACS+
- SSH

## Sample Configuration

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
#
```

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