

Oracle® Communications IP Service Activator

Brocade IronWare Cartridge Guide

Release 7.2

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

About This Guide

This guide consists of the following sections:

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

Audience

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

Related Documents

For more information, see the following documents in the IP Service Activator documentation set:

- See *IP Service Activator Installation Guide* for system requirements and information on installing, upgrading and uninstalling IP Service Activator.
- See *IP Service Activator Administrator's Guide* for information and procedures related the duties a system administrator performs in monitoring and managing IP Service Activator.

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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 Guide*.

IP Service Activator Brocade IronWare Cartridge Features

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

General IP Service Activator Features

Table 1 lists the support for general IP Service Activator features on the Brocade IronWare cartridge.

Table 1 General IP Service Activator Features

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--------------------------------|---|---|
| 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 | No |
| 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 |

Table 1 (Cont.) General IP Service Activator Features

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--------------------|---|---|
| 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) | Yes |
| Supported Services | Service Assurance Agent (SAA) | No |
| Supported Services | Netflow | No |
| Supported Services | Dynamic User VPN | No |
| Supported Services | IPsec | No |
| Supported Services | Virtual Routing and Forwarding (VRF)-Aware IPsec | No |
| Supported Services | Label Switched Path (LSP) | No |
| Supported Services | Virtual Local Area Network (VLAN) | Yes |
| Supported Services | Base Configuration Policies | No |
| Supported Services | Layer 2 QoS | Yes |
| 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 |
| SDK | Service Cartridge Software Development Kit (SDK) | Yes |
| SDK | Configuration Policy SDK | Yes |

Layer 3 MPLS VPN

[Table 2](#) lists the Layer 3 MPLS VPN support on the Brocade IronWare cartridge.

Table 2 Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|---------------------------------|---------------------------------|---|
| Layer 3 MPLS VPN Support | Layer 3 MPLS VPN Support | Yes |
| Topology | Mesh | Yes |
| Topology | Hub and Spoke | Yes |
| Topology | Management | Yes |
| Addressing | Public IP | Yes |
| Addressing | Private IP | Yes |

Table 2 (Cont.) Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|-----------------|---|--|
| Addressing | Unnumbered | No |
| Addressing | Interface Description | No |
| VRF Table | VRF Export Map Reference | Yes |
| VRF Table | VRF Import Map Reference | Yes |
| VRF Table | VRF DHCP Helper | No |
| VRF Table | VRF Description | No |
| 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) | Yes |
| VRF Table | External Border Gateway Protocol (EBGP) Multipath Load Sharing | Yes |
| VRF Table | Enhanced Interior Gateway Routing Protocol (EIGRP) Multipath Load Sharing | No |
| VRF Table | Internal Border Gateway Protocol (IBGP) Multipath Load Sharing | Yes |
| VRF Table | EBGP and IBGP (EIGBGP) 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 Systems (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 |

Table 2 (Cont.) Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|-----------------|---|--|
| Routing Options | Multipath Internal and External Border Gateway Protocol (BGP) paths | 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 |
| 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 | No |
| Static Routing | Static Route to Null0 | Yes |
| BGP | BGP Network Statements | Yes |
| BGP | BGP Aggregate Statements | Yes |
| eBGP | eBGP | Yes |
| eBGP | EBGP AS Override | Yes |
| eBGP | EBGP Site of Origin | Yes |
| 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 | EBGP Advertise Address Family | No |
| eBGP | EBGP Local AS No Prepend | No |
| eBGP | EBGP Neighbor Description | Yes |
| eBGP | EBGP Soft Reconfiguration | Yes |
| eBGP | EBGP Router as Next Hop | No |
| eBGP | EBGP Neighbor weight | No |
| eBGP | EBGP Filters | No |
| eBGP | EBGP Prefix Limit | Yes |
| eBGP | EBGP Prefix Limit Restart | No |
| eBGP | EBGP Prefix Filters | Yes |

Table 2 (Cont.) Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|-------------|--|--|
| 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 |
| eBGP | EBGP Inbound Route Map | Yes |
| eBGP | EBGP Neighbor Site of Origin (SOO) | No |
| eBGP | External Route Map | Yes |
| eBGP | Generated Route Map | Yes |
| eBGP | EBGP Local Preference | Yes |
| eBGP | EBGP Site of Origin Route-map | Yes |
| eBGP | Route Map Name | Yes |
| eBGP | EBGP Outbound Route Map | Yes |
| eBGP | External Route Map | Yes |
| eBGP | EBGP Route Dampening | No |
| eBGP | Redistribution into 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) | Yes |
| eBGP | BGP Redistribution Metric and Policy from OSPF | Yes |
| eBGP | BGP Redistribution Metric and Policy from EIGRP | No |
| eBGP | EBGP Neighbor Transport Connection Mode Active/Passive | No |
| eBGP | EBGP Neighbor Transport PathMTUDiscovery | No |
| eBGP | EBGP Neighbor Transport Single Session/MultiSession | No |
| eBGP | EBGP Neighbor | No |
| eBGP | EBPP Log Updown | No |
| eBGP | Default Route | Yes |

Table 2 (Cont.) Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|-------------|--|--|
| OSPF | OSPF | Yes |
| OSPF | OSPF Area | Yes |
| OSPF | OSPF Area Type | Yes |
| OSPF | OSPF not-so-stubby area (NSSA) Type 7 Redistribution | No |
| OSPF | OSPF Maximum Paths | Yes |
| OSPF | OSPF Cost | Yes |
| OSPF | OSPF BGP Redistribution Tag | Yes |
| OSPF | OSPF Distribute In Filter | No |
| OSPF | OSPF Distribute Out Filter | No |
| OSPF | OSPF Shortest Path First (SPF) Throttling | Yes |
| OSPF | OSPF MD5 Authentication | Yes |
| OSPF | OSPF Summary Addresses | Yes |
| OSPF | Suppress Advertise | No |
| OSPF | Tag Value | No |
| OSPF | Redistribution into OSPF | Yes |
| OSPF | OSPF Redistribution Metric and Policy from Connected | Yes |
| OSPF | OSPF Redistribution Metric and Policy from Static | Yes |
| OSPF | OSPF Redistribution Metric and Policy from RIP | No |
| OSPF | OSPF Redistribution Metric and Policy from BGP | Yes |
| OSPF | OSPF Redistribution Metric and Policy from EIGRP | No |
| OSPF | Default Route | Yes |
| RIP | RIP | Yes |
| RIP | RIP Ignore Routes from Source | Yes |
| RIP | RIP Passive Interface | No |
| RIP | Redistribution into RIP | Yes |
| RIP | RIP Redistribution Metric and Policy from Connected | Yes |
| RIP | RIP Redistribution Metric and Policy from Static | Yes |
| RIP | RIP Redistribution Metric and Policy from OSPF | No |
| RIP | RIP Redistribution Metric and Policy from BGP | Yes |

Table 2 (Cont.) Layer 3 MPLS VPN Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|-------|--|---|
| RIP | RIP Redistribution Metric and Policy from EIGRP | No |
| RIP | Default Route | No |
| EIGRP | EIGRP | No |
| 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 Metrics and Policy from Connected | No |
| EIGRP | EIGRP Redistribution Metrics and Policy from Static | No |
| EIGRP | EIGRP Redistribution Metrics and Policy from BGP | No |
| EIGRP | EIGRP Redistribution Metrics and Policy from OSPF | No |
| EIGRP | EIGRP Redistribution Metrics and Policy from RIP | No |

Layer 2 VLL

Table 3 lists the Layer 2 VLL support on the Brocade IronWare cartridge.

Table 3 Layer 2 VLL Support

| Area | IP Service Activator Feature | Supported on Brocade IronWare 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 | No |
| Martini Point-to-Point | ATM Cell | No |

Table 3 (Cont.) Layer 2 VLL Support

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

VLAN

Table 4 lists the VLAN support on the Brocade IronWare cartridge.

Table 4 VLAN Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|---|
| VLAN (TLS L2 Site) | No |
| Tagged VLAN | No |
| Untagged VLAN | No |
| VLAN Module | Yes |
| Tagged VLAN | Yes |
| Untagged VLAN | Yes |
| Queue-in-Queue VLAN | Yes |
| vlanDefinitions | Yes |
| VLAN State | Yes |
| VLAN Media (Type): Ethernet | Yes |
| Maximum Transmission Unit (MTU) | Yes |
| Security Association Identifier (SAID) | Yes |
| vlanInterface | Yes |
| Tagged VLAN: Encapsulation Type | Yes |
| Encapsulation Type: dot1 q | Yes |
| Encapsulation Type: isl | Yes |
| Tagged VLAN: Switchport No Negotiate | Yes |
| Tagged VLAN: Native VLAN | Yes |
| Tagged VLAN: VLAN Range | Yes |
| Untagged VLAN | Yes |
| Queue-in-Queue VLAN | Yes |

Virtual Private LAN Service

Table 5 lists the virtual private LAN service (VPLS) support on the Brocade IronWare cartridge.

Table 5 VPLS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|------------------------------|---|
| VPLS (TLS L2-Site) | Yes |
| Port Based | Yes |
| Port and VLAN Tagged | Yes |

Quality of Service

[Table 6](#) lists the Quality of Service (QoS) support on the Brocade IronWare cartridge.

Table 6 QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|---|---|
| Layer 3 Qos Support | Partially |
| Access Rule Support | 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 Destination IPv4 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 |
| Access Rule Classification Based on IPv4 Type of Service (TOS) Codepoints | No |
| Access Rule Classification Based on URL | No |
| Access Rule Classification Based on Multipurpose Internet Mail Extensions (MIME) Type | No |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|--|
| 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 |
| Access Rule Classification Based on Input Interface Traffic | No |
| Access Rule Classification Based on VLAN Traffic | No |
| Access Rule Classification Based on Port Traffic | No |
| Access Rule Classification Based on Sub Application | No |
| Traffic Classification Rules | No |
| Inbound Traffic Classification Rule Support | No |
| Outbound Traffic Classification Rule Support | No |
| Named ACL Support | No |
| Traffic Classification Rule Criteria | |
| Traffic Classification Based on Source Media Access Control (MAC) Address | No |
| Traffic Classification Based on Destination 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|--|
| 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 |
| 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 Fragments | No |
| Traffic Classification Marking | No |
| Marking DiffServ Code Points | No |
| Marking IPv4 IP Precedence | No |
| Marking IPv4 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 |
| Traffic Policing Rules | 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|---|--|
| 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 |
| 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 |
| Standard Per Hop Behaviour (PHB) Group Support | 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|--|
| 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 Priority Queuing 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 |
| PHB Outbound WRED | No |
| PHB WRED: Differentiated Services Code Point (DSCP) Support | No |
| PHB WRED: IPv4 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|--|
| 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 |
| 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 |
| Modular Quality of Service Command-Line Interface (MQC)-PHB Support | No |
| MQC-PHB Classification Criteria | No |
| 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|---|--|
| 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 URL | No |
| Traffic Classification Based on MIME Type | No |
| Traffic Classification Based on Application Protocol | No |
| Traffic Classification Based on MPLS EXP Value | No |
| Traffic Classification Based on ATM Cell Loss Priority | No |
| Traffic Classification - Nested Class Map | No |
| Traffic Classification Match Any Support | No |
| Traffic Classification Exclude Option | No |
| Traffic Classification Based on TCP Flag Bits | No |
| Traffic Classification Based on ICMP Flag Values | No |
| Traffic Classification Based on IPv4 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) | No |
| LLQ Inbound | No |
| LLQ Outbound | No |
| LLQ Absolute Bandwidth Support | No |
| LLQ Percentage Bandwidth Support | No |
| LLQ Percentage Remaining Bandwidth Support | No |
| LLQ Device Default Bandwidth | No |
| LLQ Burst Support | No |
| Class Based Weighted Fair Queue (CBWFQ) | No |
| CBWFQ Inbound | No |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|--|
| CBWFQ Outbound | No |
| CBWFQ Absolute Bandwidth Support | No |
| CBWFQ Percentage Bandwidth Support | No |
| 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 |
| MQC-PHB Two Rate Policing | No |
| MQC-PHB Two Rate Policing Inbound | No |
| MQC-PHB Two Rate Policing Outbound | No |
| MQC-PHB Two Rate Policing Absolute Rate | No |
| MQC-PHB Two Rate Policing Percent Rate | No |
| MQC-PHB Policing Actions | No |
| MQC-PHB Policing: Drop | No |
| MQC-PHB Policing: Set IPv4 IP Precedence | No |
| MQC-PHB Policing: Set DiffServ Code Points | No |
| 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 |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|---|--|
| 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 | No |
| MQC-PHB Marking Inbound | No |
| MQC-PHB Marking Outbound | No |
| MQC-PHB Marking: DiffServ Code Point Support | No |
| MQC-PHB Marking: MPLS Experimental Bit Support | No |
| MQC-PHB Marking TopMost MPLS EXP Support | No |
| MQC-PHB Marking Frame Relay Discard Eligibility Bit Support | No |
| MQC-PHB Marking ATM Cell Loss Priority Support | No |
| MQC-PHB Marking IPv4 IP Precedence | No |
| MQC-PHB Marking IPv4 TOS | No |
| MQC-PHB Marking IPv4 Discard Class | No |
| MQC-PHB Marking Trust Type | No |
| MQC-PHB Congestion Avoidance | No |
| MQC-PHB Inbound Congestion Avoidance | No |
| MQC-PHB Outbound Congestion Avoidance | No |
| Tail Drop Limit | No |
| Tail Drop Default | No |
| MQC-PHB WRED Device Default Parameters | No |
| MQC-PHB WRED IP Precedence Support | No |
| MQC-PHB WRED DSCP Support | No |
| MQC-PHB Nesting Support | No |
| MQC-PHB Inbound Nesting | No |

Table 6 (Cont.) QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|---|
| 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 QoS

[Table 7](#) lists the Layer 2 QoS support on the Brocade IronWare cartridge.

Table 7 Layer 2 QoS Support

| IP Service Activator Feature | Supported on Brocade IronWare Cartridge |
|--|---|
| catOSPolicingRule Configuration Policy | No |
| Policing Rule IP Classification Criteria | No |
| Classification Based on Trust Type | No |
| Classification Based on DiffServ Code Point | No |
| Classification Based on Source IPv4 Address | No |
| Classification Based on Destination IPv4 Address | No |
| Policing Rule MAC Classification Criteria | No |
| Classification Based on Trust Type | No |
| Classification Based on DiffServ Code Point | No |
| Classification Based on Source MAC Address | No |
| Classification Based on Destination MAC Address | No |
| Policing Rule IPX Classification Criteria | No |
| Classification Based on Trust Type | No |
| Classification Based on DiffServ Code Point | No |
| Classification Based on Source MAC Address | No |
| Classification Based on Destination MAC Address | No |
| Classification Based on Protocol | No |
| Classification Based on Source IPX Address | No |
| Classification Based on Destination IPX Address | No |
| rate-limit Configuration Policy | Yes |
| qosCosAttachment Configuration Policy | No |

Unsupported Features

The following features are not supported with the IP Service Activator Brocade IronWare cartridge:

- Service Assurance
- Netflow
- DU VPN
- LSP
- IPsec
- VRF-Aware IPsec
- VRF and IP Multicast
- VRF Route Maps
- Interface Configuration Management
- Base Configuration Policies

Brocade Hardware and Software

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

Operating Systems

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

Installing the Cartridge

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

Installing Configuration Policies

IP Service Activator supports extensible configuration policies that are visible through the UI. The configuration policies include one CFG file and one or more compressed HTML files.

For the configuration policy installation procedure, see *IP Service Activator Installation Guide*.

Device Configuration

To configure Brocade devices, see the Brocade documentation:

<http://www.brocade.com/data-center-best-practices/resource-center/index.page>

Supported Authentication Methods

The IP Service Activator Brocade IronWare cartridge supports *Telnet with TACACS+* authentication method on all devices.

Sample Configuration

Following is a sample Brocade IronWare cartridge configuration:

```

!
ip vrf IPSA_1:191548
  rd 1:191548
  route-target export 1:196660
  route-target import 1:196660
  import map importMap
  export map exportMap
!
ip route vrf IPSA_1:191548 192.168.100.0/24 192.168.15.2
!
interface ethernet 2/15
  enable
ip vrf forwarding IPSA_1:191548
  ip address 192.168.15.1/24
!
router bgp
  local-as 1
  address-family ipv4 unicast vrf IPSA_1:191548

  exit-address-family
!

```

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