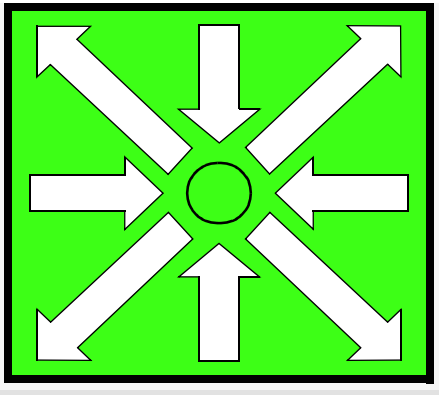
F5 Big-IP LoadBalancer



Supports Management Module SM-F5N1000

APRISMA SPECTRUM® POWERED SOLUTIONS

Device Management

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Introduction

This section introduces the SPECTRUM Device Management documentation for F5 Big-IP LoadBalancer devices.

This introduction to the F5 LoadBalancer documentation contains the following information:

Purpose and Scope

Use this documentation as a guide for managing F5 Big-IP LoadBalancer devices with the SPECTRUM management module SM-F5N1000. This documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot Load Balancer devices through software models in your SPECTRUM database.

Only information specific to the supported management module is included under this topic.

For general information about device management using SPECTRUM and for explanation of basic SPECTRUM functionality, and navigation techniques, refer to the documentation listed under *Required Reading*.

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documentation topics listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How To Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***

- ***SPECTRUM Software Release Notice***

Supported Devices

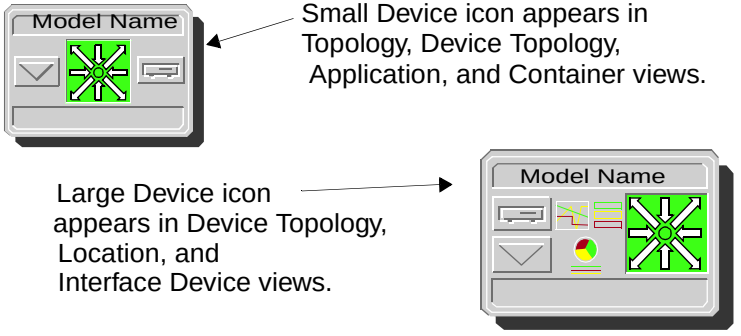
The SPECTRUM management module SM-F5N1000 currently allows you to model different types of F5 Load Balancer devices as described below.

The **F5 Big-IP Load Balancer** is a device which provides the means to load balance servers, caches, firewalls, and VPN gateways. It contains four load balancing modes, and three modes for maintaining connections to servers. This device supports Intelligent traffic control, Secure Network Address Translation (SNAT), performance monitoring, full TCP/IP protocol support, VLAN trunking, and GB Ethernet interface.

The SPECTRUM Model

SPECTRUM uses a single device model type, **BigIPLoadBlncr**, for modeling any of the supported F5 devices. Load balancer models are represented in SpectroGRAPH views by Device icons. As Figure 1 shows, the appearance of the Device icon varies slightly depending on the kind of view it appears in.

Figure 1: Small and Large Device Icons



The device-specific Icon Subviews menu options available from the Device icon are listed below.

Option	Accesses the...
Fault Management	Fault Management view, which is described in the ***How to Manage Your Network with SPECTRUM*** documentation.
Device	*Device Views* (Page 9)
DevTop	*Device Topology Views* (Page 13)
Application	*Application Views* (Page 15)
Configuration	*Configuration Views* (Page 44)
Model Information	*Model Information Views* (Page 48)
Primary Application	Menu options that let you select Routing, MIB-II, or UCDApp as the primary application.
Device Web Management	Default Web Browser. This option allows you to manage the device through a Web Browser.

The rest of the documentation for this management module is organized according to view type, as follows.

- *Device Views* (Page 9)
- *Device Topology Views* (Page 13)
- *Application Views* (Page 15)
- *Configuration Views* (Page 44)
- *Model Information Views* (Page 48)

Tasks

This section lists device management tasks alphabetically and provides links to descriptions of the views and/or table used to perform the task.

Application Information (examine)

- *Application Views* (Page 15)

Clear Cache (set)

- *UCD Version Information View* (Page 42)

Debugging (turn on or off)

- *UCD Version Information View* (Page 42)

Device (configure)

- *Device Configuration View* (Page 44)

Device Topology (examine)

- *Device Topology Views* (Page 13)

Device View (monitor)

- *Device Views* (Page 9)

Error Fix (Set)

- *UCD Extensible Commands Table View* (Page 40)
- *UCD Process Table* (Page 41)

F5 Configuration Utility web application (Access)

- *Device Web Management* (Page 47)

Interface Mask and Address (examine)

- *Secondary Address Panel* (Page 12)

Model Information (examine)

- *Model Information Views* (Page 48)

Performance Views (examine)

- *Performance View* (Page 46)

Restart Agent (set)

- *UCD Version Information View* (Page 42)

Device Views

This section describes the Device views and subviews available for models F5 Big-IP LoadBalancer devices in SPECTRUM.

Device views use icons and labels to represent the modeled device and its components, such as modules, ports, and applications. There is one type of Device view:

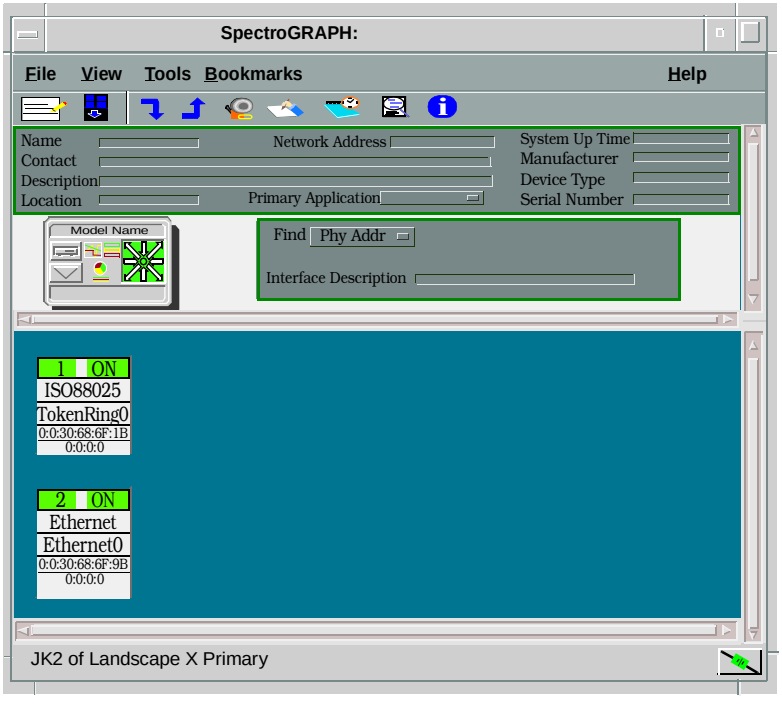
- *Interface Device View*

Interface Device View

Access: *From the **Icon Subviews** menu for the Device icon, select **Device > Interface.***

This view provides dynamic configuration and performance information for each of the device's serial/network/I/O ports, which are represented by Interface icons in the bottom panel of the view, as shown in the figure. The middle panel of the view also displays a Device icon, which allows you to monitor the device operation and access other device-specific views.

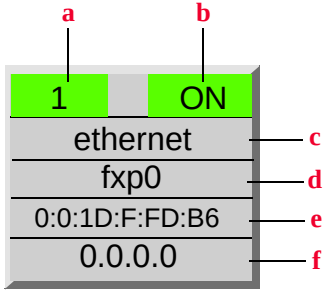
Figure 2: Interface Device View



Interface Icons

Figure 3 shows a close-up of an Interface icon from an Interface Device view. Most of the informational labels on the icon also provide double-click access to other views, as explained in the following label descriptions.

Figure 3: Interface Icon



- **a** *Interface Number Label*
- **b** *IF Status Label*
- **c** *Interface Type Label*
- **d** *Network Type Label*
- **e** *Physical Address Label*
- **f** *IP Address Label*

Interface Number Label

This label displays the interface number.

IF Status Label

This label displays the current Operational Status of the interface (see Table 1). Note that the background color of the label also depends on the interface's current Administrative Status, which is set by the user (see *Interface Status View* (Page 12)). This view can be accessed by double-clicking the label.

Table 1: Interface Status Label Colors

Color	Operational Status	Administrative Status	Label Text
Green	ON	ON	ON
Blue	OFF	OFF	OFF
Yellow	OFF	ON	OFF
Red	Testing	Test	Test

Interface Type Label

This label identifies the type of interface—e.g., Ethernet, FDDI, Other, etc. Double-click this label to access the Interface Configuration view. See the ***SPECTRUM Views*** documentation.

Network Type Label
This label identifies the type of network the interface is connected to. Double-click the label to open the Model Information view for the interface.

Physical Address Label
This label displays the physical (MAC) address of the interface. Double-click the label to open the Address Translation Table (AT),

IP Address Label
This label displays the IP address for the interface. Double-click the label to open the *Secondary Address Panel* (Page 12), which allows you to change the address and mask for this interface.

Interface Icon Subviews Menu

Table 2 lists the device specific Icon Subviews menu options and the views to which they provide access.

Table 2: Interface Icon Subviews Menu

Option	Opens the . . .
Detail	Interface Detail view, which displays Packet, Error, and Discard Breakdown pie charts.
IF Status	*Interface Status View* (Page 12).
IF Configuration	Interface Configuration view (see ***SPECTRUM Views***).
Address Translation Table	Address Translation Table (AT), (see ***SPECTRUM Views***).
Secondary Address Panel	*Secondary Address Panel* (Page 12).
Thresholds	Interface Threshold view, which allows you to set the on/off alarm thresholds for load, packet rate, error rate, and % discarded.
Model Information	*Model Information Views* (Page 48).

Interface Status View

Access: *From the **Icon Subviews** menu for the Interface icon in the Interface Device view, select **IF Status**.*

This view provides information on the operational status of the interface and allows you to enable or disable the port.

Operational Status

The current state of the interface (`ON`, `OFF`, or `Testing`).

Administrative Status

This button allows you to select the desired operational state of the interface (`ON`, `OFF`, or `Testing`).

Secondary Address Panel

Access: *From the **Icon Subviews** menu for the Interface icon in the Interface Device view, select **Secondary Address Panel**.*

This panel provides a table of IP addresses and masks obtained from the Address Translation table within the device's firmware. You can change the current address displayed in the **IP Address** field by selecting an entry from the table in this panel and clicking the **Update** button.

Device Topology Views

This section provides brief descriptions of the Device Topology views available for models of F5 Big-IP LoadBalancer devices in SPECTRUM.

Device Topology views show the connections between a modeled device and other network entities. There are two kinds of Device Topology views available for F5 Load Balancer models:

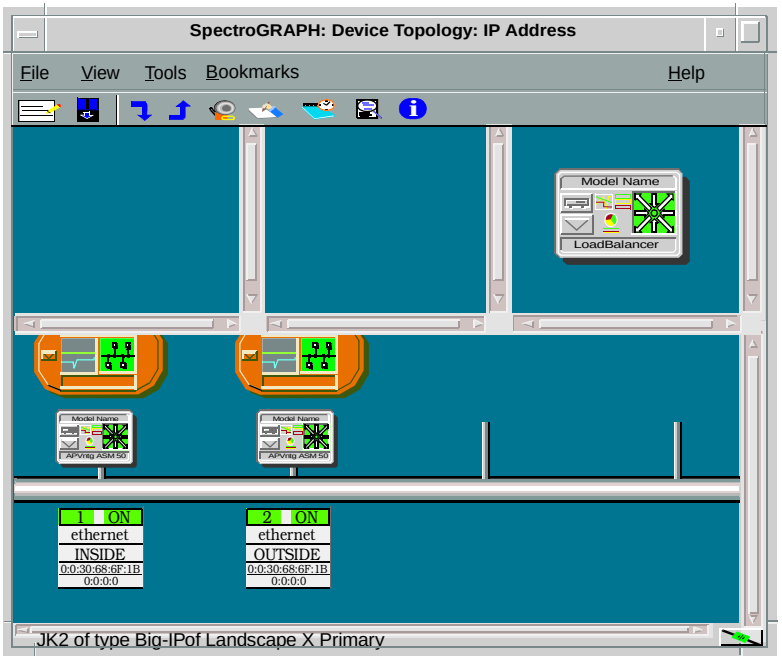
- *Interface Device Topology View*

Interface Device Topology View

Access: *From the* ***Icon Subviews*** *menu for the Device icon, select* ***DevTop > Interface****.*

The lower panel of the Interface Device Topology view (Figure 4) uses interface icons to represent the device's serial/network I/O ports. These icons provide the same information and menu options as those in the *Interface Device View* (Page 9). If there is a device connected to a particular interface, a device icon appears on the vertical bar above the interface icon along with an icon representing the network group that contains the device.

Figure 4: Interface Device Topology



Cablewalk and Cablewalk List View

Access: *From the* ***Icon Subviews*** *of the device icon in the* ***Device Topology view****.*

This view is described in detail in the ***SPECTRUM Views*** documentation.

Application Views

This section describes the main Application view and the associated application-specific subviews available for models of F5 Big-IP LoadBalancer devices in SPECTRUM.

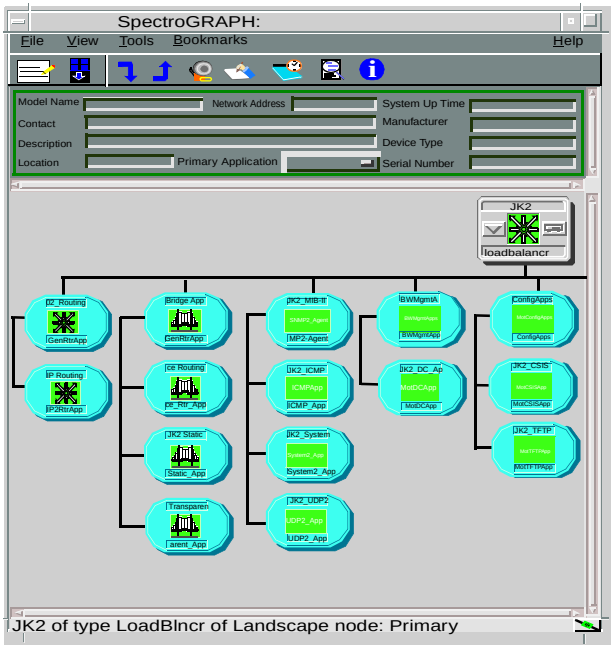
Access: *From the **Icon Subviews** menu for the Device icon, select **Application**.*

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews.

Figure 5 shows an Application view in its default mode (Icon) where each of the application models is represented by an Application icon. The Application icons are arranged hierarchically under a Device icon, with major applications in the top row and their respective minor applications stacked directly below.

If you prefer to see applications displayed by name only, in a single vertical list, select **View > Mode > List**.

Figure 5: Main Application View



Supported Applications

SPECTRUM's applications can be grouped within two general categories as follows:

- *Common Applications*, below
- *Device-Specific Applications* (Page 17)

Common Applications

For the most part, these applications represent the non proprietary MIBs supported by your device. Listed below (beneath the title of the SPECTRUM document that describes them) are some of the common applications currently supported by SPECTRUM.

Note: The documents listed are available for viewing at: www.aprisma.com/manuals/

- ***Routing Applications***
  - Generic Routing
  - Repeater
  - AppleTalk
  - DECnet
  - Open Shortest Path First
- ***Bridging Applications***
  - Spanning Tree
  - Static
  - Transparent
  - PPP Bridging
  - Source Routing
  - Translation
- ***MIB II Applications***
  - SNMP
  - IP
  - ICMP
  - TCP
  - System2
  - UDP
- ***Technology Applications***
  - APPN
  - ATM Client
  - DHCP
  - PNNI
  - rfc1316App
  - DLSW

- ***Transmission Applications***
  - FDDI
  - Point-to-Point
  - DS1
  - DS3
  - RS-232
  - WAN
  - Frame Relay
  - Token Ring
  - Ethernet
  - Fast Ethernet
  - rfc1317App
  - rfc1285App
  - rfc1315App
  - 802dot11App
  - SONET
- ***DOCSIS Applications***
  - DOCSISCblDvApp
  - DOCSISQOSApp
  - DOCSISBPI2App
  - DOCSISBPIApp
  - DOCSISIFApp
- ***Digital Subscriber Line Applications***
  - ADSL

Device-Specific Applications

SPECTRUM imports the following device-level proprietary MIBs into its database:

- LOAD-BAL_SYSTEM_MIB
- UCD-SNMP-MIB

These MIBs can be used in conjunction with SPECTRUM's optional customization products (referred to as the Level I Tool Kits) to create application models and views that display the condition of selected MIB objects.

Note: Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

This device contains the following device-specific applications:

- *Big-IP Application* (Page 18)
- *UCD Application* (Page 38)

Big-IP Application

This application contains the following application-specific subviews:

F5 Big-IP General BIG/IP Scalars

Access: *From the **Icon Subviews** menu for the BigIPApp Application icon, select **Configuration.***

Uptime
The uptime of this device; not the uptime of the SNMP agent.

Total Connections
The total number of connections this balancer has serviced.

Current Connections
The number of current connections.

Maximum Connections
The maximum number of connections that this balancer has serviced at one time.

Packets In
The total count of all packets read off of the network.

Packets In Hi32
Contains the high order 32-bits of the **Packets In** counter. To calculate the total for the **Packets In** quantity, multiply **Packets In Hi32** by 4,294,967,296 (2^32) and add **Packets In**.

Packets Out
The total count of all packets written to the network.

Packets Out Hi32
The high order 32-bits of the **Packets Out** counter. To calculate the total for the **Packets Out** quantity, multiply **Packets Out Hi32** by 4,294,967,296 (2^32) and add **Packets Out**.

Bits In
The total number of bits read off the network.

Bits In Hi32
The high order 32-bits of the **Bits In** counter. To calculate the total for the **Bits In** quantity, multiply **Bits In Hi32** by 4,294,967,296 (2^32) and add **Bits In**.

Bits Out
The total count of all bits written to the network.

Bits Out Hi32
The high order 32-bits of the **Bits Out** counter. To calculate the total for the **Bits Out Hi32** quantity, multiply **Bits Out Hi32** by 4,294,967,296 (2^32) and add **Bits Out**.

Port Deny
The number of port denies that have occurred.

Inbound Pckt drops
The number of inbound packets that have been dropped.

Outbound Pckt drops
The number of outbound packets that have been dropped.

Active
Indicates whether the balancer is active or in standby mode.

Mirror Enabled
Displays whether mirroring is enabled on this load balancer.

Reset Counters
Displays whether counters are set to reset or unreset on this load balancer.

Node Ping Interval
The node ping interval in seconds.

NodeTimeout
The node timeout interval in seconds.

Loadbalancer Mode
The global load balance mode.

Watch Dog Card State
The watch dog card state.

Snat Connx Limit
The number of simultaneous connections allowed through a SNAT.

SnatTCPIdleTimeout
Default connection timeout for SNAT TCP connections.

SnatUDP IdleTimeout
Default timeout for SNAT UDP connections.

Gateway Failsafe
Indicates whether gateway failsafe pinging is enabled.

Unit Id(s)
Unit id(s) for this load balancer.

Memory Used
Memory used by the load balancer kernel.

MemoryTotal
Total memory available to the load balancer kernel.

CPU Temp
The CPU temperature (degrees celsius).

Fan Speed (RPM)
Fan speed (revolutions per minute).

F5 Big-IP Interface Tables View

Access: *From the **Icon Subviews** menu for the BigIPApp Application icon, select **Interface Config**.*

This view contains the following information:

Interface Number
The number of interfaces on this Big-IP.

Interface Table

This table contains the following entries:

Interface
The name of the interface.

IP Addresses
The list of IP address on this interface.

IF Dstn
This is a destination interface.

IF Src
This is a source interface.

Timeout (sec)
The seconds before a failout is triggered in failsafe mode.

IFArmed
The interface will be armed if the interface failsafe mode is activated.

VLANSEnbld
The VLANs enabled for this device.

MasqueradeAddress
The MAC masquerade address for this interface.

Last TimeChgd
The last time the interface attributes were modified.

I/F Speed
The speed of this interface.

FullDuplex
Is this interface operating in full duplex mode.

Interface IP addresses

Address number
The number of interface IP addresses on this Big-IP.

IF Address Table

This table contains information about the Big/IP interface IP addresses. It contains the following values:

IP Address
The IP address for this interface IP address.

I/F Name
The name of the interface for this IP address.

Netmask
The netmask for this interface IP address.

Broadcast
The broadcast address for this interface IP address.

Type
The type for this interface IP address.

Unit Id
The unit identifier for this interface IP address.

VLAN Tag
The VLAN tag for this interface IP address.

F5 Big-IP Pool Configuration View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **Pool Configuration**.*

Pool Table

This table contains information about the Big-IP pools, and displays the following:

Pool number
The number of pools on this Big-IP.

Pool Name
The name of this pool.

Pool LB Mode
The Load Balance mode of this pool. Possible modes are `roundrobin`, `ratio`, `fastest`, `leastConn`, `predictive`, `observed`, `priority`, `ratioNodeAddress`, `priorityNodeAddress`, `leastConnNodeAddress`, and `globalDefault`.

Dependent
Whether or not the pool is dependent.

Member Qty
The number of members in this pool.

PoolBitsIn
The number of bits in this pool.

BitsInHi32
The high order 32-bits of the number of bits in this pool.

PoolBitsOut
The number of bits out for this pool.

BitsOutHi32
The high order 32-bits of the number of bits out for this pool.

PcktsIn
The total of packets in this pool.

PktsInHi32
Contains the high order 32-bits of the **Packets In** counter.

Pkts Out
The total of packets out of this pool.

PktsOutH32
The high order 32-bits of the **Packets Out** counter.

PoolMaxCon
The maximum number of connections the members of this pool have had open at any one time.

CurrentCon
The current number of connections the members of this pool have open.

TotalCon
The total number of connections the members of this pool have served since the pool started.

PrsistMode
The persistence mode for this pool. Possible modes are `none`, `simple`, `sticky`, `cookie`, and `ssl`.

SSL Timeout
The timeout time in seconds for SSL persistence for this pool.

SmplTimout
The timeout time in seconds for simple persistence for this pool.

SimpleMask
The simple persistence mask for this pool.

StickyMask
The addresses matching this mask will have Destination Address Affinity if Server Sticky is true.

CookieMode
The cookie mode used with cookie persistence mode. Possible modes are `unspecified`, `insert`, `rewrite`, `passive`, and `hash`.

CookieExpr
The persistent cookie expiration time in seconds for this pool.

CookieHashName
The cookie hash name for this pool.

CkHshOfset
The cookie hash offset for this pool.

CkHashLeng
The cookie hash length for this pool.

Pool Member Table

This table displays the following information.

Pool Member Number
The number of pool members on this Big-IP.

Member Pool name
The name of the pool.

MemberIPAddress
The IP address of this pool member.

Port
The port of this pool member.

Maintnnc
Whether or not this pool is in maintenance mode.

MembrRatio
The Load Balancing ratio of the member within the pool.

MPriority
The priority level of the member within the pool. Used by the priority member load balancing mode.

MmbrWeight
The weight of the member within the pool.

MRipeness
The current load balancing state in the member load balancing mode.

MemBitsIn
The total bits in for this pool member.

MBtsInHi32
The high order 32-bits of the total bits in for this pool member.

MemBitsOut
The total bits out for this pool member.

MBtsOtHi32
The high order 32-bits of the total bits out for this pool member.

Pkts In
The total packets in for this pool member.

PktsInHi32
The high order 32-bits of the total packets in for this pool member.

Pkts Out
The total packets out for this pool member.

PktsOutHi32
The high order 32-bits of the total packets out for this pool member.

MmbrConLmt
The member connection limit.

MmbrMaxCon
The maximum number of connections this pool member can have open at any one time.

MmbrCurCon
The current number of connections this pool member has open.

MmbrTotCon
The total number of connections that this pool number has served since starting a pool.

F5 Big-IP Secure Socket Layer Proxy Table View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **SSL Proxy Table**.*

Number
The number of Secure Socket Layer (SSL) proxies on this Big-IP.

OrigIPAddress
The original IP address of this SSL proxy.

OrigPort
The original port of this SSL proxy.

DestIPAddress
The destination IP address of this SSL proxy.

DestPort
The destination port of this SSL proxy.

Netmask
The netmask of this SSL proxy.

Broadcast
The broadcast address of this SSL proxy.

UnitID
The unit ID of this SSL proxy.

Enabled
Displays whether this SSL proxy is enabled or disabled.

Interface Name
The interface associated with this SSL proxy.

Last Hop Pool
The name of the last hop pool for this SSL proxy.

F5 Big-IP Virtual Address Configuration View

Access: *From the **Icon Subviews** menu for the BigIPApp Application icon, select **Virtual Address Config.***

Virtual Address Table

This table contains the following information:

VirtAddrNum
The number of virtual addresses on this device.

IP Address
The IP address for this virtual server.

Addr Status
The status of the server, whether it is in maintenance mode.

ConLmt
The total number of connections this virtual address can support at one time.

Net Mask
The net mask for this virtual address.

Vddr Broadcast
The broadcast address for this virtual address.

Interface
The name of the network interface that this address is attached to.

FailOver Flags
The failover flags for this virtual address.

Octets In
The number of octets received from the network from this virtual server.

OctsInHi32
The high order 32-bits of the number of octets received from the network from this virtual server.

Octets Out
The number of octets sent to the network from this virtual server.

OctsOutHi32
The high order 32-bits of the number of octets sent to the network from this virtual server.

Virtual Addresses Table2

IPAddress
The IP address for this virtual server.

PacketsIn
The number of packets received from the network from this virtual server.

PktsInHi32
The high order 32-bits of the number of packets sent to the network from this virtual server.

PacketsOut
The number of packets sent to the network from this virtual server.

PktsOutH32
The high order 32-bits of the number of packets sent to the network from this virtual server.

CurCon
The number of connections currently open on this virtual server.

MaxCon
The maximum number of connections this virtual server has had open at any one time.

TotCon
The total number of connections this virtual server has had since it started.

Unit ID
The unique identifier of this virtual server.

F5 Big-IP Virtual Server Configuration View

Access: *From the **Icon Subviews** menu for the BigIPApp Application icon, select **Virtual Server Config.***

Virtual Server Table1

This table contains the following information:

VirtServerNum
The number of virtual servers on this device.

VservIPAddress
The IP address of this virtual server.

Port
The port for this virtual server.

VServ Status
The status of the virtual server.

ConLm
The total number of connections this virtual server can support at one time.

ApProtocol
The application tunnelling protocol this virtual server uses.

ApPrtclTmO
The persistence timeout for this application protocol session.

Reaper
The amount of idle time before we reap an application protocol session.

PersistTmO
The timeout for persistence on this connection.

PersistMsk
The IP addresses matching this mask will have persistent connection. Those not covered by this mask will not.

SrvrStcky
Indicates whether the Destination Address Affinity turned on for this connection.

VSrvrStickyMask
The addresses matching this mask will have Destination Address Affinity if the virtual server sticky is true.

Failover Flags
The failover flag for this virtual server.

Virtual Server Table2

VServ IPAddress
The IP address of this virtual server.

Port
The port for this virtual server.

OctetsIn
The number of octets received from the network from this virtual server.

OctsInHi32
The high order 32-bits of the number of octets received from the network from this virtual server.

OctetsOut
The number of octets sent to the network from this virtual server.

OctsOutH32
The high order 32-bits of the number of octets sent to the network from this virtual server.

Packets In
The number of packets received by the network from this virtual server.

PcktsInH32
The high order 32-bits of the number of packets received by the network from this virtual server.

Packets Out
The number of packets sent to the network from this virtual server.

PcktsOtH32
The high order 32-bits of the number of packets sent to the network from this virtual server.

CurCon
The number of connections currently open on this virtual server.

Virtual Server Table3

Vserv IPAddress
The IP address of this virtual server.

Port
The port for this virtual server.

MaxCon
The maximum number of connections this virtual server has had open at any one time.

TotCon
The total number of connections this virtual server has served since the server started.

SSL New
The number of new SSL sessions on this virtual server.

SSL Hits
The number of lookup successes in the SSL session id cache for valid sessions ids.

SSL Timeouts
The number of lookup successes in the SSL session id that have already been reaped.

SSL Misses
The number of lookup failures in the SSL session id cache.

Cookie Mth
The cookie persistence method for this virtual server.

Server Rule
The load balancing rule used by this virtual server.

Server Pool
The load balancing pool used by this virtual server.

Snat Translation Address View

Access: *From the **Icon Subviews** for the BigIPApp icon, select **Snat View > Snat Configuration**.*

Snat Translation Address Table1

A table which contains all of the Secure Network Address Translation (SNAT) entries. It contains the following information:

SnatTransAddress
The Snat Translation Address.

Enabled
Indicates whether this Translation Address is `enabled` or `disabled`.

Interface
The name of the interface that this translation address exists on.

Address
The IP address to the outside world for this SNAT.

Netmask
The network mask for the SNAT Translation address.

Broadcast
The broadcast address for the SNAT Translation Address.

SecsCollct
The number of seconds we have been collecting statistics for this port.

SnatBitsIn
The total bits in for this SNAT.

BitsInHi32
The total bits in for this SNAT.

SntBitsOut
The total bits out for this SNAT.

BitsOutH32
The upper 32-bits of the total number of bits out for this SNAT.

Snat Translation Address Table2

SnatPktsIn
The total packets in for this SNAT.

SPktsInH32
The upper 32-bits of the total number of packets in for this SNAT.

SnatPktOut
The total packets out for this SNAT.

SntPktOH32
The upper 32-bits of the total number of packets out for this SNAT.

CurrntCons
The number of connections currently open for this SNAT.

MaxConns
The maximum number of connections this SNAT has had open at any one time.

TotConns
The total number of connections this SNAT has had since the SNAT started.

LastTransport
Last translated port accessed using the SNAT.

Unit ID
The unit number of the load balancer to which the SNAT translation address is assigned.

Snat Original Address View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **Snat Views > Snat Original Conf**.*

Snat Original Address Table1

A table of all secure SNAT entries that contains the following information:

SnatOrigAddr
The IP address to the outside world for this SNAT.

Enabled
Displays whether this is enabled for SNAT.

OrigConLmt
The maximum number of connections through this SNAT.

OrigTransAddress
The translation address corresponding to this original address.

TcpIdleTmO
The idle timeout for TCP connections through this SNAT.

UdpIdleTmO
The idle timeout for UDP connections through this SNAT.

StatZeroTime
The time statistics started being collected.

SecsCllctSt
The number of seconds we have been collecting statistics for this port.

SnOrBitsIn
The total bits in for this SNAT.

BitsInHi32
The upper 32-bits of the total number of bits in for this SNAT.

Snat Original Address Table2

SnatOrigAddress
The IP address to the outside world for this SNAT.

OrgBitsOut
The total bits out for this SNAT.

BitsOutH32
The upper 32-bits of the total number of bits out for this SNAT.

PktsIn
The total packets in for this SNAT.

PktsInHi32
The upper 32-bits of the total number of packets in for this SNAT.

PktsOut
The total packets out for this SNAT.

PktsOutH32
The upper 32-bits of the total number of packets out for this SNAT.

CurrntCons
The current number of connections for this SNAT.

Max Conns
The maximum number of connections for this SNAT.

TotalConns
The total number of connections this SNAT has had since the SNAT started.

LstTrnsPrt
The last translated port accessed using the SNAT.

F5 Big-IP Member Information View

Access: *From the **Icon Subviews** menu for the Big-IPApp icon, select **Old Groups > Member.***

Member Table1

This table contains balancer member information.

VirtualIPAddress
The virtual IP address.

Port
The virtual IP address port.

Ordnl
The virtual IP address member ordinal number.

Member Address
The node IP address for this member.

Node Port
The node port for this member.

Status
The status of this member.

Packets In
The number of packets read off the network for this member.

PktsInHi32
The upper 32-bits of the number of packets read off the network for this member.

Packets Out
The number of packets written to the network for this member.

PktsOutH32
The upper 32-bits of the number of packets written to the network for this member.

Bits In
The number of bits read off the network for this member.

BitsInHi32
The upper 32-bits of the number of bits read off the network for this member.

Bits Out
The number of bits written to the network for this member.

BitsOutH32
The upper 32-bits of the number of bits written to the network for this member.

Cur Cnxns
The number of connections currently open for this member.

Con Max
The maximum number of connections this member has had open at any one time.

Con Limit
The total number of connections this member can support at one time.

Con Total
The total number of connections this member has served since the server started.

Member Table2

VirtualIPAddress
The virtual IP address.

Port
The virtual IP address port.

Ordnl
The virtual IP address ordinal number.

Bits In
The number of bits read off the network for this member.

BitsInHi32
The upper 32-bits of the number of bits read off the network for this member.

Bits Out
The number of bits written to the network for this member.

BitsOutH32
The upper 32-bits of the number of bits written to the network for this member.

Cur Cnxns
The number of connections currently open for this member.

Con Max
The maximum number of connections this member has had open at any one time.

Con Limit
The total number of connections this member can support at one time.

Con Total
The total number of connections this member has served since the server started.

F5 Big-IP Network Address Translation (NAT) View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **Old Groups > NAT**.*

This view contains the following information:

NAT Table1

NatNumber
The number of NATS present on this system.

Index
A unique value for each NAT defined.

Description
A textual string describing the NAT.

AddrFrom
The IP address.

AddressTo
The NAT's TO IP Address.

PacketsIn
The total packets in for this NAT.

PcktsInH32
The upper 32-bits of the total packets in for this NAT.

Pktsout
The total packets out for this NAT.

PcktOutH32
The upper 32-bits of the total packets out for this NAT.

Unit ID
The unit id associated with this NAT.

NAT Table2

NatNumber
The number of NATS present on this system.

Description
A textual string describing the NAT.

Bitsin
The total bits for this NAT.

BitsInHi32
The upper 32-bits of the total bits for this NAT.

Bits Out
The total bits out for this NAT.

BitOutHi32
The upper 32-bits of the total bits out for this NAT.

Outside Netmask
The outside Netmask for this NAT.

Outside B'dcast
The outside broadcast address for this NAT.

Interface Name
The interface name for this NAT.

F5 Big-IP Nd Address View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **Old Groups > NdAddress**.*

NdAddress Table1

NdAddressNum
The number of network addresses present on this system.

Index
A unique value for each network address defined.

Description
A textual string describing the node address.

Node Address
The node IP address.

PacketsIn
The total packets in for this node address.

PacketsOut
The total packets out for this node address.

PktsInHi32
The upper 32-bits of the total packets in for this node address.

PktsOutH32
The upper 32-bits of the total packets out for this node address.

Bits In
The total bits in for this node address.

BitsInHi32
The upper 32-bits of the total bits in for this node address.

NdAddress Table2

NdAddressNum
The number of network addresses present on this system.

Index
A unique value for each node address defined.

Description
A textual string describing the node address.

Node Address
The node IP address.

Bits Out
The total bits out for this node address.

BitsOutH32
The upper 32-bits of the total bits out for this node address.

CrntCnxns
The number of current connections for this node address.

Conmax
The maximum number of connections this node address has had opened at one time.

ConLimit
The maximum number of connections this node address is allowed to have open at one time.

ConTotal
The total connections that this node address has had.

Status
The status of this node address.

Maintnnc
Indicates whether the node is in maintenance mode.

F5 Big-IP Virtual Address View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **Old Groups > Virtual Address.***

This view contains the following information.

Virtual Address Table2

VAddressNum
The number of virtual addresses present on this system.

Index
A unique value for each virtual address defined.

Description
A description of the virtual address.

IP Address
The IP address for the virtual address.

Pkts In
The total packets in for this virtual address.

PktsInHi32
The high order 32-bits of the total packets in for this virtual address.

Pkts Out
The total packets out of this virtual address.

PktsOutH32
The high order 32-bits of the total packets out of this virtual address.

Bits In
The total bits in for this virtual address.

BitsInHi32
The high order 32-bits of the total bits in for this virtual address.

Virtual Addresses Table2

Index
A unique value for each virtual address defined.

Description
A description of the virtual address.

IP Address
The IP address for the virtual address.

Bits Out
The total bits out of this virtual address.

BitsOutH32
The high order 32-bits of the total bits out of this virtual address.

CurntCnxns
The current number of connections on this virtual address.

ConMax
The maximum number of connections this virtual server has had open at any one time.

ConLimit
The total number of connections this virtual address can support at one time.

ConTotal
The total number of connections this virtual server has served since the server started.

Status
The status of this virtual address.

F5 Big-IP VPort Information View

Access: *From the **Icon Subviews** menu for the BigIPApp icon, select **VPort**.*

VPortNumber
The number of virtual ports present on this system.

VPort Table1

A list of virtual port entries. The number of entries is given by the value of the virtual port number.

Index
A unique value for each virtual port defined.

PortNumber
The virtual port's port number.

Description
A description of the virtual port.

Packets In
The total packets in for this virtual port.

PktsInH32
The high order 32-bits of the total packets in for this virtual port.

Packets Out
The total packets out for this virtual port.

PktsOutH32
The upper 32-bits of the total packets out for this virtual port.

Bits In
The total bits in for this virtual port.

BitsInHi32
The upper 32-bits of the total bits in for this virtual port.

Bits Out
The total bits out for this virtual port.

BitsOutH32
The upper 32-bits of the total bits out for this virtual port.

VPort Table2

VPortNumber
The number of virtual ports present on this system.

Index
A unique value for each virtual port defined.

PortNumber
The virtual port's port number.

Description
A description of the virtual port.

CurConxns
The number of current connections for this virtual port.

MaxCons
The maximum number of connections this virtual port has had open at any one time.

Con Limit
The connection limit for this virtual port.

Con Total
The total number of connections this virtual port has had open since the server started.

VPort Reap
The total connections reaped on this virtual port.

Allowed
Indicates whether this port is `allowed`, or `disallowed`.

TCP persistence
The number of seconds before the Transmission Control Protocol (TCP) persistence expires for this virtual port.

UDP persistence
The number of seconds before User Datagram Protocol (UDP) persistence expires for this virtual port.

UCD Application

This application contains the following subviews:

UCD Disk Table View

Access: *From the **Icon Subviews** menu for the UCDApp icon, select **System Information > Disk Table.***

diskTable
This table contains disk watching information. Partitions to be watched are configured by the snmpd. conf file of the agent.

Entry
An entry containing a disk and its statistics.

Index
The integer reference number (row number) for the disk mib.

Path
The path where the disk is mounted.

Device
The path of the device for the partition.

Minimum
The minimum space required on the disk (kbytes) before the errors are triggered. Either this or dskMinPercent is configured via the agent's snmpd.conf file.

MinPercent
The percentage of minimum space required on the disk before the errors are triggered. Either this or dskMinimum is configured via the agent's snmpd. conf file.

Total
The total size of the disk (kbytes).

Avail
The available space on the disk.

Used
The used space on the disk.

Percent
The percentage of space used on the disk.

ErrorFlag
Error flag signaling that the disk or partition is under the minimum required space configured for it.

ErrorMsg
A description providing a warning and the amount of space left on the disk.

UCD Extensible Commands Table View

Access: *From the **Icon Subviews** menu for the UCDApp icon, select **System Information > Extensible Commands**.*

Index
A reference index for extensible scripts.

Names
A one name description of the extensible command.

Command
The command line to be executed.

Result
The result code from the executed command.

Output
The first line of output of the executed command.

ErrFix
Setting this to `1` will try to fix the problem if the agent has been configured with a script to call to attempt to fix problems automatically using remote snmp operations.

UCD Memory Information View

Access: *From the **Icon Subviews** menu for the UCDApp icon, select **System Information > Memory Information.***

Index
Bogus index. This should always return `0`.

Error Name
Bogus Name. This should always return the string “swap.”

Total Swap
Total swap size configured for the host.

Available Swap
The available Swap Space on the host.

Total Real
The total real/physical memory space on the host.

Available Real
Available Real/Physical Memory Space on the host.

Total Swap Txt
The total virtual memory used by text.

Available Swap Txt
Active virtual memory used by text.

TotalRealTxt
The total real/physical memory size used by text.

Avail RealTxt
The active real/physical memory space used by text.

Total Free
The total available memory on the host.

Total Shared
The total Shared Memory.

Total Buffered
The total buffered memory.

Total Cached
The total cached memory.

Swap Error
The error flag. A value of 1 indicates very little swap space left.

Swap Error Msg
The error message describing the Error Flag condition.

UCD Mib Registry Table View

Access: *From **Icon Subviews** menu for the UCDApp icon, select **System Information > Mib Registry.***

Registry Slot of Mib Module
The registry slot of a mib module.

Module Name that Rgstrd this OID
The module name that registered this object identifier.

UCD Process Table

Access: *From **Icon Subviews** menu for the UCDApp icon, select **System Information > Process Table.***

This table contains information on running programs/daemons configured for monitoring in the snmpd. conf file of the agent. Processes which violate the number of running processes required by the agent's configuration file are flagged with errors. Double-click on a row within the table to write to the **ErrFix** item.

Entry
An entry containing a process and its statistics.

Index
A reference index for each observed process.

Names
The process name being counted/checked on.

Minimum
The minimum number of processes that should be running. An error flag is generated if the number of running processes is less than the minimum.

Maximum
The maximum number of processes that should be running. An error flag is generated if the number of running processes is more than the maximum.

Count
The number of current processes running with the name in question.

ErrorFlag
An error flag to indicate trouble with a process. If there is an error, it goes to `1`. A value of `0` indicates no errors.

ErrMessage
An error message describing the problem (if one exists).

ErrFix
Setting this to `1` will try to fix the problem if the agent has been configured with a script to attempt to fix problems automatically using remote snmp operations.

SNMP Errors View

Access: *From the **Icon Subviews** menu for the UCDApp icon, select **System Information > SNMP Errors**.*

Index
A bogus index for SNMP errors (always 0)

SNMP Error Flag
An error flag to indicate trouble with the agent. It is set to 1 if there is an error, and 0 is there is not.

SNMP Error Names
The SNMP error names.

SNMP Error Message
An error message describing the problem (if one exists).

UCD Version Information View

Access: *From the **Icon Subviews** menu for the UCDApp icon, select **System Information > Version Info**.*

Index
The index number.

Tag
CVS tag keyword.

Date
Date string from the Revision Control System (RCS) keyword.

Ctime Date
Date string from ctime.

Version Ident
Version identifier.

Clear Cache
Set to 1 to clear the exec cache, if enabled.

Update Config
Set to 1 to read the config file(s).

Restart Agent
Set to 1 to restart the agent.

Do Debugging
Set to 1 to turn debugging statements on in the agent or to turn it off.

Configuration Views

This section describes configuration views available for F5 Big-IP LoadBalancer devices in SPECTRUM.

Configuration views allow you to see and modify current settings for the modeled device and its interfaces, ports, and applications. The following Configuration view is available for models of F5 Big-IP LoadBalancer devices.

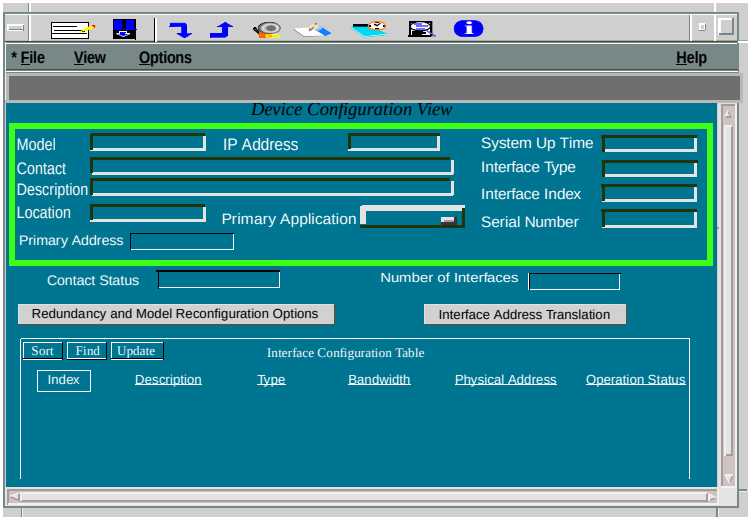
- *Device Configuration View*

Device Configuration View

Access: *From the **Icon Subviews** menu for the Device icon, select **Configuration**.*

A typical Device Configuration view is shown in Figure 6. Generally, this view includes a few fields that display device information as well as an Interface Configuration Table that lists interface parameters, some of which can be changed (see ***SPECTRUM Views***). Some Device Configuration views include one or more buttons that provide access to device-specific configuration information. These are described below.

Figure 6: Configuration View



Redundancy and Model Reconfiguration Options

Refer to the ***SPECTRUM Views*** documentation.

IP IF Address Translation

Refer to the ***SPECTRUM Views*** documentation.

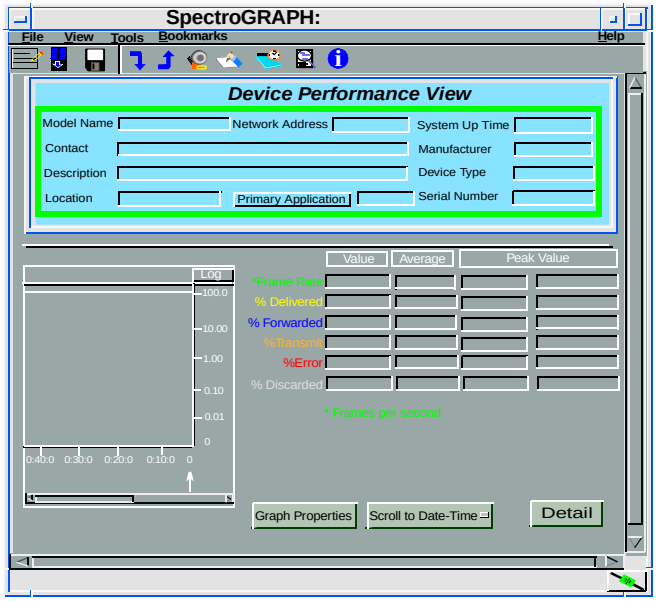
Performance View

This section introduces the Performance view. For details concerning this view, refer to the ***SPECTRUM Views*** documentation.

Performance views display performance statistics in terms of a set of transmission attributes, e.g., cell rates, frame rates, % error, etc. A typical view is shown in Figure 7. The instantaneous condition of each transmission attribute is recorded in a graph. The statistical information for each attribute is presented in the adjacent table.

Generally, you determine performance at the device level through Performance views accessed from the Device and Application icons. You determine performance at the port/interface level through Performance views accessed from Interface icons.

Figure 7: Performance View



Device Web Management

This section describes the Device Web Management option available for F5 Big-IP LoadBalancer models in SPECTRUM.

Access: *From the **Icon Subviews** menu for the Device icon, select **Device Web Management**.*

Clicking on the Device Web Management option opens your default Web Browser and directs it to the URL address https://<**IP Address of model**>.

Enter the correct username and password to pass through a Secure Socket Layer to access a F5 Networks web page, which provides a link to the F5 Configuration Utility web application. This feature allows you to monitor the LoadBalancer device online.

There are also links to F5 online documentation, technical support information, and the F5 Networks homepage. The MIBs supported by the device are also available.

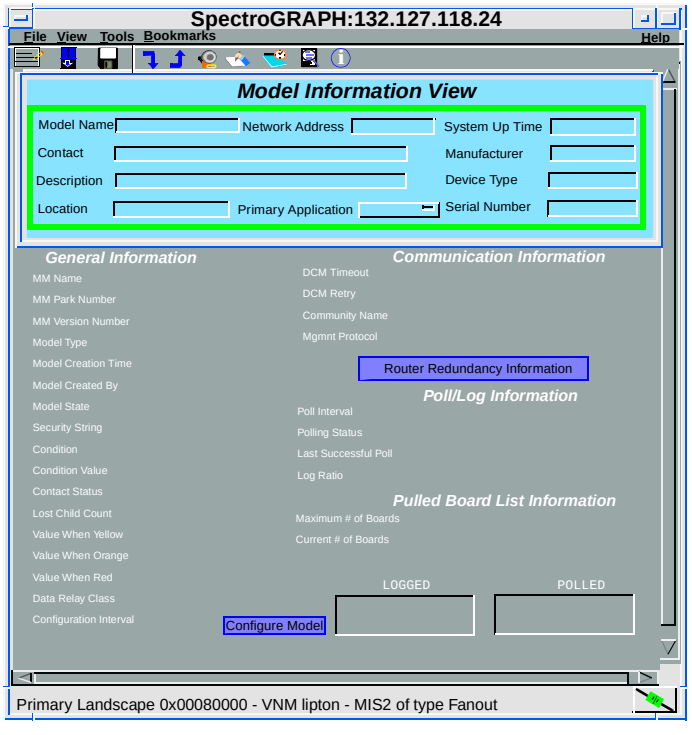
Model Information Views

This section provides a brief description of the Model Information views available for models of F5 Big-IP LoadBalancer devices in SPECTRUM.

Access: *From the* ***Icon Subviews*** *menu for the F5 Load Balancer Device icon, select* ***Model Information****.*

Model Information views provide descriptive and configuration information about SPECTRUM models of individual devices, interfaces, and applications. Figure 8 shows an example of the Model Information view for a F5 Load Balancer. Model information views are also available for each of the Interface icons in the Interface Device and Interface Device Topology views, and for each of the Application icons in the Application view. Although these views may vary slightly depending on the particular entity being modeled, their basic layout and content are similar for most SPECTRUM management modules. Therefore these views are described in more detail in the ***SPECTRUM Views*** documentation.

Figure 8: **Model Information View**



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