FLEX 5360 Appliance
Pre-Deployment Requirements

This document provides details that will assist with the completion of the Appliance Deployment Planner (ADP) questionnaire. Completing the questionnaire will minimize confusions and/or delays during the Installation and Configuration process.

Contents

Appliance hardware:

Appliance and Storage Shelf boxes should remain unopened and stored in the same location, preferably the data center. If cardboard material is not allowed, in the data center, then please document where the equipment will be located on the day of Installation, under item #5 - "Site Information".

Temperature control:

- FLEX 5360 Compute Node Environmental Specifications:
    - Operating temperature of Appliance: (10°C to 35°C) or (50°F to 95°F).
    - Non-operating temperature: (-40°C to +70°C) or (-40° F to +158°F).
    - Operating humidity (Relative): (20% to 80% RH).
    - Non-operating humidity: (8% to 90% RH).
- 5U84 Primary Storage Shelf/5U84 Expansion Storage Shelf Environmental Specifications:
    - Operating temperature of Appliance: (5°C to 35°C) or (41°F to 95°F).
    - Non-operating temperature: (-40°C to +70°C) or (-40° F to +158°F).
    - Operating humidity (Relative): (20% to 80% RH).
    - Non-operating humidity: (5% to 100% RH).

AC/Power:

- FLEX 5360 Appliance Compute Node:
    - Appliance AC Power Cable Specification:
        - IEC-60320-C14 to IEC-60320-C13, 15A/250V, Black, 4 ft

Figure 3-1 AC power cable

        - The IEC-60320-C14 plugs into a Power Distribution Unit.
        - The IEC-60320-C13 plugs into an appliance or storage shelf power supply.

          Note: If your power distribution unit is not compatible with the IEC-60320-C14 plug, then Veritas recommends that you purchase your power cable locally. Make sure the power cable meets or exceed the indicated power rating.

- FLEX 5360 Appliance:
    - AC Power Requirements:
        - 110 – 220 VAC at 3.1 A
    - Power Consumption:
        - Typical – 400 watts
        - Maximum - 1100 watts
- Veritas 5U84 65TB Storage Shelf:
    - AC Power Requirements:
        - 200V – 240 VAC at 6.36 A
    - Power Consumption based on each shelf:
        - Typical – 1400 watts
        - Maximum – 1400 watts
- The units require a standard EIA 19-inch rack with dual Power Distribution Units (PDUs) with 220VAC power input for the storage shelves.

Rack Mounting Equipment:

- Dimensions (IEC rack compliant)
    - Height: 8.89cm (3.5") (approximately 2U)
    - Width: 48.26cm (19")
    - Depth: 79.38cm (31.25")
- Physical specifications for the compute node include the following:
    - Height: 8.7cm (3.43”) (approximately 2U)
    - Width: 44.6cm (17.56“)
    - Length/depth: 77.0cm (30.31“)
    - The compute node rails are extensible to 820mm (32in).
        - The minimum distance or depth allowed between the rack posts is 623mm (24.6”).
        - The maximum distance or depth allowed between the rack posts is 942mm (37”).
    - Physical specifications for the 5U84 storage shelves include the following:
        - Each storage shelf is 5RU high.
        - Storage shelf measurements are listed below.
            - Height: 22.3 cm (8.75”) (approximately 5U - shelf, overall)
            - Width: 48.3 cm (19.0“) (across the mounting flange)
            - Length/depth: 93.3cm (36.75“) (from rear of the front flanges to the rear extremity of the chassis)
            - **Note:**
                - The 5U84 storage shelf is longer than a standard IEC-compliant rack. Be sure that your rack cabinet and Power Distribution Units accommodate the length of the storage shelves so rear doors can close.

- The storage shelf rails measure 71.3cm to 88.4cm (28" to 34.8") in length. Be sure that your rack accommodates this distance from the inside of the front post to the inside of the rear post. Plan for additional space to accommodate power strips, power cords, and other cables.

- The maximum distance or depth allowed between the rack posts is 37” (942mm). If the distance between rack posts is longer than 37” (942mm), the rails and the appliance cannot be properly installed.

- There must be a minimum depth of 30 inches (76 cm) between the front of the rack and the rear of the rack.

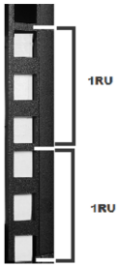
- With dual Power Distribution Units (PDUs) with 220VAC power supplies.

- Rank Units (RU):

    - FLEX 5360 Appliance and Storage Shelf are both 2RU high.

    - Each rack unit (RU) is 44.50 mm (1.752 inches) in height.

    - One (1) Rack Unit (RU) equals three (3) holes.



    - Determining Rack space needed:

- Below are examples of FLEX configurations with their Rack unit requirements:

    - Two compute nodes (2RU each) and one storage shelf (5RU) require 9RUs of height in the rack.

    - Two compute nodes (2RU each) and two storage shelves (5RU each) require 14RUs of height in the rack.

  - Two compute nodes (2RU each) and three storage shelves (5RU each) require 19RUs of height in the rack.

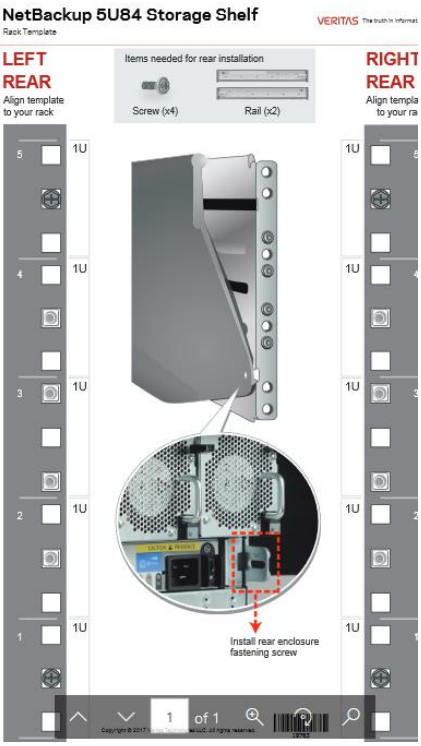
  - Two compute nodes (2RU each) and four storage shelves (5RU each) require 24RUs of height in the rack.

- Rack holes must not be threaded but have cutouts in front and back of rack to secure rails with either Snap-in cage nuts or pins along with screws.

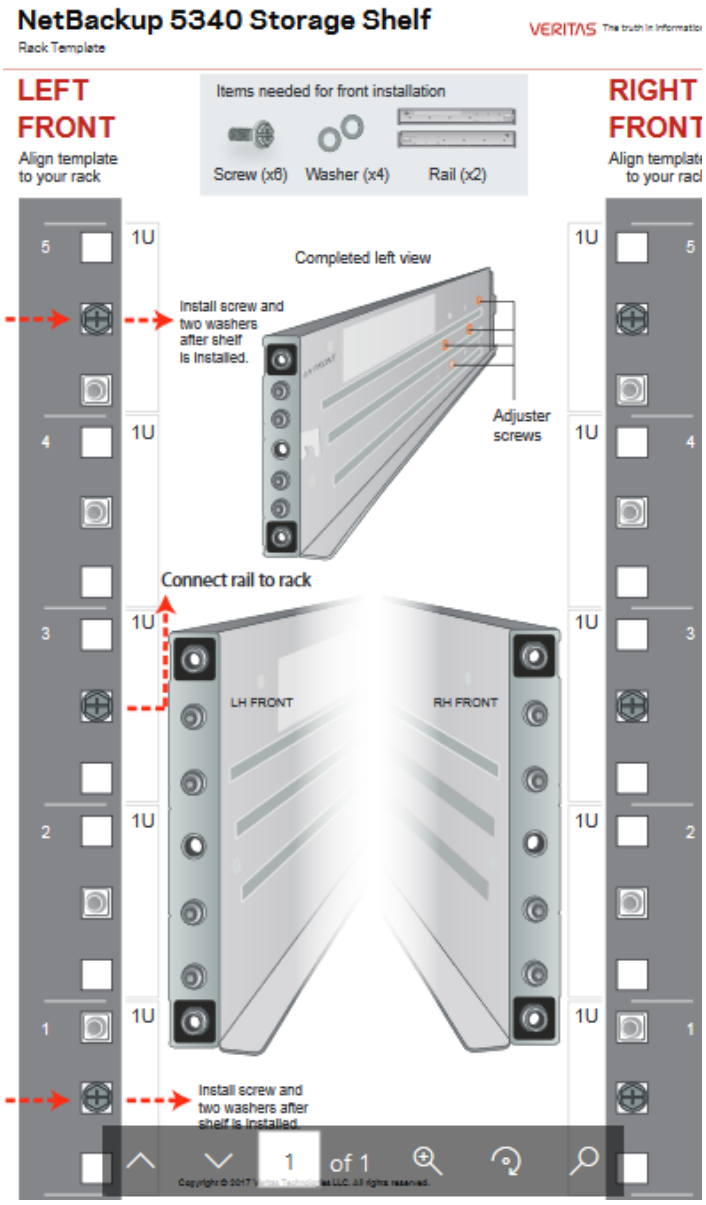
Warning: A storage shelf without disk drives weighs up to 61.65kg (135.72lbs). To avoid potential equipment damage and personal injury, do not install disk drives into the storage shelves before mounting them into the rack. The added weight of the disk drives hinders the safe install of the storage shelves. The shelf comes with lifting straps to assist with removing the shelf from the shipping container. Use a mechanical lift or three people to raise the shelf into position. The rear of the shelf is heavier than the front of the shelf.

Warning: Storage shelves are heavier than the appliances. Veritas recommends installing the Storage Shelves at the bottom of the rack, below the appliance.

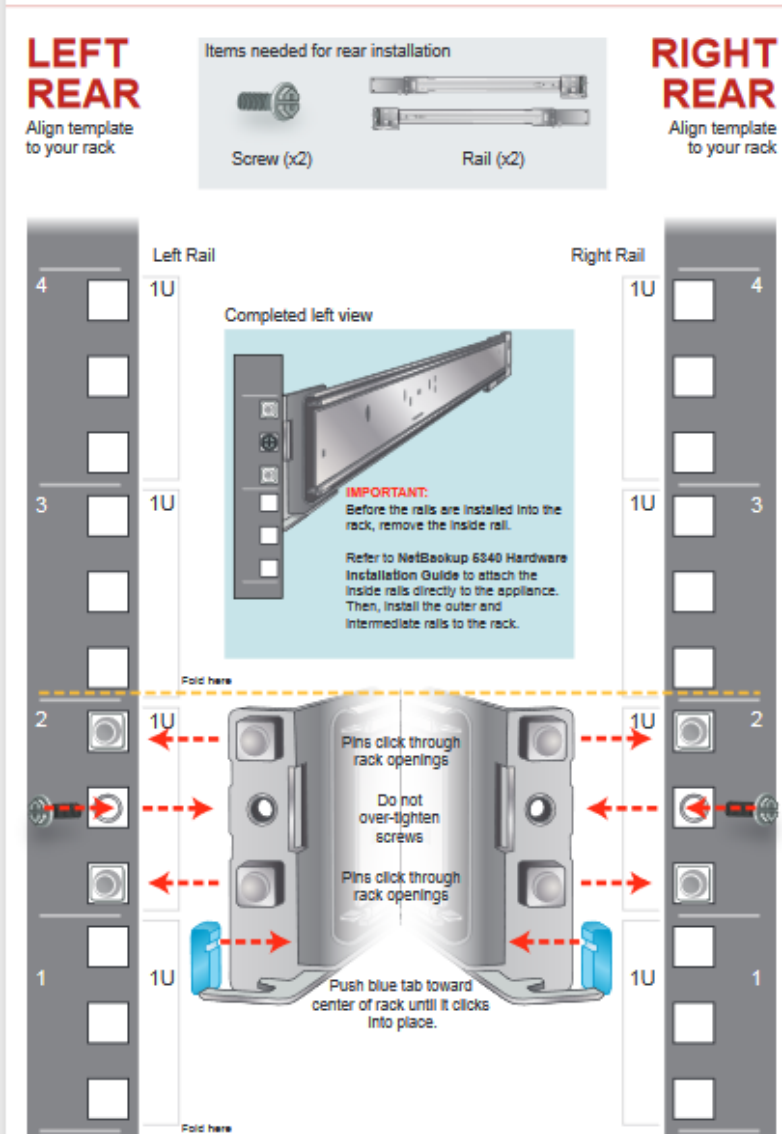
- 5U84 Storage Shelf (Primary and Expansion):
    - Rear View



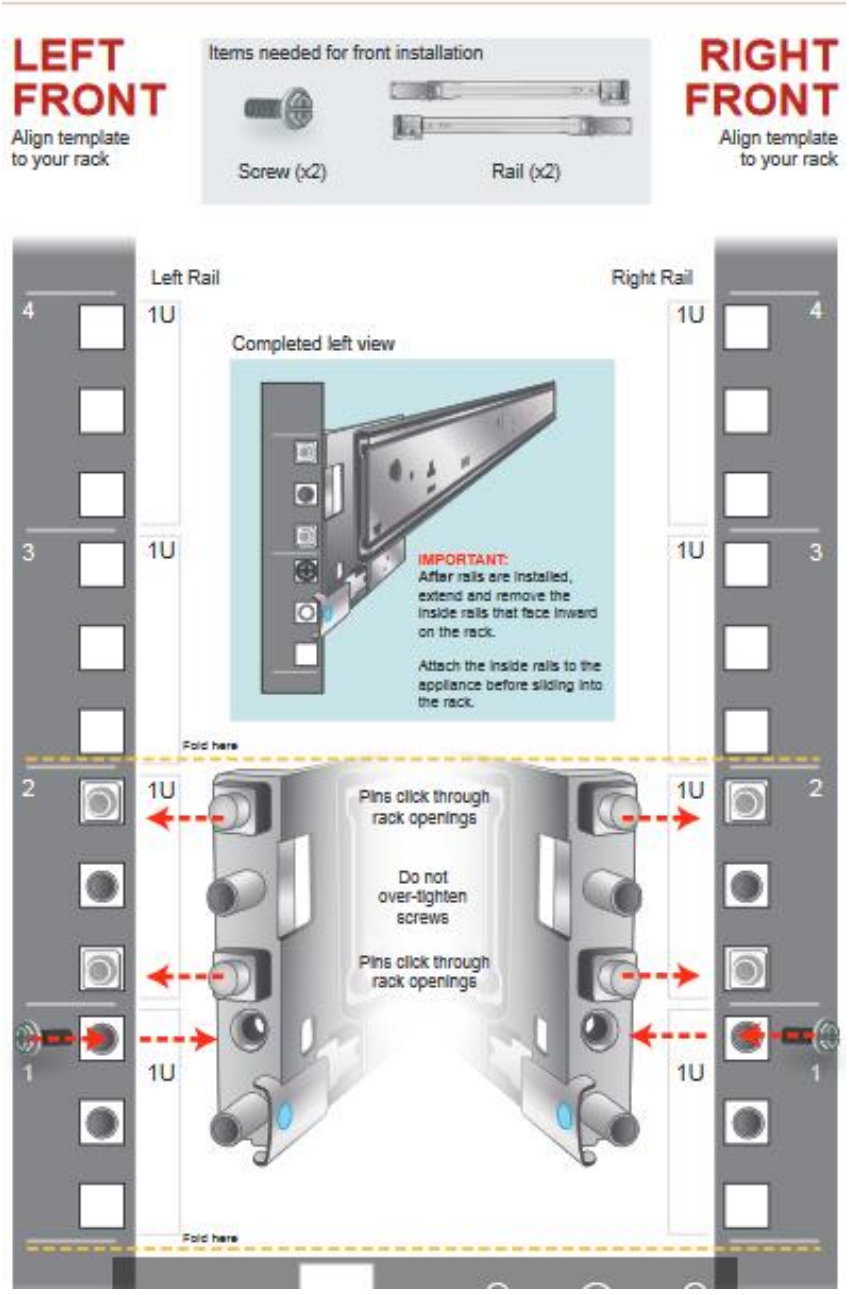
- Front View - The front of each rail includes four pins that insert into the rear of the front rack post. One screw fits into the middle hole of the middle RU.



- Appliance Compute Node
    - Rear View



- Front View


LEFT FRONT
Align template to your rack
Items needed for front installation
Screw (x2)
Rail (x2)
RIGHT FRONT
Align template to your rack
Left Rail
Right Rail
Completed left view
IMPORTANT:
After rails are installed, extend and remove the inside rails that face inward on the rack.
Attach the inside rails to the appliance before sliding into the rack.
Fold here
Pins click through rack openings
Do not over-tighten screws
Pins click through rack openings
Fold here

- Storage Shelves:
    - FLEX 5360 Appliance support up to four 5U84 storage shelves.

Table 2-1 Usable *Veritas 5360 Appliance* 5U84 Storage Shelf storage capacities by disk drive capacities

Usable storage capacities (4-TB Drives)	Usable storage capacities (8-TB Drives)
132TB (120TiB	264TB (240TiB)
264TB (240TiB	528TB (480TiB)
396TB (360TiB	792TB (720TiB)
528TB (480TiB	1,056TB (960TiB)* **

Usable storage capacities (4-TB Drives)	Usable storage capacities (8-TB Drives)
660TB (600TiB	1,320TB (1200TiB)* **
792TB (720TiB	1,583TB (1440TiB)* **
924TB (840TiB)	1,847TB (1680TiB)* **
1,056TB (960TiB)* **	2,112TB (1920TiB)* **

*Veritas 5360 Appliance supports up to 1,056TB (960TiB) of usable MSDP storage capacity. For all storage configurations with an aggregate total of all MSDP pools equaling 960TB or larger, Veritas strongly recommends upgrading the memory capacity to 1536GB.

** For these storage shelf configurations, Veritas strongly recommends that you upgrade the memory capacity to 1.5TB due to the increased resource requirements from updated MSDP encryption standards.

    - Storage shelves are heavier than the appliances. Storage shelves should be installed at the bottom of the rack, below the appliance.

Cabling:

- FLEX 5360 three I/O Configurations:

Note: PCI card configuration will vary depending on I/O configuration purchased

Figure 1-7 Flex 5360 Model A

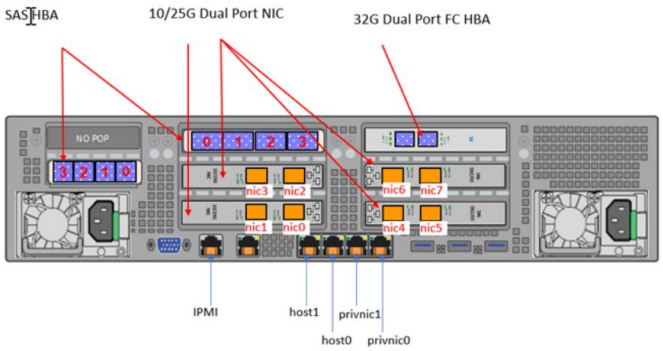


Figure 1-8 Flex 5360 Model B

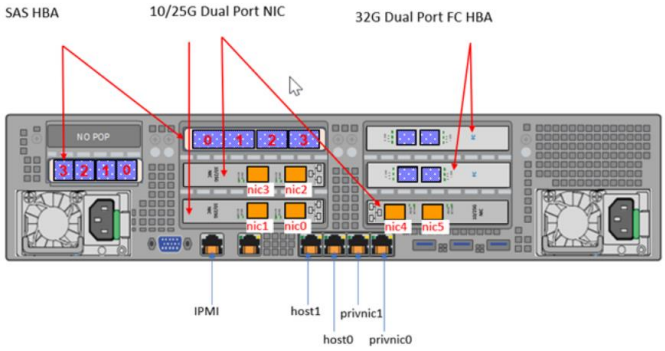
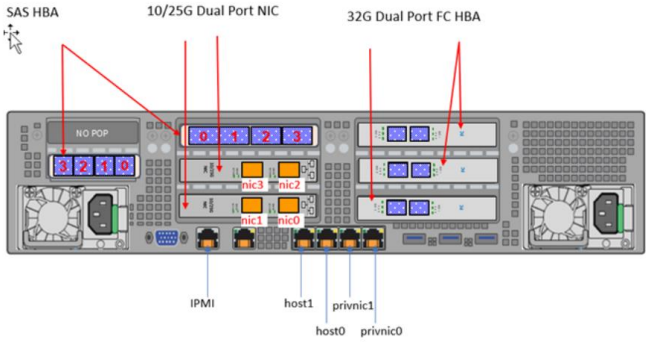


Figure 1-9 Flex 5360 Model C



- Customer must provide the below items:
    - 1-Gb network copper cables –
        - The remote management (IPMI) port, used to connect to the Veritas Remote Management Interface.
    - 10-Gb network copper cables -
        - Host1/Eth0 and Host0/Eth1, used to connect to the Flex Appliance Node and Console.
        - Privnic1/Eth2 and Privnic2/Eth3, interconnection between 2 nodes for FLEX HA system.
        - Ethernet network interfaces require RJ45 Cat 6 cables.

- 25-10GbE network fiber cables
    - Two to eight 25-10Gb Ethernet ports as needed. Used for the FLEX Application Instances (Containers).
    - Multi-mode Fiber Cable for PCI Card interfaces.
- Fiber-Channel cables for client and device connections, as required by customer.
- KVM cable.

- Appliance will include two power cables.
- Each storage shelf will include:
    - Two (2) power cables.
    - Two (2) SAS-3 cables for connections between compute node and storage shelf or connections between each storage shelf.
    - Each SAS-3 cable is 1 meter (3.28 feet) long. The 1-meter cable is long enough to connect an appliance to the fourth storage shelf when the recommended configuration is used.
    - Longer SAS-3 cables are supported with the 5U84 Storage Shelf, if needed for the configuration. However, Veritas doesn't have them available, so you will need to purchase the longer SAS-3 cable/s.
        - Here is an example of one vendor who sells a 3 Meter SAS 3 cable (See CS-SASMINIHD2-003 for 3M Cable): https://cablesondemand.com/amphenol-cs-sasminihd2-003-3m-9-8-external-4x-hd-mini-sas-cable-4x-mini-sas-hd-sff-8644-to-4x-mini-sas-hd-sff-8644-passive-copper-cable-28-awg-12g-sas-3-0-ipass-hd-cs-sasminihd2-003

Note: Field Services Techs will require direction from the customer on:

- Which PDU to plug in equipment's power supply cables.
- Which network cables will be plugged into which Appliance network interfaces.
- Which HBA Fiber connections will be plugged into which Appliance HBA cards and po

Network connectors:

- The following types of connectors are provided by Veritas:
    - Two 10/25 GBASE-SR Small Form-factor Pluggable (SFP) modules with Duplex LC connector.
- With FLEX 5360 and newer appliances the requirements are SFP28 form factor optics that support 850nnm short wave.
    - Veritas recommends the following vendors:
        - Finisar
        - JDSU

Local Appliance Connection:

- To configure IPMI, Field Technician will require one of the following from the customer:
    - Crash Cart (VGA Monitor and USB Keyboard).
    - KVM cable, if a KVM has been setup.
    - Laptop, which also helps with testing IPMI port locally.

Management device:

- To perform a hardware check after the installation or configuration of the Appliance, the Veritas Advanced Services Engineer (ASE) will need to do a Zoom session with customer to access the appliance remotely.
    - It is recommended to use the HTML5 iKVM option for Remote Management Console to connect with the Appliance.
    - Another connection option is to use the Java console. However, you would need to ensure the latest Java version software has been installed your Windows machine.
- For a list of Network ports required for communication between the Appliance and the Management device, see the:
    - Required Ports section of this document.

- If the IPMI port is connected to a managed switch port, it is recommended that you configure the switch port to auto-negotiation.
- Verify the remote management port auto-negotiates its link speed to one (1) Gbps.
- If you have a private internal network, remember to configure the settings accordingly in your network address translation (NAT).
- The remote management port must be configured as a DHCP or Static address.

Monitoring:

- Veritas Appliance AutoSupport Reference Guide
- Call Home Feature:
  - The Call Home feature is designed to alert you and Veritas in the event of a hardware alert. Call Home uploads hardware and software information to a secure Veritas server once an alert is detected. This information may be used by Veritas to proactively open a support case with Technical Support. A Technical Support Engineer will contact you for further diagnosis such as gathering the DataCollect and/or other logs and to arrange for replacement of the reported component, if needed.
  - The collected hardware information includes the appliance and any configured enclosures. Although this feature is enabled by default, only basic information such as appliance model and serial number are sent to Veritas. To take full advantage of this feature, Veritas recommends completing and maintaining the additional technical contact information. Having up-to-date contact information will allow Veritas support to expedite the resolution of the detected hardware event.
  - When Call Home is enabled and a failure occurs, the following sequence of alerts occur:
    - The appliance uploads all the monitored hardware and software information to a Veritas server.
    - The appliance generates the following three kinds of email alerts to the configured email address:
      - An error message by email to notify you of the failure once an error is detected. A resolved message by email to inform you of any failure once

an error is resolved.

- A 24-hour summary by email to summarize all of the currently unresolved errors in the recent 24 hours.

- Starting from software release 2.7.1, Veritas an email alert is sent if Veritas servers do not receive any Call Home data from your appliance for over 28 hours.

- The appliance also generates an SNMP trap. Critical temperatures

- When Call Home is disabled and a failure occurs, the appliance only generates a local alert by email to notify you of the failure.

  - Additional information on configuring email notifications may be found in the appliance documents below.

    https://www.veritas.com/support/en_US/article.000068536

- The appliance uses the HTTPS protocol and port 443 to connect to the Veritas AutoSupport server.

- Appliance registration should be done by signing in to the NetInsights portal (https://netInsights.veritas.com) with your Veritas Account Manager credentials.

- SMTP is for alerting your internal teams/contacts to any hardware or software issues affecting the appliance.

  - SMTP Port:

    - You can select one of the following options:

      - Port 25 to use Plain Text

      - Port 465 to use the SMTPS protocol

      - Port 587 to use the STARTTLS protocol

      - Custom port within the range of 1 to 65,535 The default SMTP port number is 25.

        - Encryption is disabled by default.

- The Simple Network Management Protocol (SNMP) enables you to monitor the appliance performance. You must have an existing SNMP manager before you can configure SNMP alerts.

Necessary software:

- The following software will be necessary over the course of the engagement and should be downloaded (and installed if applicable) on the management device:

    - The Intelligent Platform Management Interface (IPMI) also referred to as Veritas Remote Manager. We use the Remote Manager Console to log on to the Appliance CLISH to check hardware health after installation and to begin appliance configurations.

        - Before you use the Remote Management interface, the following prerequisites must be met:

            - A supported Web browser (see Web browsers supported by Appliance).

            - A JViewer application or iKVM over HTML5 will enable you to remotely monitor and control the appliance.

                - The JViewer application requires the latest Java Runtime Environment (JRE).

    - Putty or another SSH client will be a helpful tool in which you can use copy and paste, whereas IPMI you cannot. In addition, SSH has a little better performance than IPMI. IPMI is required, at first, for hardware checks during the Installation process and to configure the first network interface during the Configuration process.

    - A workstation capable of mounting a CIFS or NFS share to the appliance and/or a Workstation capable of SCP connections from the appliance. This will be needed to transfer files, e.g., Emergency Engineering Binaries (EEBs), Patches, Firmware updates, DataCollect logs, and ACR utility output.

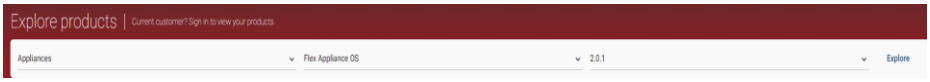
    - FLEX System –

        - **First**, depending on which FLEX operating system version your appliance comes with, we may need to update the FLEX operating software to the latest version. You can find out what version the appliance is coming in at through the VAS Project Manager (PM). VAS ASE will also verify your FLEX software version and update you on day of install.

- This is subject to change depending on current FLEX software requirements.

- Link to Veritas FLEX software downloads

    - You can use the dropdowns to select appropriate downloads for FLEX.



- To download software, you will have to login with your Veritas account and have the appropriate permissions.

- If you need to download the ISO for base FLEX software:

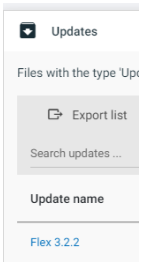
    - Once you are at the correct downloads then click on “Base and Upgrade Installers” dropdown and look for the appropriate ISO that supports appliance model and version and download.

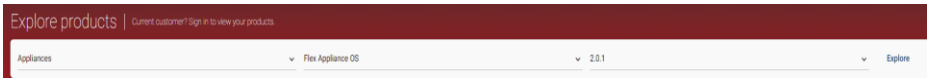
    - Example – For 5360 FLEX you would download the below ISO.

- If you need to download a FLEX software update:

    - Once you are at the correct downloads then click on “Updates” dropdown and look to see if there is a later version of FLEX software then appliance has currently installed. Download the latest FLEX O/S version, if necessary.

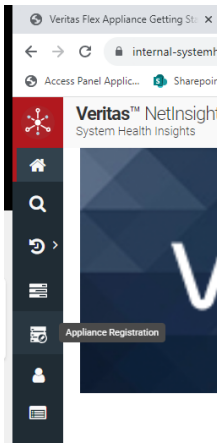
- Example – latest version here is FLEX 3.2.2



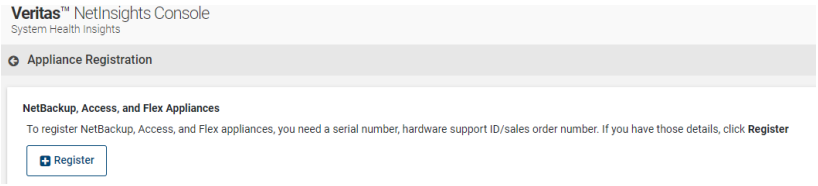


- Registering your appliance is a vital step in allowing Veritas the ability to help maximize availability of your appliance and provide proactive monitoring support.
    - Registration provides Veritas with accurate contact details and site-specific information, which aids in expediting support, field services, and customer notification of failures.
    - Registration also ensures that you receive product updates and other important information about your appliance.
    - Please register Appliances at our Veritas NetInsights Website:
        - NetInsights: Appliance Registration
        - Veritas System Health Insights User Guide
            - NetInsights Console – Select “System Health Insights”

- On left panel, select “Appliance Registration”



- Click on “Register” button



- Fill in the appropriate fields

Network/DNS:

- Network switches need to be configured and ports enabled prior to the scheduled events with Veritas:
    - Installation day - IPMI and Host0/Eth0 network interfaces need to have active switch ports prior to installation day for testing of IPMI, Hardware health and possible re-imaging of Appliance to upgrade to latest FLEX version.
    - Configuration day - All other necessary network interfaces needed for configuring the appliance will need to be active to configure the FLEX system in a timely manner and to prevent possible rescheduling of event.

- Proper name resolution using DNS servers or hosts files entries are a **requirement** for the FLEX system to function properly.
    - Veritas recommends the use of DNS servers for name resolution for the best performance.
    - The Appliance should be registered with any DNS servers in the environment prior day of event.
    - Forward and reverse DNS lookups of each Appliance need to be functional. Please test name resolution prior to day of scheduled event.
- VLAN information is only required if you are using VLAN tagging, and the appliance will be connected to a trunk port of the VLAN.
- IPMI –
    - For Remote management purposes.
    - Verify the remote management port auto-negotiates its link speed to one (1) Gbps.
    - The remote management port must be configured as a DHCP or Static address.
    - If you have a private internal network, remember to configure the settings accordingly in your network address translation (NAT).
- Before the configuration, gather the following information. This all should be entered into the Pre-Deployment Requirements Questionnaire along with other items:
    - IPMI – IP address
    - Appliance Node –
        - IP Address (Also used for FLEX console)
        - Hostname (Also used for FLEX console)
        - Default gateway
        - Netmask
        - DNS server IP address
        - DNS domain
        - (Optional) Search domain
        - NTP Server

Required Ports:

- RMM Ports (IPMI):

If a firewall exists between the appliance and the remote devices that manage an appliance (like a laptop computer), open the following ports:

66	SOL SSH
80	HTTP
162	SNMP
443	HTTPS
623	Floppy/USB media
627	Secured Floppy/USB media
5120	CD
5124	Secured CD
5900	KVM
5902	Secured KVM

Note: If you have a private internal network, remember to configure the settings accordingly in your network address translation (NAT).

- About FLEX Appliance Ports:

Table: Inbound ports

Port	Service	Description
22	ssh	In-band management CLI **Note:** Port 22 is blocked for the Remote Management Module (RMM). You can enable SSH later. See Enabling SSH on the Remote Management Module.
443	HTTPS	In-band management GUI
2049	NFS	NFS
445		CIFS (for the Log/Install shares)

+ NetBackup Integrated storage manager

* Veritas Remote Management - Remote Console

Table: Outbound ports

Port	Service	Description
443	HTTPS	Call Home notifications to Veritas Download SDCS certificate
162**	SNMP	Download appliance updates
22	SFTP	Log uploads to Veritas
25	SMTP	Email alerts
389	LDAP	
636	LDAPS	
514	rsyslog	Log forwarding

** This port number can be changed within the appliance configuration to match the remote server.

References:

- NetBackup Appliance Documentation Sets
- Services and Operations Readiness Tools (SORT) - Documentation