Citrix ADC SDX
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Keep the following points in mind about Citrix ADC SDX hardware-software and feature-software compatibility:

- For each platform, only the starting build for each release is mentioned. All subsequent builds within a release are supported.
- In 10.5 and prior releases, the Citrix ADC SDX appliance was shipped with a virtual bundle, which included a specific combination of Management Service image, XenServer image, XenServer supplemental packs.
- From 11.0 and later releases, the single bundle image is shipped, which combines all the components.
- Any combinations of Citrix ADC SDX appliance image version and Citrix ADC VPX image versions are supported as long as they meet minimum version requirements for a particular hardware platform.
- From 12.0 57.19, the single bundle image also includes the lights-out management (LOM) firmware.
- Direct upgrade from version 10.5 to 13.0 is not supported. You must first upgrade from 10.5 to 11.0 or 11.1 or 12.0 or12.1, and then upgrade to SDX 13.0.
- Usually, the Citrix ADC SDX image and the VPX image are not interdependent, which means the SDX appliance and the VPX instances need not have the same image version.

**Exception:** If you provision a new NetScaler VPX instance of release 12.0 build 58.15 or upgrade an existing VPX instance to 12.0 58.15, you must also upgrade the SDX appliance to 12.0 58.15, for the VPX instance to work. See [https://support.citrix.com/article/CTX236730](https://support.citrix.com/article/CTX236730).

If you use a NetScaler MAS appliance to manage NetScaler appliances running 12.0 58.15, you must upgrade the NetScaler MAS appliance to 12.0 58.15.

The following tables list the compatibility matrix for all Citrix ADC hardware platforms and the software releases supported on these platforms. The starting builds are listed.
## Citrix ADC SDX

<table>
<thead>
<tr>
<th>Hardware platforms/SDX and VPX image version</th>
<th>11</th>
<th>11.1</th>
<th>12</th>
<th>12.1</th>
<th>13.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDX 8920/8930</td>
<td>11.0.72.16</td>
<td>11.1-57.11 (See note after the table)</td>
<td>12.0-57.19</td>
<td>12.1-48.13</td>
<td>13.0-36.27</td>
</tr>
<tr>
<td>SDX 14030 FIPS/14060 FIPS/14080 FIPS</td>
<td>11.0-63.x</td>
<td>11.1-63.x</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SDX 15020/15030/15040/15060/15080/15100/15120</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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### Citrix ADC SDX

<table>
<thead>
<tr>
<th>Hardware platforms/SDX and VPX image version</th>
<th>11</th>
<th>11.1</th>
<th>12</th>
<th>12.1</th>
<th>13.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDX 26100/26160/26200</td>
<td>X</td>
<td>11.1-63.9</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SDX 26100-100G/26160-100G/26200-100G</td>
<td>11.0.72.16</td>
<td>11.1-58.13</td>
<td>12.0-58.15</td>
<td>12.1-48.13</td>
<td>13.0-36.27</td>
</tr>
<tr>
<td>SDX 26100-50S/26160-50S/26200-50S</td>
<td>X</td>
<td>11.1-63.9</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Note:** 11.1 56.15 VPX image is supported; SDX 11.1 56.15 image is not supported.
Note: Citrix ADC Secure Web Gateway (SWG) is supported from release 12.0 56.20 and later. Citrix ADC Cluster is not supported on Citrix SDX SWG instances.

Related information

For information about how to upgrade the Citrix ADC SDX appliance and the VPX instance, see the following topics.

- Single bundle upgrade for 12.1 release
- Demystifying the Citrix ADC SDX appliance upgrade process

SDX hardware platforms

February 11, 2019

The various Citrix ADC hardware platforms offer a wide range of features, communication ports, and processing capacities. All platforms have multicore processors.

The Citrix ADC SDX appliance is a multi-tenant platform on which you can provision and manage multiple virtual instances.

Citrix ADC SDX 8015, SDX 8400, and SDX 8600

February 25, 2019

The Citrix ADC SDX 8015, SDX 8400, and SDX 8600 are 1U appliances. Each model has one quad-core processor (8 cores with hyper-threading) and 32 gigabytes (GB) of memory. The SDX 8015/8400/8600 appliances are available in two port configurations:

- Six 10/100/1000Base-T copper Ethernet ports and six 1G SFP ports (6x10/100/1000Base-T copper Ethernet ports + 6x1G SFP)
- Six 10/100/1000Base-T copper Ethernet ports and two 10G SFP+ ports (6x10/100/1000Base-T copper Ethernet ports + 2x10G SFP+)

The following figure shows the front panel of the SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 6x1G SFP) appliance.

Figure 1. Citrix ADC SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 6x1G SFP), front panel
The following figure shows the front panel of the SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 2x10G SFP+) appliance.

Figure 2. Citrix ADC SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 2x10G SFP+), front panel

Depending on the model, the appliance has the following ports:

- RS232 serial console port.
- One 10/100Base-T copper Ethernet Port (RJ45), also called LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- One 10/100/1000Base-T copper Ethernet management port (RJ45), numbered 0/1. The management port is used to connect directly to the appliance for system administration functions.
- Network Ports
  - SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 6x1G SFP). Six 10/100/1000BASE-T copper Ethernet ports (RJ45) numbered 1/1, 1/2, 1/3, 1/4, 1/5, and 1/6 on the top row from left to right, and six 1-gigabit copper or fiber 1G SFP ports numbered 1/7, 1/8, 1/9, 1/10, 1/11, and 1/12 on the bottom row from left to right.
  - SDX 8015/8400/8600 (6x10/100/1000Base-T copper Ethernet ports + 2x10G SFP+). Six 10/100/1000BASE-T copper Ethernet ports (RJ45) numbered 1/1, 1/2, 1/3, 1/4, 1/5, and 1/6 on the top row from left to right and two 10-gigabit SFP+ ports numbered 10/1 and 10/2 on the bottom row from left to right.

The following figure shows the back panel of the SDX 8015/8400/8600 appliance.

Figure 3. Citrix ADC SDX 8015/8400/8600 appliance, back panel
The following components are visible on the back panel of the SDX 8015/8400/8600 appliance:

- 300 GB removable solid-state drive, which is used to store the Citrix ADC software and the user data.
- Power switch, which turns off power to the appliance, just as if you were to unplug the power supply. Press the switch for five seconds to turn off the power.
- USB port (reserved for a future release).
- Non-maskable interrupt (NMI) button, which is used at the request of Technical Support to produce a Citrix ADC core dump. You must use a pen, pencil, or other pointed object to press this red button, which is recessed to prevent unintentional activation.
- Disable alarm button, which is nonfunctional. This button is functional only if you install a second power supply.
  
  Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.
- Single power supply, rated at 450 watts, 110-220 volts.

**Citrix ADC SDX 8900**

February 25, 2019

The Citrix ADC SDX 8900 appliance is a 1U appliance. This platform has a single 8-core processor and 32 gigabytes (GB) of memory. The appliance provides a total of 10 network ports:

- Six 10/100/1000Base-T RJ45 copper Ethernet Ports.
- Four 10G SFP+ Ethernet Ports.

1G copper transceivers are supported in 10G slots. 1G fiber transceivers are not supported.

The appliance comes with two VPX instances and supports up to seven instances. You can separately buy extra five instances.
Citrix ADC SDX

For information on the software releases supported on the Citrix ADC hardware platforms, see [Citrix ADC SDX Hardware-Software Compatibility Matrix](#).

The figures are for illustrative purposes only.

**Figure 1.** Citrix ADC SDX 8900 front panel

The Citrix ADC SDX 8900 appliances have the following ports:

- RS232 serial Console Port.
- One 10/100/1000Base-T RJ45 copper Ethernet LOM Port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- One 10/100/1000Base-T RJ45 copper Ethernet Management Port, numbered 0/1. This port is used to connect directly to the appliance for Citrix ADC administration functions.
- Six 10/100/1000Base-T RJ45 copper Ethernet Ports, numbered 1/1 to 1/6 from left to right.
- Four 10G SFP+ Ethernet Ports, numbered 10/1 to 10/4 from left to right.

**Figure 2.** Citrix ADC SDX 8900 back panel

The following components are visible on the back panel of the SDX 8900 appliances:

- One 240 GB removable solid-state drive (SSD).
- Power switch, which turns power to the appliance on or off.
  - If the OS is functional, press the switch for less than two seconds to power down the system with a graceful shutdown.
  - If the OS is not responsive, press the and hold the power switch for more than 4 seconds to force the power off.
- One power supply, 100–240 VAC (second power supply for redundancy is a customer-installable option). Each power supply has an LED indicating its status, as described below:

<table>
<thead>
<tr>
<th>LED color</th>
<th>LED indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply in the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
</tbody>
</table>

- Disable alarm button, which is functional only when the appliance has two power supplies. Press this button to silence the power alarm when one of two power supplies loses input power (second power supply optional) or when a power supply is malfunctioning.
- Non-Maskable Interrupt (NMI) Button, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information, see Lights Out Management Port of the Citrix ADC SDX Appliance.

**Citrix ADC SDX 11500, SDX 13500, SDX 14500, SDX 16500, SDX 18500, and SDX 20500**

February 25, 2019

The Citrix ADC models SDX 11500/13500/14500/16500/18500/20500 are 2U appliances. Each model has two 6-core processors for a total of 12 physical cores (24 cores with hyper-threading), and 48 gigabytes (GB) of memory.

The following figure shows the front panel of the SDX 11500/13500/14500/16500/18500/20500 appliance.

Figure 1. Citrix ADC SDX 11500/13500/14500/16500/18500/20500 appliance, front panel
The SDX 11500/13500/14500/16500/18500/20500 appliances have the following ports:

- 10/100Base-T copper Ethernet Port (RJ45), also called LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software. Note: The LEDs on the LOM port are not operational by design.
- RS232 serial console port.
- Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
- Eight 1G SFP ports numbered 1/1, 1/2, 1/3, 1/4 from top to bottom in the first column, and 1/5, 1/6, 1/7, and 1/8 from top to bottom in the second column.
- Four 10GE SFP+ ports numbered 10/1 and 10/2 from top to bottom in the first column, and 10/3 and 10/4 from top to bottom in the second column.

The following figure shows the back panel of the SDX 11500/13500/14500/16500/18500/20500 appliance.

Figure 2. Citrix ADC SDX 11500/13500/14500/16500/18500/20500 appliance, back panel
The following components are visible on the back panel of the SDX 11500/13500/14500/16500/18500/20500 appliance:

- 160 GB removable solid-state drive that is used to store the Citrix ADC software.
- USB port (reserved for a future release).
- Power switch, which turns off power to the appliance, just as if you were to unplug the power supply. Press the switch for five seconds to turn off the power.
- Non-maskable interrupt (NMI) Button that is used at the request of Technical Support and produces a core dump on the Citrix ADC appliance. You must use a pen, pencil, or other pointed object to press this red button, which is recessed to prevent unintentional activation.
- Two removable hard-disk drives that are used to store user data.
- Disable alarm button. This button is functional only when the appliance has two power supplies.
  Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.
- Dual power supplies, each rated at 650 watts, 110-220 volts.

Citrix ADC SDX 11515, SDX 11520, SDX 11530, SDX 11540, and SDX 11542

February 25, 2019

The Citrix ADC models SDX 11515/11520/11530/11540/11542 are 2U appliances. Each model has two 6-core processors for a total of 12 physical cores (24 cores with hyper-threading), and 48 gigabytes (GB) of memory.

The following figure shows the front panel of the SDX 11515/11520/11530/11540/11542 appliance.

Figure 1. Citrix ADC SDX 11515/11520/11530/11540/11542 appliance, front panel
The SDX 11515/11520/11530/11540/11542 appliances have the following ports:

- RS232 serial console port.
- 10/100Base-T copper Ethernet Port (RJ45), also called LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software. Note: The LEDs on the LOM port are not operational by design.
- Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
- Eight 10G SFP+ ports and four copper or fiber 1G SFP ports.

The following figure shows the back panel of the SDX 11515/11520/11530/11540/11542 appliance.

Figure 2. Citrix ADC SDX11515/11520/11530/11540/11542 appliance, back panel
- 256 GB removable solid-state drive that is used to store the Citrix ADC software.
- USB port (reserved for a future release).
- Power switch, which turns off power to the appliance, just as if you were to unplug the power supply. Press the switch for five seconds to turn off the power.
- Non-maskable interrupt (NMI) Button that is used at the request of Technical Support and produces a core dump on the Citrix ADC appliance. You must use a pen, pencil, or other pointed object to press this red button, which is recessed to prevent unintentional activation.
- Two removable hard-disk drives that are used to store user data.
- Disable alarm button. This button is functional only when the appliance has two power supplies.
  Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.
- Dual power supplies, each rated at 650 watts, 110–220 volts.

Citrix ADC SDX 14xxx

December 16, 2019

The Citrix ADC SDX 14020/14030/14040/14060/14080/14100 are 2U appliances. Each model has two 6-core processors and 64 GB of memory and sixteen 10G SFP+ ports (16x10G SFP+).

Note

For information about Citrix ADC SDX hardware and component compatibility matrix, see Citrix ADC SDX Hardware-Software Compatibility Matrix.

The following figure shows the front panel of the SDX 14020/14030/14040/14060/14080/14100 (16x10G SFP+) appliance.

Figure 1. Citrix ADC SDX 14020/14030/14040/14060/14080/14100 (16x10G SFP+), front panel
The Citrix ADC SDX 14020/14030/14040/14060/14080/14100 appliances have the following ports:

- RS232 serial Console Port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
- Network ports, sixteen 10G SFP+ ports (16x10G SFP+).

Note

The 10G SFP+ ports on these appliances support copper 1G SFP transceivers.

The following figure shows the back panel of the SDX 14020/14030/14040/14060/14080/14100 appliance.

**Figure 2.** Citrix ADC SDX 14020/14030/14040/14060/14080/14100, back panel

The following components are visible on the back panel of the SDX 14020/14030/14040/14060/14080/14100 appliance.
appliance:

- Two 240 GB or larger removable solid-state drives in a redundant array of independent disks (RAID) configuration.

  **Note:** These drives store the Citrix software, and cannot be increased by users.

- Two to six 300 GB or larger solid-state drives.

  **Note:** These drives are used to provision VPX instances. Contact Citrix Sales Support to purchase extra drives.

  **Note:** Drive densities might increase as components become EOL but its size will never be smaller than the original.

  For more information about managing RAID allocation, see [Managing RAID disk allocation on SDX 22XXX](#).

- **Power switch** which turns power to the appliance on or off. Press the switch for less than two seconds to turn off the power.

- **Two power supplies.** Each rated at 1000 watts, 100–240 volts. Each power supply has an LED that indicates the status of the power supply, as described in [Common Hardware Components](#).

- **Disable alarm button.** Which is functional only when the appliance has two power supplies. Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet, or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.

- **Non-maskable interrupt (NMI) Button.** Used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information about the lights out management port of the appliance, see [Lights Out Management Port of the Citrix ADC SDX Appliance](#).

  **Note**
  
  If you buy an instance license pack for SDX 14xxx that includes extra SSDs, read [CTX215581](#) and complete the steps for adding a logical drive before trying to use the additional instance licenses.

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**Citrix ADC SDX 15000-50G**

October 29, 2019
The Citrix ADC SDX 15020/15030/15040/15060/15100/15120 50G models are 2U appliances. This platform has a dual 8-core processor and 128 GB memory. The SDX 15000-50G appliance provides a total of 12 network ports:

- Eight 10G SFP+ Ethernet Ports
- Four 50G Ethernet Ports

For information about the software releases supported on the Citrix ADC hardware platforms, see Citrix ADC SDX Hardware and Component Compatibility Matrix

The illustrations in this guide are only indicative and might not represent the actual Citrix ADC appliance.

**Figure 1.** Citrix ADC SDX 15000-50G, front panel

The Citrix ADC SDX 15000-50G appliance has the following ports:

- One RS232 Serial Console Port.
- One 10/100/1000 Base-T RJ45 copper Ethernet Lights Out Management port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T RJ45 copper Ethernet Management Ports, numbered 0/1 and 0/2. These ports are used to connect directly to the appliance for Citrix ADC administration functions.
- Eight 10G SFP+ Ethernet ports, numbered 10/1 to 10/8. Each port has its own LED.
- Four 50G ports, numbered 50/1 to 50/4. Each port has its own LED.

**Figure 2.** Citrix ADC SDX 15000-50G, rear panel
The back panel of the SDX 15000-50G appliance has the following components:

- Two 240 GB RAID-supported removable boot solid-state drives (SSDs), (slots 1 and 2) as shown in figure 2. Two 240 GB RAID-supported removable storage repositories (slots 3 and 4 paired) SSDs, and four 480 GB storage repositories (slots 5–6 paired and 7–8 paired) SSDs.

- A power switch, which turns power to the appliance on or off. If the OS is functional, press the switch for less than two seconds to power down the system with a graceful shutdown. If the OS is not responsive, press the power switch for more than 4 seconds to force the power off.

- Two hot-swappable 100–240 VAC input power supply modules. Each power supply has an LED indicating its status, as shown in the following table.

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply in the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply module.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
<tr>
<td>Flashing RED and GREEN</td>
<td>Warning (OVP/UVP/OCP/OTP/Fan); OVP = Over Voltage Protection; UVP = Under Voltage Protection</td>
</tr>
</tbody>
</table>

- A disable alarm button, which is functional only when the appliance has dual redundant, hot-
swappable power supplies. Press this button to silence the power alarm when one of the two power supplies loses input power or when a power supply is malfunctioning.

- A Non-Maskable Interrupt (NMI) button, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information about the Lights Out Management port of the appliance, see *Lights Out Management port of the Citrix ADC SDX appliance.*

**Citrix ADC SDX 15000**

October 30, 2019

The Citrix ADC SDX 15020/15030/15040/15060/15080/15100/15120 appliances are 2U appliances. This platform has two 8-core processors and 128 GB of memory. The appliance provides a total of sixteen Ethernet 25G ports.

For information on the software releases supported on the Citrix ADC hardware platforms, see *Citrix ADC SDX hardware-software compatibility matrix.*

The following figure shows the front panel of the SDX 15xxx series appliances.

Figure 1. Citrix ADC SDX 15xxx, front panel

The Citrix ADC SDX 15xxx series appliances have the following ports:

- RS232 serial console port.
• One 10/100/1000Base-T RJ45 copper Ethernet LOM Port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
• One 10/100/1000Base-T RJ45 copper Ethernet Management Port, numbered 0/1. This port is used to connect directly to the appliance for Citrix ADC administration functions.
• Sixteen 25G Ethernet ports, numbered 25/1 to 25/16.

The following figure shows the back panel of the SDX 15xxx appliance.

Figure 2. Citrix ADC SDX 15xxx, back panel

The following components are visible on the back panel of the SDX 15xxx appliance:
• Four 240 GB and two 480 GB removable solid-state drives (SSD).
• Power switch, which turns power to the appliance on or off.
  – If the OS is functional, press the switch for less than two seconds to shut down the system gracefully.
  – If the OS is not responsive, press and hold the power switch for more than 4 seconds to force the power off.
• Two hot-swappable 100-240VAC input power-supply modules. Each power supply has an LED indicating its status, as described below:

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply in the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
</tbody>
</table>
Citrix ADC SDX

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing RED and GREEN</td>
<td>Warning (OVP/UVP/OCP/OTP/Fan); OVP = Over Voltage Protection; UVP = Under Voltage Protection; OCP = Over Current Protection; OTP = Over Temperature Protection</td>
</tr>
</tbody>
</table>

- Disable alarm button: functional only when the appliance has two power supplies. Press this button to silence the power alarm when one of two power supplies loses input power (second power supply optional) or when a power supply is malfunctioning.
- Non-Maskable Interrupt (NMI) button: recessed to prevent unintentional activation and used at the request of Technical Support to initiate a core dump. To press this red button, use a pen, pencil, or other pointed object. The NMI button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information, see Lights out management port of the Citrix ADC SDX appliance topic.

Citrix ADC SDX 17500, SDX 19500, and SDX 21500

February 25, 2019

The Citrix ADC models SDX 17500/19500/21500 are 2U appliances. Each model has two 6-core processors and 48 gigabytes (GB) of memory.

The following figure shows the front panel of the SDX 17500/19500/21500 appliance.

Figure 1. Citrix ADC SDX 17500/19500/21500 appliance, front panel

The SDX 17500/19500/21500 appliances have the following ports:

- RS232 serial console port.
• Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
• Eight 10GE SFP+ ports numbered 10/1, 10/2, 10/3, and 10/4 on the top row from left to right, and 10/5, 10/6, 10/7, and 10/8 on the bottom row from left to right.

The following figure shows the back panel of the SDX 17500/19500/21500 appliance.

Figure 2. Citrix ADC SDX 17500/19500/21500 appliance, back panel

The following components are visible on the back panel of the SDX 17500/19500/21500 appliance:

• 160 GB removable solid-state drive that is used to store the Citrix ADC software.
• USB port (reserved for a future release).
• Power switch, which turns off power to the appliance, just as if you were to unplug the power supply. Press the switch for five seconds to turn off the power.
• Non-maskable interrupt (NMI) button that is used at the request of Technical Support and produces a core dump on the Citrix ADC appliance. You must use a pen, pencil, or other pointed object to press this red button, which is recessed to prevent unintentional activation.
• Removable hard-disk drive that stores user data.
• Disable alarm button. This button is functional only when the appliance has two power supplies. Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.
• Dual power supplies, each rated at 650 watts, 110-220 volts.
The Citrix ADC models SDX 17550, SDX 19550, SDX 20550, and SDX 21550 are 2U appliances. Each model has two 6-core processors for a total of 12 physical cores (24 cores with hyper-threading), and 96 gigabytes (GB) of memory.

The following figure shows the front panel of the SDX 17550/19550/20550/21550 appliance.

Figure 1. Citrix ADC SDX 17550/19550/20550/21550 appliance, front panel

The SDX 17550/19550/20550/21550 appliance has the following ports:

- 10/100Base-T copper Ethernet Port (RJ45), also called LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.

  Note

  The LEDs on the LOM port are not operational by design.

- RS232 serial console port.

- Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.

- Eight 10GE SFP+ ports numbered 10/1, 10/2, 10/3, and 10/4 on the top row from left to right, and 10/5, 10/6, 10/7, and 10/8 on the bottom row from left to right.

The following figure shows the back panel of the SDX 17550/19550/20550/21550 appliance.

Figure 2. Citrix ADC SDX 17550/19550/20550/21550 appliance, back panel
The following components are visible on the back panel of the SDX 17550/19550/20550/21550 appliance:

- 160 GB removable solid-state drive that is used to store the Citrix ADC software.
- USB port (reserved for a future release).
- Power switch, which turns off power to the appliance, just as if you were to unplug the power supply. Press the switch for five seconds to turn off the power.
- Non-maskable interrupt (NMI) button that is used at the request of Technical Support and produces a core dump on the Citrix ADC appliance. You must use a pen, pencil, or other pointed object to press this red button, which is recessed to prevent unintentional activation.
- Two removable hard-disk drives that store user data.
- Disable alarm button. This button is functional only when the appliance has two power supplies.
  
  Press this button to stop the power alarm from sounding when you have plugged the appliance into only one power outlet or when one power supply is malfunctioning and you want to continue operating the appliance until it is repaired.
- Dual power supplies, each rated at 850 watts, 110-220 volts.

Citrix ADC SDX 22040, SDX 22060, SDX 22080, SDX 22100, and SDX 22120

February 25, 2019

The Citrix ADC SDX 22040/22060/22080/22100/22120 are 2U appliances. Each model has two 8-core processors (32 cores with hyper-threading) and 256 gigabytes (GB) of memory. The SDX 22040/22060/22080/22100/22120 appliances are available in two port configurations:
Citrix ADC SDX

- Twelve 1G SFP ports and twenty-four 10G SFP+ ports (12x1G SFP + 24x10G SFP+)
- Twenty-four 10G SFP+ ports (24x10G SFP+)

The following figure shows the front panel of the SDX 22040/22060/22080/22100/22120 (12x1G SFP + 24x10G SFP+) appliance.

Figure 1. Citrix ADC SDX 22040/22060/22080/22100/22120 (12x1G SFP + 24x10G SFP+), front panel

The following figure shows the front panel of the SDX 22040/22060/22080/22100/22120 (24x10G SFP+) appliance.

Figure 2. Citrix ADC SDX 22040/22060/22080/22100/22120 (24x10G SFP+), front panel

Depending on the model, the appliance has the following ports:

- RS232 serial Console Port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T copper Ethernet Management Ports (RJ45), numbered 0/1 and 0/2 from
left to right. These ports are used to connect directly to the appliance for system administration functions.

- **Network Ports**
  - SDX 22040/22060/22080/22100/22120 (12x1G SFP + 24x10G SFP+). Twelve copper or fiber 1G SFP ports and twenty-four 10G SFP+ ports.
  - SDX 22040/22060/22080/22100/22120 (24x10G SFP+). Twenty-four 10G SFP+ ports.

The following figure shows the back panel of the SDX 22040/22060/22080/22100/22120 appliances.

Figure 3. Citrix ADC SDX 22040/22060/22080/22100/22120, back panel

The following components are visible on the back panel of the SDX 22040/22060/22080/22100/22120 appliance:

- **Non-maskable interrupt (NMI) Button**, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu.

- **System status LED**, which indicates the status of the appliance, as described in LCD Display and LED Status Indicators.

**Note**

On an SDX 22040/22060/22080/22100/22120 appliance running LOM firmware version 3.22, the system status LED indicates an error (continuously glows RED) even though the appliance is functioning properly.

- **Four power supplies**, each rated at 750 watts, 100-240 volts. A minimum of two power supplies are required for proper operation. The extra power supplies act as backup. Each power supply
Citrix ADC SDX has an LED that indicates the status of the power supply, as described in *LCD Display and LED Status Indicators*.

- Power switch, which turns off power to the appliance. Press the switch for less than two seconds to turn off the power.
- 256 GB removable solid-state drives.

**Citrix ADC SDX 24100 and SDX 24150**

February 25, 2019

The Citrix ADC SDX 24100/24150 are 2U appliances. Each model has two 8-core processors (32 cores with hyper-threading) and 256 gigabytes (GB) of memory. The SDX 24100/24150 appliances are available in the twelve 1G SFP ports and twenty-four 10G SFP+ ports (12x1G SFP + 24x10G SFP+) configuration.

The following figure shows the front panel of the SDX 24100/24150 (12x1G SFP + 24x10G SFP+) appliance.

![Figure 1. Citrix ADC SDX 24100/24150 (12x1GSFP+24x10GSFP+), front panel](image)

Depending on the model, the appliance has the following ports:

- RS232 serial Console Port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T copper Ethernet Management Ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
• **Network Ports**
  - SDX 24100/24150 (12x1G SFP + 24x10G SFP+). Twelve copper or fiber 1G SFP ports and twenty-four 10G SFP+ ports.

The following figure shows the back panel of the SDX 24100/24150 appliances.

**Figure 2. Citrix ADC SDX 24100/24150, back panel**

![Back Panel Diagram](image)

The following components are visible on the back panel of the SDX 24100/24150 appliance:

• Non-maskable interrupt (NMI) Button, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu.

• System status LED, which indicates the status of the appliance, as described in [LCD Display and LED Status Indicators](#).

Note: On an SDX 24100/24150 appliance running LOM firmware version 3.22, the system status LED indicates an error (continuously glows RED) even though the appliance is functioning properly.

• Four power supplies, each rated at 750 watts, 100-240 volts. A minimum of two power supplies are required for proper operation. The extra power supplies act as backup. Each power supply has an LED that indicates the status of the power supply, as described in [LCD Display and LED Status Indicators](#).

• Power switch, which turns off power to the appliance. Press the switch for less than two seconds to turn off the power.
Citrix ADC SDX

- Four 600 GB removable solid-state drives. The first two leftmost solid-state drives store the Citrix ADC software. The next two solid-state drives store user data. Additionally, you can extend the SSD storage (optional) by another 2 or 4 600 GB SSDs.

**Citrix ADC SDX 26000 100G**

February 25, 2019

The Citrix ADC SDX 26000-100G appliance is a 2U appliance. This platform has two 14-core processors and 256 GB memory. The appliance provides a total of 8 network ports:

- Eight 100G Ethernet Ports

For information about the software releases supported on the Citrix ADC hardware platforms, see [Citrix ADC SDX Hardware-Software Compatibility Matrix](#).

The illustrations in this guide are only indicative and might not represent the actual Citrix ADC appliance.

**Figure 1.** Citrix ADC SDX 26000-100G front panel

The Citrix ADC SDX 26000-100G appliances have the following ports:

- RS232 serial Console Port.
- One 10/100/1000Base-T RJ4S copper Ethernet LOM Port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T RJ4S copper Ethernet Management Ports, numbered 0/1 and 0/2. These port are used to connect directly to the appliance for Citrix ADC administration functions.

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• Eight 100G Ethernet Ports, numbered 100/1 to 100/8 from left to right. Contact Citrix support for a list of all supported 100G transceivers.

**Figure 2.** Citrix ADC SDX 26000-100G back panel

The following components are visible on the back panel of the SDX 26000-100G appliances:

• Two 240 GB removable boot solid-state drives (SSDs).
• Six 960 GB removable SSDs.
• Power switch, which turns power to the appliance on or off.
  – If the OS is functional, press the switch for less than two seconds to power down the system with a graceful shutdown.
  – If the OS is not responsive, press the and hold the power switch for more than 4 seconds to force the power off.
• Two power supplies, 100-240 VAC. Each power supply has an LED indicating its status, as described in the following table:

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply on the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
<tr>
<td>Flashing RED and GREEN</td>
<td>Warning (OVP/UVP/OCP/OTP/Fan); OVP = Over Voltage Protection; UVP = Under Voltage Protection; OCP = Over Current Protection.</td>
</tr>
</tbody>
</table>

• Disable alarm button, which is functional only when the appliance has dual redundant, hot-swappable power supplies. Press this button to silence the power alarm when one of the two power supplies loses input power or when a power supply is malfunctioning.
• Non-Maskable Interrupt (NMI) Button, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information about the lights out management port of the appliance, see [Lights Out Management Port of the Citrix ADC SDX Appliance](#).
The Citrix ADC SDX 26000 appliances are 2U appliances. These appliances have two 14-core processors and 256 GB of memory. The appliance has eight 50G and sixteen 25G network ports.

For information about the software releases supported on the Citrix ADC hardware platforms, see Citrix ADC SDX hardware-software compatibility matrix.

The following figure shows the front panel of the Citrix ADC SDX 26000 appliances.

Figure 1. Citrix ADC SDX 26000, front panel

The Citrix ADC SDX 26000 appliances have the following ports:

- RS232 serial console port.
- One 10/100/1000Base-T RJ45 copper Ethernet LOM Port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T RJ45 copper Ethernet Management Ports, numbered 0/1 and 0/2. These ports are used to connect directly to the appliance for Citrix ADC administration functions.
- Eight 50G ports, numbered 50/1 to 50/8.
- Sixteen 25G ports, numbered 25/1 through 25/16.

The following figure shows the back panel of the SDX 26000 appliances.

Figure 2. Citrix ADC SDX 26000, back panel
The following components are visible on the back panel of the Citrix ADC SDX 26000 appliances:

- Two 240 GB and six 960 GB removable solid-state drive (SSD).
- Power switch, which turns power to the appliance on or off.
  - If the OS is functional, press the switch for less than two seconds to power down the system with a graceful shutdown.
  - If the OS is not responsive, press and hold the power switch for more than 4 seconds to force the power off.
- Two hot-swappable 100–240 VAC, 1000 W power supply modules. Max power consumption is 672 W; typical power consumption is 540 W. Each power supply has an LED indicating its status as follows:

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply on the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
<tr>
<td>Flashing RED and GREEN</td>
<td>Warning (OVP/UVP/OCP/OTP/Fan); OVP = Over Voltage Protection; UVP = Under Voltage Protection; OCP = Over Current Protection; OTP = Over Temperature Protection</td>
</tr>
</tbody>
</table>

- Disable alarm button. Press this button to silence the power alarm when one of two power
supplies loses input power or when a power supply is malfunctioning.

- Non-Maskable Interrupt (NMI) Button, used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information, see Lights out management port of the Citrix ADC SDX appliance.

**Citrix ADC SDX 26xxx-50S**

October 31, 2019

The Citrix ADC SDX 26xxx-50S appliances are 2U appliances. These appliances have two 14-core processors and 256 GB of memory. The appliances have four 50G and sixteen 25G network ports.

For information about software releases supported on the Citrix ADC hardware platforms, see [Citrix ADC SDX hardware-software compatibility matrix](#).

The following figure shows the front panel of the Citrix ADC SDX 26xxx-50S appliances.

**Figure 1. Citrix ADC SDX 26xxx-50S, front panel**

The Citrix ADC SDX 26xxx-50S appliances have the following ports:

- RS232 serial console port.
- One 10/100/1000Base-T RJ45 copper Ethernet LOM Port. Use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T RJ45 copper Ethernet Management Ports, numbered 0/1 and 0/2. These ports are used to connect directly to the appliance for Citrix ADC administration functions.
- Four 50G ports, numbered 50/1 to 50/4.
- Sixteen 25G ports, numbered 25/1 through 25/16.
The following components are visible on the back panel of the Citrix ADC SDX 26xxx-50S appliances:

- Two 240GB and six 960GB removable solid-state drive (SSD).
- Power switch, which turns power to the appliance on or off.
  - If the OS is functional, press the switch for less than two seconds to shut down gracefully.
  - If the OS is not responsive, press and hold the power switch for more than 4 seconds for hard shutdown.
- Two hot-swappable 100-240VAC, 1200 W power supply modules. Max power consumption is 764 W; typical power consumption is 628 W. Each power supply has an LED indicating its status, as described below:

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power to any power supply on the appliance.</td>
</tr>
<tr>
<td>Flashing RED</td>
<td>No power to this power supply.</td>
</tr>
<tr>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode.</td>
</tr>
<tr>
<td>GREEN</td>
<td>Power supply is functional.</td>
</tr>
<tr>
<td>RED</td>
<td>Power supply failure.</td>
</tr>
<tr>
<td>Flashing RED and GREEN</td>
<td>Warning;(OVP/UVP/OCP/OTP/Fan); OVP = Over Voltage Protection; UVP = Under Voltage Protection; OCP = Over Current Protection; OTP = Over Temperature Protection</td>
</tr>
</tbody>
</table>
• Disable alarm button. Press this button to silence the power alarm when power supply loses input power or when a power supply is malfunctioning.
• Non-Maskable Interrupt (NMI) button: is recessed to prevent unintentional activation and used at the request of Technical Support to start a core dump. To press this red button, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information, see Lights out management port of the Citrix ADC SDX appliance.

**Citrix ADC SDX 14030 FIPS, 14060 FIPS, 14080 FIPS**

December 17, 2019

The Citrix ADC models SDX 14030 FIPS, SDX 14060 FIPS, and SDX 14080 FIPS are 2U appliances. Each model has two quad-core processors, 64 GB memory, 16 10G SFP+ ports (16x10G SFP+).

**Figure 1.** Citrix ADC SDX 14030/14060/14080 FIPS front panel

The Citrix ADC SDX 14030/14060/14080 FIPS appliances have the following ports:

• RS232 serial Console Port.
• 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
• Two 10/100/1000Base-T copper Ethernet Management Ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
• Sixteen 10G SFP+ ports.

**Note**

• 10G ports do not support 1G copper or 1G fiber transceivers.
• 40G ports do not support 10G and 1G transceivers.
The following components are visible on the back panel of the SDX 14030 FIPS, SDX 14060 FIPS, and SDX 14080 FIPS appliances:

- Two 240 GB or larger removable solid-state drives in a redundant array of independent disks (RAID) configuration.  
  **Note:** These drives store the Citrix software, and cannot be increased by users.  
- Two to six 300 GB or larger solid-state drives.  
  **Note:** These drives are used to provision VPX instances. Contact Citrix Sales Support to purchase extra drives.  
  **Note:** Drive densities might increase as components become EOL but its size will never be smaller than the original.  
- **Power switch.** Which turns power to the appliance on or off. Press the switch for less than two seconds to turn off the power.  
- Two power supplies, each rated at 1,000 watts, 100–240 volts. Each power supply has an LED that indicates the status of the power supply, see **Common hardware components**.  
- **Disable alarm button.** Which is functional only when the appliance has dual redundant, hot-swappable power supplies. Press this button to silence the power alarm when one of the two power supplies loses input power or when a power supply is malfunctioning.  
- **Non-maskable interrupt (NMI) button.** Used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the lights out management GUI, in the Remote Controlment. For more information, see **Lights out management port of the Citrix ADC SDX appliance**.  

See **Configuring an SDX 14000 FIPS appliance** for more information about how to configure an SDX 14030/14060/14080 FIPS appliance.
Citrix ADC SDX 25100A, SDX 25160A

February 25, 2019

The Citrix ADC SDX 25100A and SDX 25160A are 2U appliances. Each model has two 10-core processors, 256 GB of memory, eight 40GE QSFP+ ports (8x40GE QSFP+).

**Figure 1.** Citrix ADC SDX 25100A and SDX 25160A front panel

The Citrix ADC SDX 25160A and SDX 25100A appliances have the following ports:

- RS232 serial Console Port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Network ports, eight 40G QSFP+ ports.

**Note**

40G ports do not support 10G and 1G transceivers.

**Figure 2.** Citrix ADC SDX 25100A and SDX 25160A back panel

The following components are visible on the back panel of the SDX 25100A and SDX 25160A appliance:

- **Two 300 GB removable solid-state drives (SSDs).** The two leftmost solid-state drives store the Citrix ADC software. The next two solid-state drives store user data. The remaining four solid-state drives are reserved for future use. These appliances are redundant array of independent disks (RAID) devices.
- **Power switch.** Which turns power to the appliance on or off. Press the switch for less than two seconds to turn off the power.
- **Two power supplies.** each rated at 1000 watts, 100-240 volts. Each power supply has an LED that indicates the status of the power supply.
- **Disable alarm button.** Which is functional only when the appliance has dual redundant, hot-swappable power supplies. Press this button to silence the power alarm when one of the two power supplies loses input power or when a power supply is malfunctioning.
• **Non-maskable interrupt (NMI) button.** Used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information about the lights out management port of the appliance, see [Lights Out Management Port of the Citrix ADC SDX Appliance](#).

### Citrix ADC SDX 25100 40G, SDX 25160 40G

February 25, 2019

The Citrix ADC SDX 25100 40G, SDX 25160 40G are 2U appliances. Each model has two 10-core processors, 256 gigabytes (GB) of memory, four 40G QSFP+ ports, and sixteen 10G SFP+ ports (4x40G QSFP+ + 16x10G SFP+).

**Figure 1.** Citrix ADC SDX 25100 40G, SDX 25160 40G (4x40G QSFP+ + 16x10G SFP+) front panel

The Citrix ADC SDX 25100 40G, SDX 25160 40G appliances have the following ports:

- RS232 serial Console Port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.
- Two 10/100/1000Base-T copper Ethernet Management Ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions.
- Network Ports, four 40G QSFP+ ports and sixteen 10G SFP+ ports (4x40G QSFP+ + 16x10G SFP+).
Note

- 10G ports do not support 1G copper or 1G fiber transceivers.
- 40G ports do not support 10G and 1G transceivers.

**Figure 2.** Citrix ADC SDX 25100-40G and SDX 25160-40G back panel

The following components are visible on the back panel of the SDX 25100-40G, SDX 25160-40G appliance:

- **Two 300 GB removable solid-state drives (SSDs).** The two leftmost solid-state drives store the Citrix ADC software. The next two solid-state drives, of 300 GB each, store user data. The remaining four solid-state drives are reserved for future use.
- **Power switch.** Which turns power to the appliance on or off. Press the switch for less than two seconds to turn off the power.
- **Two power supplies.** Each rated at 1000 watts, 100-240 volts. Each power supply has an LED that indicates the status of the power supply, as described in Common Hardware Components.
- **Disable alarm button.** Which is functional only when the appliance has dual redundant, hot-swappable power supplies. Press this button to silence the power alarm when one of the two power supplies loses input power or when a power supply is malfunctioning.
- **Non-maskable interrupt (NMI) button.** Used at the request of Technical Support to initiate a core dump. To press this red button, which is recessed to prevent unintentional activation, use a pen, pencil, or other pointed object. The NMI Button is also available remotely over the network in the LOM GUI, in the Remote Control menu. For more information about the lights out management port of the appliance, see Lights Out Management Port of the Citrix ADC SDX Appliance.
Common hardware components

October 23, 2019

Each platform has front panel and back panel hardware components. The front panel has an LCD display and an RS232 serial console port. The number, type, and location of ports—copper Ethernet, copper and fiber 1G SFP, 10GSFP+, and 40G QSFP+. The back panel provides access to the fan and the field replaceable units (power supplies, CompactFlash card, and solid-state and hard-disk drives).

LCD display and LED status indicators

On some Citrix ADC SDX appliances, the LCD on the front panel displays the appliance’s model number, but the number shown might not be the licensed model number. To view the licensed model number of any SDX appliance, log on to the Management Service and check the licensed model number in the top left corner of the screen. For example, if you have purchased an SDX 11515 license, the LCD screen displays CITRIX NSSDX-11500, and the Management Service screen displays Citrix ADC SDX (11515).

The LCD backlight on the Citrix ADC appliance is always on.

On the appliance’s back panel, system status LEDs indicate the overall status of the appliance. The following table describes the indicators of the system status LED.

On the appliance’s back panel, power status LEDs indicate the status of each power supply.

<table>
<thead>
<tr>
<th>LED Color</th>
<th>LED Indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>No power</td>
</tr>
<tr>
<td>Green</td>
<td>Appliance is receiving power</td>
</tr>
<tr>
<td>Red</td>
<td>Appliance has detected an error</td>
</tr>
</tbody>
</table>

Note
System status LEDs are available on only some Citrix ADC SDX appliances.

The port LEDs show whether a link is established and traffic is flowing through the port. The following table describes the LED indicators for each port. There are two LED indicators for each port type.

Note
This section applies to all the appliances.
## LED port-status indicators

<table>
<thead>
<tr>
<th>Port type</th>
<th>LED color</th>
<th>LED indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Gbps</td>
<td>Off</td>
<td>A link has not been established</td>
</tr>
<tr>
<td></td>
<td>Blinking amber</td>
<td>Indicates a problem with the link</td>
</tr>
<tr>
<td></td>
<td>Solid green</td>
<td>Indicates a valid link with no active traffic</td>
</tr>
<tr>
<td></td>
<td>Blinking green</td>
<td>Indicates a valid link with active traffic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port type</th>
<th>LED</th>
<th>LED</th>
<th>LED color</th>
<th>LED indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Gbps</td>
<td>Top</td>
<td>Speed</td>
<td>Off</td>
<td>No connection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solid blue</td>
<td>Traffic rate of 10 gigabits per second</td>
</tr>
<tr>
<td></td>
<td>Bottom</td>
<td>Link/Activity</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solid green</td>
<td>Link is established but no traffic is passing through the port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blinking green</td>
<td>Traffic is passing through the port</td>
</tr>
<tr>
<td>1G SFP (1 Gbps)</td>
<td>Left</td>
<td>Link/Activity</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solid green</td>
<td>Link is established but no traffic is passing through the port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blinking green</td>
<td>Traffic is passing through the port</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>Speed</td>
<td>Off</td>
<td>No connection</td>
</tr>
<tr>
<td>Port type</td>
<td>LED</td>
<td>LED</td>
<td>LED color</td>
<td>LED indicates</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------</td>
<td>----------</td>
<td>-----------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Management (RJ45)</td>
<td>Left</td>
<td>Speed</td>
<td>Off</td>
<td>No connection, or a traffic rate of 10 megabits per second (Mbps)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green</td>
<td>Traffic rate of 100 Mbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Amber</td>
<td>Traffic rate of 1 gigabit per second</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>Link/Activity</td>
<td>Off</td>
<td>No link</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solid yellow</td>
<td>Link is established but no traffic is passing through the port</td>
</tr>
</tbody>
</table>

On each power supply, a bicolor LED indicator shows the condition of the power supply.

**LED power supply indicators**

<table>
<thead>
<tr>
<th>Power supply type</th>
<th>LED color</th>
<th>LED indicates</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>OFF</td>
<td>No power to any power supply</td>
</tr>
<tr>
<td></td>
<td>Flashing RED</td>
<td>No power to this power supply</td>
</tr>
<tr>
<td></td>
<td>Flashing GREEN</td>
<td>Power supply is in standby mode</td>
</tr>
<tr>
<td></td>
<td>GREEN</td>
<td>Power supply is functional</td>
</tr>
<tr>
<td></td>
<td>RED</td>
<td>Power supply failure</td>
</tr>
</tbody>
</table>
Ports

Ports are used to connect the appliance to external devices. Citrix ADC appliances support RS232 serial ports, 10/100/1000Base-T copper Ethernet ports, 1-gigabit copper and fiber 1G SFP ports, and 10-gigabit fiber SFP+ ports. All Citrix ADC appliances have a combination of some or all of these ports. For details on the type and number of ports available on your appliance, see the section describing that platform.

RS232 serial port

The RS232 serial console port provides a connection between the appliance and a computer, allowing direct access to the appliance for initial configuration or troubleshooting.

All hardware platforms ship with an appropriate serial cable used to connect your computer to the appliance. For instructions on connecting your computer to the appliance, see Installing the Hardware.

Copper Ethernet ports

The copper Ethernet ports installed on many models of the appliance are standard RJ45 ports.

There are two types of copper Ethernet ports that are installed on your appliance:

- **10/100BASE-T port**
  
  The 10/100BASE-T port has a maximum transmission speed of 100 megabits per second (Mbps). Most platforms have at least one 10/100BASE-T port.

- **10/100/1000BASE-T port**
  
  The 10/100/1000BASE-T port has a maximum transmission speed of 1 gigabit per second, 10 times faster than the other type of copper Ethernet port. Most platforms have at least one 10/100/1000Base-T port.

To connect any of these ports to your network, you plug one end of a standard Ethernet cable into the port and plug the other end into the appropriate network connector.

Management ports

Management ports are standard copper Ethernet ports (RJ45), which are used for direct access to the appliance for system administration functions.
1G SFP, 10G SFP+, and 40G QSFP+ ports

A 1G SFP port can operate at a speed of 1 Gbps. It accepts either a copper 1G SFP transceiver for operation as a copper Ethernet port, or a fiber 1G SFP transceiver for operation as a fiber optic port.

The 10G SFP+ and Base-T 10G, 40G QSFP+ are high-speed ports that can operate at speeds of up to 40 Gbps. You need a fiber optic cable to connect to a port. If the other end of the fiber optic cable is attached to a 1G SFP port, the 10G SFP+ port negotiates to match the speed of the 1G SFP port.

Ports compatibility

On some appliances, the 10G slot supports copper 1G transceivers, which can operate at up to 1 Gbps in a 10 Gbps slot.

Note

• Certain platforms have 10G slots that do not support copper transceivers. Check with your account representative for support details.
• You cannot insert a fiber 1G transceiver into a 10G slot.
• You cannot insert a 10G transceiver into a 1G slot.

The 10G SFP+, modules are dual-speed capable and support both 1 Gbps and 10 Gbps, depending on the peer switch that the model connects to.

Most tables have the following columns:

• Description: The price list description of the part.
• Transmit Wavelength: The nominal transmit wavelength.
• Cable/Fiber Type: Fiber characteristics affect the maximum transmit distance achievable. This is especially true with 10G on multi-mode fiber (MMF), where various dispersion components become dominant. For more information, see http://www.thefoa.org/tech/ref/basic/fiber.html.
• Typical Reach: Maximum transmit distance.
• Products: Some chassis are available with different media options. Use the appropriate data sheet to confirm that your particular chassis type supports the media.

1G pluggable media

The following table lists the maximum distance specifications for 1G transceivers.

Copper 1G SFP distance specifications

Description: Citrix ADC 1G SFP Ethernet copper (100 m) - 4 pack
Transmitter wavelength (nm): Not applicable
Cable type: Category 5 (Cat-5) copper cable

Typical reach (m): 100 m

Applicable platforms:
SDX 8015/8400/8600
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

**Short reach fiber 1G SFP distance specifications**

Description: Citrix ADC 1G SFP Ethernet SX (300 m) - 4 pack

Transmitter wavelength (nm): 850 nm (nominal)

Fiber type: 50/125um MMF, 2000MHz-km (OM3) Typical Reach (m): 550 m
Fiber type: 50/125um MMF, 500MHz-km (OM2) Typical Reach (m): 550 m
Fiber type: 50/125um MMF, 400MHz-km Typical Reach (m): 550 m
Fiber type: 62.5/125um MMF, 200MHz-km (OM1) Typical Reach (m): 300 m
Fiber type: 62.5/125um MMF, 160MHz-km Typical Reach (m): 300 m

Applicable platforms:
SDX 8015/8400/8600
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

**Short reach fiber 1G SFP distance specifications**

Description: Citrix ADC 1G SFP Ethernet short range (300 m) - Single

Transmitter wavelength (nm): 850 nm (nominal)

Fiber type: 50/125um MMF, 2000MHz-km (OM3) Typical Reach (m): 550 m
Fiber type: 50/125um MMF, 500MHz-km (OM2) Typical Reach (m): 550 m
Fiber type: 50/125um MMF, 400MHz-km Typical Reach (m): 550 m
Fiber type: 62.5/125um MMF, 200MHz-km (OM1) Typical Reach (m): 275 m
Fiber type: 62.5/125um MMF, 160MHz-km Typical Reach (m): 220 m

Applicable platforms:
SDX 8015/8400/8600
SDX 11500/13500/14500/16500/18500/20500
SDX 11515/11520/11530/11540/11542

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Citrix ADC SDX

SDX 17500/19500/21500
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

**Long reach fiber 1G SFP distance specifications**

Description: Citrix ADC 1G SFP Ethernet LX - Single

Transmitter wavelength (nm): 1310 nm (nominal)

Fiber type: 9/125um SMF

Typical reach (m): 10 km

Applicable platforms:
SDX 8015/8400/8600
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

**Long reach fiber 1G SFP distance specifications**

Description: Citrix ADC 1G SFP Ethernet long range (10 km) - Single

Transmitter wavelength (nm): 1310 nm (nominal)

Fiber type: 9/125um SMF

Typical reach (m): 10 km

Applicable platforms:
SDX 8015/8400/8600
SDX 11500/13500/14500/16500/18500/20500
SDX 11515/11520/11530/11540/11542
SDX 17500/19500/21500
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

**10 GE pluggable media**

The following table lists the maximum distance specifications for 10G transceivers.

**Short reach fiber 10G SFP+ distance specifications**

Description: Citrix ADC 10G SFP+, Ethernet Short Range (300 m) - Single

Transmitter wavelength (nm): 850 nm (nominal)
Citrix ADC SDX

Fiber types
50/125um MMF, 2000MHz-km (OM3), typical reach (m): 300 m
50/125um MMF, 500MHz-km (OM2), typical reach (m): 82 m
50/125um MMF, 400MHz-km, typical reach 66 m
62.5/125um MMF, 200MHz-km (OM1), typical reach: 33 m
62.5/125um MMF, 160MHz-km, typical reach: 26 m

Applicable platforms:
SDX 8015/8400/8600
SDX 11500/13500/14500/16500/18500/20500
SDX 11515/11520/11530/11540/11542
SDX 17500/19500/21500
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

Long reach fiber 10G SFP+ distance specifications
Description: Citrix ADC 10G SFP+ Ethernet long range (10 km) - Single
Transmitter wavelength (nm): 1310 nm (nominal)
Fiber type: 9/125um SMF
Typical reach (m): 10 km

Applicable platforms:
SDX 8015/8400/8600
SDX 11500/13500/14500/16500/18500/20500
SDX 11515/11520/11530/11540/11542
SDX 17500/19500/21500
SDX 22040/22060/22080/22100/22120
SDX 24100/24150

Field replaceable units

February 25, 2019
Citrix ADC field replaceable units (FRUs) are components that can be quickly and easily removed from the appliance and replaced by the user or a technician at the user’s site. The FRUs in a Citrix ADC SDX appliance can include DC or AC power supplies, solid-state drives (SSDs), and a direct-attach cable (DAC).
Note
The figures in this section are illustrative. The actual product might vary depending on the model number.

This topic includes the following sections:

- Power Supply
- Solid-State Drive
- Direct Attach Cable

Power Supply

For appliances containing two power supplies, the second power supply acts as a backup. Some appliances can accommodate four power supplies, and require two power supplies for proper operation. The third and fourth power supplies act as backup. All power supplies must be of the same type (AC or DC).

The SDX appliance ships with a country-specific power cord and a plug.

For power-supply specifications, see the SDX Hardware Platforms topic, which describes the various platforms.

Note
If you suspect that a power-supply fan is not working, check the system health through the SDX GUI or lights out management. For more information, see System Health Monitoring and Lights Out Management Port of the Citrix ADC SDX Appliance.

On each power supply, a bicolor LED indicator shows the condition of the power supply. Green means that the appliance receives power. Red means that power supply has detected an error. For more information about LED power supply indicator, see “LCD Display and LED Status Indicators” in Common Hardware Components.

Electrical Safety Precautions for Power Supply Replacement

- Ensure that the appliance has a direct physical connection to earth ground during normal use. When installing or repairing an appliance, always connect the ground circuit first and disconnect it last.
- Citrix ADC SDX appliances do not contain user serviceable components, except as noted in this (FRU) section. Do not attempt to open the chassis.
- Always unplug the power cord from the power source before removing the power supply.
- Never touch a power supply when the power cord is plugged in. As long as the power cord is plugged in, line voltages are present in the power supply even if the power switch is turned off.
For the complete list of safety precautions, see Safety, Cautions, Warnings, and Other Information.

Replace an AC or a DC Power Supply

If the appliance has only one power supply, you have to shut down the appliance before replacing the power supply. If the appliance has two power supplies, you can replace one power supply without shutting down the appliance, provided the other power supply is working.

To install or replace an AC or a DC power supply on a Citrix ADC SDX appliance

1. Align the semicircular handle perpendicular to the power supply. Loosen the thumbscrew and press the lever toward the handle and pull out the existing power supply, as shown in the following figure.

   Figure 1. Remove an Existing AC Power Supply

   [Image of a Citrix ADC SDX appliance with components labeled: Thumbscrew, Lever, Handle]

   Figure 2. Remove an Existing DC Power Supply

   [Image of a Citrix ADC SDX appliance with components labeled: Thumbscrew, Lever, Handle]

2. Carefully remove the new power supply from its box.

3. On the back of the appliance, align the power supply with the power supply slot.

4. Insert the power supply into the slot and press against the semicircular handle until you hear the power supply snap into place.
5. Connect the power supply to a power source. If connecting all power supplies, plug separate power cords into the power supplies and connect them to separate wall sockets.

**Note**
The Citrix ADC SDX appliance emits a high-pitched alert if one power supply fails, or if you connect only one power cable to the appliance in which two power supplies are installed. To silence the alarm, press the button labeled Alarm Disable on the back panel of the appliance. The disable alarm button is functional only when the appliance has two power supplies.

**Solid-State Drives**

In a Citrix ADC SDX appliance, the solid-state drives (SSDs) store system bootup files and VDI of Management Service instances. Some SSDs support RAID and some do not.

SSDs with RAID support are hot swappable. An SSD without RAID support is not hot swappable.

**To replace a RAID-supported SSD**

1. From the Citrix ADC SDX GUI, navigate to **Configuration > System > RAID > Physical Drives**. Under **Raid State** you can identify the failed SSD.

2. Select the check box and click **Locate** to identify the failed SSD at the back panel. Click **Stop Locate** after you’ve identified the drive.

3. Next, click **Prepare to Remove**.
4. Click **Physical Drives**. The state of the drive should now appear as **Not Present**.

5. Locate the SSD on the back panel of the appliance. Push the safety latch of the drive cover down while pulling out on the drive handle to disengage. Pull out the faulty drive.

**Figure 5. Remove an Existing SSD**

6. Verify that the replacement SSD is the correct size by comparing the replacement drive size with the removed drive. For example, if the removed drive is 480 GB, the replacement drive should also be 480 GB.

7. Open the drive handle fully up, and insert the new Citrix-certified SSD into the slot as far as possible. To seat the drive, close the handle flush with the rear of the appliance so that the drive locks securely into the slot.

   When inserting the drive, orient the drive handle the same way as the installed drives.

**Figure 6. Insert a Replacement SSD**

8. In the Citrix ADC GUI, click the refresh icon for the list of physical drives. The state of the drive should appear as **Present**. After you replace one of the SSDs, the configuration on the other SSD in the mirrored SSD is copied to the replacement SSD.
To replace an SSD without RAID support

1. From the Citrix ADC SDX GUI, navigate to Configuration > System, and in the System pane, click Shutdown Appliance.

2. Locate the SSD on the back panel of the appliance.

3. Press the latch release button, and the handle rotates out. Pull the handle to remove the drive.

   Figure 7. Remove an Existing SSD without RAID

4. Verify that the replacement SSD is the correct size by comparing the replacement drive size with the removed drive. For example, if the removed drive is 480 GB, the replacement drive must be 480 GB.

5. Pick up the new SSD, open the drive handle fully to the left or up, and insert the drive into the slot as far as possible. To seat the drive, close the handle flush with the rear of the appliance so that the drive locks securely into the slot.

   When inserting the drive, orient the drive handle the same way as the installed drives.

   Figure 8. Insert a Replacement SSD without RAID

6. Turn on the appliance by manually pressing the power switch or by logging on to lights out management.

7. Log on to the default IP address by using a web browser, or connect to the serial console by using a console cable. Next, perform the initial configuration.

8. Upload a platform license and any optional feature licenses, including universal licenses, to the Citrix ADC appliance.
9. After the correct Citrix ADC software version is loaded, you can restore the working configuration.

**Direct Attach Cable**

A direct attach cable (DAC) assembly is a high performance integrated duplex data link for bidirectional communication. The cable is compliant with the IPF MSA (SFF-8432) for mechanical form factor and SFP+ MSA for DACs. The cable, which can be up to 5 meters long, is data-rate agnostic. Supporting speeds more than 10 Gbps, it is a cost-effective alternative to optical links (SFP+ transceivers and fiber optic cables.) The transceiver with DAC is hot-swappable. You can insert and remove the transceiver with the attached cable without shutting down the appliance. The Citrix ADC appliance supports only passive DAC.

**Points to note:**

- DAC is supported only on 10G ports. Do not insert a DAC into a 1G port.
- Do not attempt to unplug the integrated copper cable from the transceiver and insert a fiber cable into the transceiver.

**Note**

Autonegotiation is not supported on an interface to which a DAC is connected.

**To replace a DAC**

1. To remove the DAC, pull the tab on the top of the DAC, and then pull the DAC out of the port.

   **Figure 9.** Remove a DAC from the 10G port

   ![Figure 9](image)

2. To insert the DAC, slide it into the 10G port on the appliance. You hear a click when the DAC properly fits into the port.

   **Figure 10.** Insert a DAC into the 10G port

   ![Figure 10](image)
Safety, cautions, warnings, and other information

April 16, 2019

Read the safety and other compliance information before unpacking and installing the product. The safety and other compliance information remains same for both SDX and MPX appliances. See the following documents:

- Safety, cautions, warnings, and other information.
- Taiwan BSMI RoHS statement

Note: For the list of safety certifications, standards, and ROHS compliance for each model, see the datasheet. The datasheet is available on www.citrix.com. Hover your mouse pointer on Products, and in the Networking list, select Citrix ADC.

- FCC Compliance Statement

Preparing for installation

February 25, 2019

Before you install your new appliance, carefully unpack your appliance and make sure that all parts were delivered. Once you are satisfied that your appliance has been delivered to your expectations, verify that the location where the appliance will be installed meets temperature and power requirements and that the server cabinet or floor-to-ceiling cabinet is securely bolted to the floor and has sufficient airflow.
Only trained and qualified personnel should install, maintain, or replace the appliance, and efforts should be taken to ensure that all cautions and warnings are followed.

This document includes the following details:

- Unpacking the appliance
- Preparing the site and rack
- Electrical safety precautions

**Unpacking the appliance**

The hardware accessories for your particular appliance, such as cables, adapters, and rail kit, vary depending on the hardware platform you ordered. Unpack the box that contains your new appliance on a sturdy table with plenty of space and inspect the contents.

Use the following list to verify that you received everything that should have been included in the box.

- The appliance you ordered
- One RJ-45 to DB-9 adapter
- One 6 ft RJ-45/DB-9 cable
- The following list specifies the number of power cables included for each appliance model:
  - One power cable for the SDX 8015/8400/8600 appliances
  - Two power cables for the SDX 11500/13500/14500/16500/18500/20500, SDX 11515/11520/11530/11540/11542, and SDX 17500/19500/21500, and SDX 17550/19550/20550/21550 appliances
  - Four power cables for the SDX 22040/22060/22080/22100/22120 and SDX 24100/24150 appliances
  - Note: Make sure that a power outlet is available for each cable.
  - Note: For Brazilian customers, Citrix does not ship a power cable. Use a cable that conforms to the **ABNT NBR 14136:2002** standard.
- One standard 4-post rail kit
  - Note: If the kit that you received does not fit your rack, contact your Citrix sales representative to order the appropriate kit.

In addition to the items included in the box with your new appliance, you will need the following items to complete the installation and initial configuration process.

- Ethernet cables for each additional Ethernet port that you will connect to your network
- One available Ethernet port on your network switch or hub for each Citrix ADC Ethernet port you want to connect to your network
  - Note: Transceiver modules are sold separately. Contact your Citrix sales representative to order transceiver modules for your appliance. Only transceivers supplied by Citrix are supported on the appliance.
Preparing the site and rack

There are specific site and rack requirements for the Citrix ADC appliance. You must make sure that adequate environmental control and power density are available. Racks must be bolted to the ground, have sufficient airflow, and have adequate power and network connections. Preparing the site and rack are important steps in the installation process and help ensure a smooth installation.

Site requirements

The appliance should be installed in a server room or server cabinet with the following features:

- **Environment control**
  An air conditioner, preferably a dedicated computer room air conditioner (CRAC), capable of maintaining the cabinet or server room at a temperature of no more than 27 degrees C/80.6 degrees F at altitudes of up to 2100 m/7000 ft, or 18 degrees C/64.4 degrees F at higher altitudes, a humidity level no greater than 45 percent, and a dust-free environment.

- **Power density**
  Wiring capable of handling at least 4,000 watts per rack unit in addition to power needs for the CRAC.

Rack requirements

The rack on which you install your appliance should meet the following criteria:

- **Rack characteristics**
  Racks should be either integrated into a purpose-designed server cabinet or be the floor-to-ceiling type, bolted down at both top and bottom to ensure stability. If you have a cabinet, it should be installed perpendicular to a load-bearing wall for stability and sufficient airflow. If you have a server room, your racks should be installed in rows spaced at least 1 meter/3 feet apart for sufficient airflow. Your rack must allow your IT personnel unfettered access to the front and back of each server and to all power and network connections.

- **Power connections**
  At minimum, two standard power outlets per unit.

- **Network connections**
  At minimum, four Ethernet connections per rack unit.
One empty rack unit for the Citrix ADC SDX 8015/8400/8600, and two consecutive empty rack units for all other appliance models.

You can order the following rail kits separately.

- Compact 4-post rail kit, which fits racks of 23 to 33 inches.
- 2-post rail kit, which fits 2-post racks.

**Electrical safety precautions**

Read the caution and danger information you need to know, before unpacking and installing the product. For more information, see Safety, cautions, warnings, and other information.

**Installing the hardware**

March 12, 2019

After you have determined that the location where you will install your appliance meets the environmental standards and the server rack is in place according to the instructions, you are ready to install the hardware. After you mount the appliance, you are ready to connect it to the network, to a power source, and to the console terminal that you will use for initial configuration. To complete the installation, you turn on the appliance. Be sure to observe the cautions and warnings listed with the installation instructions.

**Rack Mounting the Appliance**

Most appliances can be installed in standard server racks that conform to EIA-310-D specification. The appliances ship with a set of rails, which you must install before you mount the appliance. The only tools that you need for installing an appliance are a Phillips screwdriver and a flathead screwdriver.

**Caution**

If you are installing the appliance as the only unit in the rack, mount it at the bottom. If the rack contains other units, make sure that the heaviest unit is at the bottom. If the rack has stabilizing devices available, install them before mounting the appliance.

To check the different hardware platforms and the rack units required for each platform, see the details given for each model under SDX Hardware Platforms.

Each appliance ships with a mounting rail kit that contains two rail assemblies, one for the left side and the other for the right side of the appliance, and screws to attach the rails. An assembly consists
of an inner rail and a rack rail. The supplied rail kit is 28 inches long (38 inches extended). Contact your Citrix sales representative to order a 23-inch (33 inches extended) rail kit.

Note

The same rail kit is used for both square-hole and round-hole racks. See To install the rack rails on the rack for specific instructions for threaded, round-hole racks.

To mount the appliance, you must first install the rails and then install the appliance in the rack.

Perform the following tasks to mount the appliance:

- Remove the inner rails from the rail assembly.
- Attach the inner rails to the appliance.
- Install the rack rails on the rack.
- Install the appliance in the rack.

The appliance is shipped with rack-rail hardware. This hardware consists of two inner rails that you attach to the appliance, one on each side, and a rack-rail assembly that you attach to the rack. The following figure illustrates the steps involved in mounting the Citrix ADC SDX appliance to a rack.

**To remove the inner rails from the rail assembly**

1. Place the rail assembly on a flat surface.
2. Slide out the inner rail toward the front of the assembly.
3. Depress the latch until the inner rail comes all the way out of the rail assembly.
4. Repeat steps 1 through 3 to remove the second inner rail.

**To attach the inner rails to the appliance**

1. Position the right inner rail behind the handle on the right side of the appliance.
2. Align the holes on the rail with the corresponding holes on the side of the appliance.
3. Attach the rail to the appliance with the provided screws: 4 per side for a 1U appliance and 5 per side for a 2U appliance, as shown in the following figure.

Figure 1. Attaching inner rails
4. Repeat steps 1 through 3 to install the left inner rail on the other side of the appliance.

**To install the rack rails on the rack**

1. If you have a round-hole, threaded rack, skip to step 3.
2. Install square nut retainers into the front post and back post of the rack as shown in the following figures. Before inserting a screw, be sure to align the square nut with the correct hole for your 1U or 2U appliance. The three holes are not evenly spaced.
   
   Figure 2. Installing Retainers into the Front Rack Posts
   
   ![Figure 2](image)

   Install in this hole for a 2U appliance

   Install in center hole for a 1U appliance

   Rack front

   Figure 3. Installing Retainers into the Rear Rack Posts

   ![Figure 3](image)

   Install in center hole for a 1U or 2U appliance

   Rack Rear

3. Install the adjustable rail assembly into the rack as shown in the following figures. Use a screw to
lock the rear rail flange into the rack. With the screw securing the rail in place, you can optionally remove the latching spring.

Figure 4. Installing the Rail Assembly to the Rack

To install the appliance in the rack

1. Align the inner rails, attached to the appliance, with the rack rails.
2. Slide the appliance into the rack rails, keeping the pressure even on both sides.
3. Verify that the appliance is locked in place by pulling it all the way out from the rack.

Figure 5. Rack Mounting the Appliance
Install and Remove 1G SFP Transceivers

**Note**

This section applies to the SDX 8015/8400/8600, SDX 11500/13500/14500/16500/18500/20500, SDX 11515/11520/11530/11540/11542, SDX 22040/22060/22080/22100/22120, and SDX 24100/24150 appliances.

A Small Form-Factor Pluggable (SFP) is a compact transceiver that can operate at speeds of up to 1 gigabit per second and is available in both copper and fiber types. Inserting a 1G SFP copper transceiver converts the 1G SFP port to a 1000BASE-T port. Inserting a 1G SFP fiber transceiver converts the 1G SFP port to a 1000BASE-X port. Auto-negotiation is enabled by default on the 1G SFP port into which you insert your 1G SFP transceiver. As soon as a link between the port and the network is established, the speed and mode are matched on both ends of the cable.

**Caution**

Citrix ADC appliances do not support 1G SFP transceivers from vendors other than Citrix Systems. Attempting to install third-party 1G SFP transceivers on your Citrix ADC appliance voids the warranty.

Insert 1G SFP transceivers into the 1G SFP ports on the front panel of the appliance. Frequent installation and removal of transceivers shortens their life span. Follow the removal procedure carefully to
avoid damaging the 1G SFP transceiver or the appliance.

Caution
Do not install the transceivers with the cables attached. Doing so can damage the cable, the connector, or the optical interface of the transceiver.

To install a 1G SFP transceiver

1. Remove the 1G SFP transceiver carefully from its box.
   Danger: Do not look directly into fiber optic transceivers or cables. They emit laser beams that can damage your eyes.

2. Align the 1G SFP transceiver to the front of the 1G SFP transceiver port on the front panel of the appliance, as shown in the following figure.

   Note
   The illustration in the following figures might not represent your actual appliance.

   Figure 6. Installing a 1G SFP transceiver

3. Hold the 1G SFP transceiver between your thumb and index finger and insert it into the 1G SFP transceiver port, pressing it in until you hear the transceiver snap into place.

4. Lock the transceiver.
5. Verify that the LED is green and blinks twice, which indicates that the transceiver is functioning correctly.

6. If you are using a fiber 1G SFP transceiver, do not remove the dust caps attached to the transceiver and the cable until you are ready to insert the cable.

**To remove a 1G SFP transceiver**

1. Disconnect the cable from the 1G SFP transceiver. If you are using a fiber optic cable, replace the dust cap on the cable before putting it away.
   Danger: Do not look directly into fiber optic transceivers or cables. They emit laser beams that can damage your eyes.
2. Unlock the 1G SFP transceiver.
3. Hold the 1G SFP transceiver between your thumb and index finger and slowly pull it out of the port.
4. If you are removing a fiber 1G SFP transceiver, replace the dust cap before putting it away.
5. Put the 1G SFP transceiver into its original box or another appropriate container.

**Installing and Removing 10G SFP+ Transceivers**

*Note*

This section applies to the SDX 8015/8400/8600, SDX 11500/13500/14500/16500/18500/20500, SDX 11515/11520/11530/11540/11542, SDX 17500/19500/21500, SDX 17550/19550/20550/21550, SDX 22040/22060/22080/22100/22120, and SDX 24100/24150 appliances.

A 10-Gigabit Small Form-Factor Pluggable (SFP+) is a compact optical transceiver that can operate at speeds of up to 10 gigabits per second. Autonegotiation is enabled by default on the 10G SFP+ ports into which you insert your 10G SFP+ transceiver. As soon as a link between the port and the network is established, the mode is matched on both ends of the cable and for 10G SFP+ transceivers, the speed is also autonegotiated.

*Caution*

Citrix ADC appliances do not support 10G SFP+ transceivers provided by vendors other than Citrix Systems. Attempting to install third-party 10G SFP+ transceivers on your Citrix ADC appliance voids the warranty.

Insert the 10G SFP+ transceivers into the 10G SFP+ ports on the front panel of the appliance. Frequent installation and removal of transceivers shortens their life span. Follow the removal procedure carefully to avoid damaging the transceiver or the appliance.
Caution
Do not install the transceivers with the cables attached. Doing so can damage the cable, the connector, or the optical interface of the transceiver.

To install a 10G SFP+ transceiver

1. Remove the 10G SFP+ transceiver carefully from its box.
   
   Danger
   Do not look directly into fiber optic transceivers and cables. They emit laser beams that can damage your eyes.

2. Align the 10G SFP+ transceiver to the front of the 10G SFP+ transceiver port on the front panel of the appliance.

3. Hold the 10G SFP+ transceiver between your thumb and index finger and insert it into the 10G SFP+ transceiver port, pressing it in until you hear the transceiver snap into place.

4. Move the locking hinge to the DOWN position.

5. Verify that the LED is green and blinks twice, which indicates that the transceiver is functioning correctly.

6. Do not remove the dust caps attached to the transceiver and cable until you are ready to insert the cable.

To remove a 10G SFP+ transceiver

1. Disconnect the cable from the 10G SFP+ transceiver. Replace the dust cap on the cable before putting it away.
   
   Danger: Do not look directly into fiber optic transceivers or cables. They emit laser beams that can damage your eyes.

2. Unlock the 10G SFP+ transceiver by moving the locking hinge to the UP position.

3. Hold the 10G SFP+ transceiver between your thumb and index finger and slowly pull it out of the port.

4. Replace the dust cap on the transceiver before putting it away.

5. Put the 10G SFP+ transceiver into its original box or another appropriate container.

Connecting the Cables

When the appliance is securely mounted on the rack, you are ready to connect the cables. Ethernet cables and the optional console cable are connected first. Connect the power cable last.
Danger: Before installing or repairing the appliance, remove all jewelry and other metal objects that might come in contact with power sources or wires. When you touch both a live power source or wire and ground, any metal objects can heat up rapidly and cause burns, set clothing on fire, or fuse the metal object to an exposed terminal.

Connecting the Ethernet Cables

Ethernet cables connect your appliance to the network. The type of cable you need depends on the type of port used to connect to the network. Use a category 5e or category 6 Ethernet cable with a standard RJ-45 connector on a 10/100/1000BASE-T port or 1G SFP copper transceiver. Use a fiber optic cable with an LC duplex connector with a 1G SFP fiber transceiver, 10G SFP+ transceiver. The type of connector at the other end of the fiber optic cable depends on the port of the device that you are connecting to.

To connect an Ethernet cable to a 10/100/1000BASE-T port or 1G SFP copper transceiver

1. Insert the RJ-45 connector on one end of your Ethernet cable into an appropriate port on the front panel of the appliance, as shown in the following figure.

Figure 7. Inserting an Ethernet cable

2. Insert the RJ-45 connector on the other end into the target device, such as a router or switch.

3. Verify that the LED glows amber when the connection is established.

To connect the Ethernet cable to a 1G SFP fiber, 10G SFP+ transceiver

1. Remove the dust caps from the transceiver and cable.
2. Insert the LC connector on one end of the fiber optic cable into the appropriate port on the front panel of the appliance.
3. Insert the connector on the other end into the target device, such as a router or switch.
4. Verify that the LED glows amber when the connection is established.
**Connecting the Console Cable**

You can use the console cable to connect your appliance to a computer or terminal, from which you can configure the appliance. Alternatively, you can use a computer connected to the network. Before connecting the console cable, configure the computer or terminal to support VT100 terminal emulation, 9600 baud, 8 data bits, 1 stop bit, parity, and flow control set to NONE. Then connect one end of the console cable to the RS232 serial port on the appliance and the other end to the computer or terminal.

**To connect the console cable to a computer or terminal**

1. Insert the DB-9 connector at the end of the cable into the console port that is located on the front panel of the appliance, as shown in the following figure. Figure 8. Inserting a console cable

2. Insert the RJ-45 connector at the other end of the cable into the serial port of the computer or terminal.

**Connecting the Power Cable**

An SDX 8015/8400/8600 appliance has one power cable. All the other appliances come with two power cables, but they can also operate if only one power cable is connected. A separate ground cable is not required, because the three-prong plug provides grounding.
To connect the appliance to the power source

1. Connect one end of the power cable to the power outlet on the back panel of the appliance, next to the power supply, as shown in the following figure.

   Figure 9. Inserting a power cable

2. Connect the other end of the power cable to a standard 110V/220V power outlet.

3. If a second power supply is provided, repeat steps 1 and 2 to connect the second power supply.

   Note
   The SDX 11500/13500/14500/16500/18500/20500, SDX 11515/11520/11530/11540/11542, SDX 17500/19500/21500, and SDX 17550/19550/20550/21550 appliances emit a high-pitched alert if one power supply fails or if you connect only one power cable to the appliance. To silence the alarm, you can press the small red button located on the back panel of the appliance.

Switching on the Appliance

After you have installed the appliance in a rack and connected the cables, verify that the power cable is properly connected. If you have installed a second power supply, make sure the second cable is connected to an outlet for a different circuit than the first. After verifying the connections, you are ready to switch on the appliance.

To switch on the appliance

1. Verify that the appliance is connected through a console or Ethernet port. This will ensure that you can configure the appliance after it is switched on.

2. Press the ON/OFF toggle power switch on the back panel of the appliance.

   Caution
   Be aware of the location of the emergency power off (EPO) switch, so that if an electrical accident occurs you can quickly remove power from the appliance.
Initial configuration

February 11, 2019

After you have installed your appliance in a rack, you are ready to perform the initial configuration. To perform the initial configuration, you can use the Management Service user interface or the serial console. You can access the Management Service user interface from any computer that is on the same network as the new SDX appliance. If you do not have a computer on the same network, use the serial console to perform the initial configuration of the SDX appliance. Citrix recommends that, as soon as you complete the initial configuration, you change the root-user password. For information about changing the root-user password, see Configuring Authentication and Authorization Settings.

Determine the following information for performing the initial configuration.

- Citrix ADC SDX IP address and subnet mask: The management IP address and the mask used to define the subnet in which the SDX appliance is located. This IP address is used to access the Citrix ADC SDX Management Service user interface.
- XenServer IP address: The IP address of the XenServer hypervisor.
- Default gateway: The IP address of the router that forwards traffic out of the appliance’s subnet. The default gateway should be in the same subnet as the NSIP address.
- Root password: The root user (nsroot) has full administrative privileges on the appliance. The root password is used to authenticate the root user. The default root password is nsroot. You can change this password during initial configuration of the appliance.

This topic includes the following sections:

- Initial Configuration through the Management Service User Interface
- Initial Configuration through the Serial Console
- Changing the Password of the Default User Account

Initial Configuration through the Management Service User Interface

To set up the appliance by using the Management Service user interface, connect a workstation or laptop to the same network as the appliance.

To configure the Citrix ADC SDX appliance by using the Management Service user interface

- Connect the Citrix ADC SDX appliance to a management workstation or network by using interface 0/1.
- XYZ
2. Open a browser and type: http://192.168.100.1

Note: The Citrix ADC SDX Management Service is preconfigured with the IP address 192.168.100.1 and the XenServer hypervisor is preconfigured with the IP address 192.168.100.2.

1. In the User Name box, type nsroot.
2. In the Password box, type nsroot.
3. In the navigation pane, click System.
4. In the details pane, under Setup Appliance, click Network Configuration.

Note

The Citrix ADC SDX Management Service is preconfigured with the IP address 192.168.100.1 and the XenServer hypervisor is preconfigured with the IP address 192.168.100.2.

3. In the User Name box, type nsroot.
4. In the Password box, type nsroot.
5. In the navigation pane, click System.
6. In the details pane, under Setup Appliance, click Network Configuration.
7. In the **Network Configuration** page, do the following:
a. In the **Interface** field, select management interface that connects the appliance to a management workstation or network. Possible values: 0/1, 0/2. Default: 0/1.

b. In the **Appliance supportability IP** field, enter the IP address of the XenServer.

c. In the **Gateway** field, enter the IP address of the router that forwards traffic out of the appliance’s subnet.

d. In the **DNS** field, enter the IPv4 address of the primary DNS server.

Note
IPv6 addresses are not support for primary DNS server.

e. Select the IPv4 checkbox if you want to use IPv4 address for the Management Service and enter the details for the following parameters:

   i. **Appliance Management IP** — The IPv4 address that is used to access the Management Service by using a Web browser.

   ii. **Netmask** — The mask used to define the subnet in which the SDX appliance is located.

f. Select the **IPv6** checkbox if you want to use IPv6 address for the Management Service and enter the details for the following parameters:

   i. **Management Service IP Address** — The IPv6 address that is used to access the Management Service by using a Web browser.

   Note
   The XenServer IP address and Management Service IP address should be in the same subnet.

   ii. **Gateway IPv6 Address** — The IPv4 address of the router that forwards traffic out of the appliance’s subnet.

g. Select the **Additional DNS checkbox** to add DNS server IP addresses as additional DNS server apart from the primary DNS server. The IP addresses can be either IPv4 or IPv6.

Note
Make sure that:

- You add a DNS server IP address or two DNS server IP address as additional DNS server.
- You do not use the same DNS server IP address for the primary DNS server and additional DNS servers.
- Cascading of DNS servers for AAA in not supported. In case of AAA for LDAP referrals, RADIUS, and TACACS, the primary DNS server configured for address resolution is always considered for AAA.

8. Click **OK**, and then click **Close**.
To confirm that the Citrix ADC SDX appliance is configured correctly, you can either ping the new Management Service IP address or use the new IP address to open the user interface in a browser.

**Note**

Log on to the Citrix ADC SDX appliance using command-line interface (CLI), make sure that the file `/etc/resolv.conf` file included the added additional DNS server IP addresses. Also, the `/mp-config/svm.conf` file reflects the added additional DNS server IP addresses.

For example:

```
/mplications/changenameserver.sh 127.0.0.1
/mplications/addnameserver.sh 1.2.3.4
```

### Initial Configuration through the Serial Console

To perform initial configuration of the SDX appliance from outside the L2 domain, connect to the console port of the appliance and follow the instructions carefully.

**Note**

networkconfig utility is available from build 72.5 and later.

### To configure the Citrix ADC SDX appliance by using the serial console

1. Connect the console cable into your appliance.
2. Connect the other end of the cable to your computer and run the vt100 terminal emulation program of your choice.
   - For Microsoft Windows, you can use HyperTerminal.
   - For Apple Macintosh OS X, you can use the GUI-based Terminal program or the shell-based telnet client.
     Note: OS X is based on the FreeBSD UNIX platform. Most standard UNIX shell programs are available from the OS X command line.
   - To For UNIX-based workstations, you can use any supported terminal emulation program.
3. Press ENTER. The terminal screen displays the Logon prompt.
   Note: You might have to press ENTER two or three times, depending on which terminal program you are using.
4. Log on to the appliance with the administrator credentials. The default credentials for username and password are root and nsroot respectively.
5. At the prompt, type: `ssh nsroot@169.254.0.10` When prompted for the password, type nsroot.
6. Type `shell` to switch to the shell prompt and type `networkconfig`

You can now use the new IP address to log on to the Management Service user interface.
**Changing the Password of the Default User Account**

The default user account provides complete access to all features of the Citrix ADC SDX appliance. Therefore, to preserve security, the nsroot account should be used only when necessary, and only individuals whose duties require full access should know the password for the nsroot account. Citrix recommends changing the nsroot password frequently. If you lose the password, you can reset the password to the default by reverting the appliance settings to factory defaults, and you can then change the password.

You can change the password of the default user account in the Users pane. In the Users pane, you can view the following details:

- **Name**
  Lists the user accounts configured on the SDX appliance.

- **Permission**
  Displays the permission level assigned to the user account.

**To change the password of the default user account**

1. On the Configuration tab, in the navigation pane, expand System, and then click Users.
2. In the Users pane, click the default user account, and then click Modify.
3. In the Modify System User dialog box, in Password and Confirm Password, enter the password of your choice.
4. Click OK.

For more information about additional Citrix ADC SDX software configuration, see [Citrix ADC SDX software documentation](#).

**Lights out management port of the Citrix ADC SDX appliance**

March 12, 2019

The SDX ADC appliances have an Intelligent Platform Management Interface (IPMI), also known as the Lights Out Management (LOM) port, on the front panel of the appliance. You can use the LOM port to remotely monitor and manage the appliance, independently of the Citrix ADC software.
By connecting the LOM port to a dedicated channel that is separate from the data channel, you can make sure that connectivity to the appliance is maintained even if the data network is down. Further you can reduce the data cable and data network as a single point of failure.

You can access the LOM port through a browser and use the graphical user interface (GUI) for most tasks. All tasks can be performed through the Citrix ADC shell.

You can use either the GUI or a shell for the following tasks:

- Configuring the network settings
- Health monitoring
- Power control operations
- Factory reset

Different Citrix appliances support different shells:

- For XenServer based Citrix ADC SDX appliances, use the dom0 Linux root shell. To access the dom0 shell, log on to the XenServer management IP address instead of the SDX Management Service IP address, using the “root” account, not the “nsroot” account.
- For Linux based appliances, use the Linux bash root shell.

**Note**

The terms LOM and Baseboard Management Controller (BMC) are used interchangeably.

**Caution:** LOM firmware versions are platform specific. Upgrading to a LOM firmware version other than one shown for your platform in the LOM support matrix table, results in the LOM becoming unusable.

**LOM support matrix**

The LOM support matrix shows the LOM firmware versions shipped with the various platforms, along with the recommended versions, and the earliest Citrix ADC software versions that support both the shipped and the recommended LOM firmware versions. The latest available LOM package can be found on the Citrix downloads website under LOM Firmware Upgrade.

Table. LOM support matrix

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Ships With Version</th>
<th>Recommended Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDX 8015, 8400, 8600</td>
<td>2.04, 2.07, 2.10, 3.02, 3.10, 3.11, 3.21</td>
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<tr>
<td>SDX 11500, 13500, 14500, 16500, 18500, 20500</td>
<td>2.52, 3.02, 3.33, 3.39</td>
<td>3.39</td>
</tr>
</tbody>
</table>
## Hardware

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Ships With Version</th>
<th>Recommended Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDX 11500, 13500, 14500, 16500, 18500, 20500 NEBS</td>
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<tr>
<td>SDX 22040, 22060, 22080, 22100</td>
<td>2.63, 3.22, 3.24</td>
<td>3.24</td>
</tr>
</tbody>
</table>

### Configuring the network settings on the LOM port

February 11, 2019

The default IP address for initial access to the LOM port is 192.168.1.3. Change the default credentials and IP address the first time you log on. All LOM GUI operations require you to connect to the appliance by typing the LOM IP address in a web browser and then entering the administrator credentials. Alternatively, you can access LOM functionality through the command line by using the *ipmitool* utility. Using the ipmitool utility remotely, you can determine the LOM firmware version number, perform warm and cold restarts, configure LOM network settings, monitor the health of the appliance, and perform power control operations. The utility is available for download at [http://ipmitool.sourceforge.net/](http://ipmitool.sourceforge.net/). The ipmitool utility is also included in Citrix ADC MPX and CloudBridge/SDX (dom0) appliances for initial LOM port network configuration. When using the shell, you can choose to use DHCP or static IP settings for initial network configuration. After configuring the network settings, you can use the ipmitool commands over the network. For example, the BMC firmware revision command would need the same username, password, and IP address that is used to access the BMC/LOM GUI port.

For initial configuration, connect the network port on your laptop or workstation directly to the LOM...
port with a crossover cable, or to a switch in the same local subnet (192.168.1.x) as the LOM port. Assign a network-reachable IP address and change the default credentials. After saving the new settings, the LOM restarts and the changes take effect. After the restart, you must use the new address to access to the LOM.

If you make a mistake that results in losing network connectivity at both the old and new IP addresses, you must use the local shell method to recover.

See the Secure Deployment Guide for best practices for managing administrative credentials and configuring your network for a secure LOM deployment.

**Note**

On all SDX platforms, except SDX 22040/22060/22080/22100/22120 and SDX 24100/24150, the LEDs on the LOM port are non-operational by design.

**Tip:** For first-time setup in a network, to facilitate troubleshooting, make sure that a laptop/PC is connected directly to the LOM port. If you can ping and access the LOM GUI at the default IP address (192.168.1.3) by using static addressing on the laptop/PC, but remote access does not work, take a closer look at network firewall settings and access control list (ACL) policies of all network devices along the network path.

**Tip:** If some LOM GUI features work but others do not, (for example, normal Citrix ADC console output is visible in the Citrix ADC console window in the LOM GUI, but typing in the console does not work), try the above method to isolate the cause to the specific BMC protocol being blocked by the network.

**Tip:** Some LOM GUI features, such as the Citrix ADC console, require the latest Java security updates on the laptop/PC. Make sure that the latest Java updates are installed on your laptop/PC.

**To configure the Citrix ADC LOM port by using the GUI**

1. In a web browser, type `http://192.168.1.3` and enter the default user credentials.

   **Note**

   The Citrix ADC LOM port is preconfigured with IP address 192.168.1.3 and subnet mask 255.255.255.0.

2. On the **Configuration** tab, click **Network** and type new values for the following parameters:

   - IP Address—IP address of the LOM port
   - Subnet Mask—Subnet mask used to define the subnet of the LOM port
   - Default Gateway—IP address of the router that connects the LOM port to the network.

3. Click **Save**.
4. If you want to change the user credentials, navigate to **Configuration > Users**, select the user, click **Modify User**, and change the credentials.

**To configure the Citrix ADC LOM port by using the shell**

1. Configure the IP addressing mode:
   - To use DHCP, at the shell prompt, type:
     ```
     ipmitool lan set 1 ipsrc dhcp
     ```
     No further IP-level configuration is required.
   - To use static addressing, at the shell prompt, type:
     ```
     a) ipmitool lan set 1 ipsrc static
     b) ipmitool lan set 1 ipaddr (LOM IP address)
     c) ipmitool lan set 1 netmask (netmask IP address)
     d) ipmitool lan set 1 defgw ipaddr (default gateway IP address)
     ```
     The BMC reboots to apply the changes. Pings to the BMC should succeed after approximately 60 seconds.

2. Optionally, to configure Ethernet VLAN ID and priority, at the Citrix ADC shell prompt type:

   **ipmitool lan set 1 vlan id <off> <ID>>>**

   - **ipmitool lan set 1 vlan priority <priority>**

   You can either disable or enable the VLAN. Set the VLAN ID to a value from 1 to 4094, and the VLAN priority to a value from 0 to 7. After the network settings have been correctly applied, you can access the ipmitool remotely from a physically separate machine over the network. For remote access, enter the BMC username, BMC password, and the BMC IP address. For example, to run the “ipmitool mc info” command, at the shell prompt on a remote machine, type:

   `ipmitool -U <username> -P <password> -H <bmc IP address> mc info`

**Obtaining Health Monitoring Information**

There are two Citrix ADC MIBs: the Citrix ADC software management MIB and the Citrix ADC IPMI LOM hardware management MIB. The software management MIB is primarily used for monitoring the application software and the application software’s utilization of hardware resources, such as CPU % and
memory%. It provides a high level view of the appliance and is therefore suitable for the application monitoring function carried out by an application group within an organization. The LOM MIB is used for monitoring the hardware health and therefore provides a lower level view of the appliance, more applicable to the network monitoring function carried out by a network monitoring group.

The LOM SNMP traps in the LOM MIB report hardware failures. The Citrix ADC SNMP traps in the Citrix ADC MIB report software failures and hardware load issues.

The Citrix ADC MIB has a very small subset of hardware sensors. It does not cover any BIOS level failures, because the BIOS checks the hardware primarily during boot time, before the Citrix ADC software starts. If the BIOS detects a failure, it does not load the boot loader. If the boot loader does not load, the operating system does not load, and therefore the Citrix ADC SNMP software service responsible for sending the traps does not load.

The Citrix ADC software Management MIB issues a warning under the following conditions only:

1. If the failure is gradual enough for the main CPU to issue an SNMP alert. An electrical failure close to the CPU, such as a failed electrical capacitor, occurs too quickly for the CPU to issue an alert.
2. If the failure happens after the BIOS, Operating System, and SNMP service have started and normal boot-up has been successful.
3. If the failure happens while the operating system and other system software is in a stable enough state for the SNMP software service to run.

Whenever the Citrix ADC MIB is unable to report these warnings, because of hardware or software failure, the LOM MIB monitors and reports the warnings. The LOM microcontroller operates independently of the Citrix ADC software. To monitor the hardware and software of the Citrix ADC appliance, you must use both the Citrix ADC MIB and the LOM MIB.

The Citrix ADC IPMI LOM hardware management MIB SNMP firmware runs on the BMC microcontroller chip. The BMC chip CPU sends a warning in the case of a hardware failure, regardless of whether any of the above conditions occurs. For example, if the BIOS halts the system during boot-up because of a memory DIMM failure, the BMC chip uses the BIOS POST code snooping mechanism to detect the failure, and sends a bad DIMM SNMP alert.

You can log on to the LOM port to view the health information about the appliance. All system sensor information, such as system temperature, CPU temperature, and status of fans and power supplies, appears on the sensor readings page. The Event Log records time stamps of routine events such as a power cycle, in addition to recording hardware-failure events. If SNMP traps are enabled, these events can be sent to your SNMP Network Monitoring software. For more information about how to set up an SNMP alert, see Configuring SNMP Alerts.
**To obtain health monitoring information**

1. In the Menu bar, click System Health.
2. Under Options, click Sensor Readings.

**Installing the MIB**

Download the IPMI SNMP management information base (MIB) for your LOM firmware version, and import it into the SNMP monitoring software.

For a sample configuration, see [http://www.net-snmp.org/tutorial/tutorial-5/commands/snmptrap.html](http://www.net-snmp.org/tutorial/tutorial-5/commands/snmptrap.html). For the exact steps of this procedure specific to your environment, contact your SNMP network monitoring software provider.

**Configuring SNMP Alerts**

You can configure SNMP alerts on the LOM. Optionally, you can configure an alert to send emails.

To configure the alerts, you can use the LOM GUI or the Citrix ADC shell.

**To configure SNMP alerts on the LOM by using the GUI**

1. Download the IPMI View utility from [ftp://ftp.supermicro.com/utility/IPMIView/](ftp://ftp.supermicro.com/utility/IPMIView/) and install it on your computer. You will use this utility to test the configuration. For more information, see the section about configuring the alert settings in the IPMI View User Guide at [http://supermicro.com](http://supermicro.com).
2. Open the IPMI View utility.
3. In the LOM GUI, navigate to **Configuration > Alerts**, click Alert No 1, and then click Modify.
4. Select the severity level of the events for which to generate alerts.
5. Set Destination IP to the IP address at which you installed the IPMI View utility.
6. Optionally, to receive alerts by email, specify an email address. To avoid receiving email for routine alerts, specify a severity higher than Informational.
7. Click **Save**.
8. The LOM should start sending alerts to the IPMI View utility within a minute or two. After the IPMI View utility starts receiving alerts from the LOM, reconfigure the destination IP address to point to your SNMP Network Management Software, such as HP OpenView.

**Setting up SNMP Alerts on the LOM by Using the Citrix ADC shell**

To customize your filter and policy settings, see the IPMI Specification 2.0 rev. 1.1 documentation.
The latest IPMI specifications are available from the IPMI section of the Intel website:


Usually, customization in the SNMP Network Management Software is the preferred method, because it can be done one time at a central location. Therefore, the settings below send all events for all sensors to the SNMP network management software. These are very low traffic events and therefore should not result in any significant network usage.

To set up SNMP filters

The following commands set up SNMP to allow all events:

ipmitool raw 4 0x12 0x6 0x10 0x80 1 0 0xff 0xff 0xff 0xff 0xff 0xff 0x0 0 x ff 0 0 x ff 0 0 x ff 0

To set up a policy list

The following command creates a policy list for all sensors and events:

ipmitool raw 4 0x12 9 0x10 0x18 0x11 0x81

To setting up the destination address for SNMP events

The following command sets up a destination IP address for an SNMP event:

ipmitool lan alert set 1 1 ipaddr <x.x.x.x>

Where, <x.x.x.x> is the IP address to which the SNMP event should be sent.

To specify an SNMP community string name

At the prompt, type:

ipmitool lan set 1 snmp <community string>

Installing a certificate and key on the LOM GUI

March 26, 2019

Citrix recommends using HTTPS to access the LOM GUI. To use HTTPS, you must replace the default SSL certificate with one from a trusted certificate authority and upload a private key to the LOM GUI.

To encrypt SNMP alerts, set up an SSL certificate and private key. In the GUI, navigate to Configuration > SSL Certification and apply the SSL certificate and private key. See the Citrix ADC Secure Deployment Guide for more information about how to securely deploy the LOM in your network. To enable encryption and learn the security measures for LOM, see http://support.citrix.com/article/CTX129514.

If you make a mistake, you must restore the BMC to the factory defaults to erase the certificate and key.
The certificate file must contain only the certificate. The certificate and key must not be in the same file. Make sure that the certificate contains only the certificate and that the key file contains only the key.

To upload a trusted certificate and private key by using the LOM GUI

1. Navigate to Configuration > SSL Certification.

2. In the right pane, click the Choose File buttons to select a new SSL certificate and a new private key.

3. To verify that you have selected the correct certificate and private key, check the file names of the certificate and key, which appear next to the Choose File buttons.
4. Click **Upload**. A message informs you that uploading a new SSL certificate replaces the existing (default) certificate.

5. Click **OK**.

6. When a message informs you that the certificate and key have been uploaded successfully, click **OK** to reset the device.
The reset takes approximately 60 seconds. You are then redirected to the logon page.

7. Log on to the LOM GUI by using your default credentials.

   Note
   If the certificate or key is invalid, the BMC reboots, tries the new settings, and reverts to using the previous settings.

8. In the address bar, click the lock icon to display the connection tab, as shown on the screen below.
9. Click **Certificate** information to display details about the certificate that you uploaded.
Note

For the best practices for LOM and Citrix ADC security, see http://support.citrix.com/article/CTX129514.
Obtaining the MAC address, serial number, and host properties of the appliance

February 11, 2019

A Media Access Control address (MAC address) is a unique identifier assigned to network interfaces for communication on the physical network segment. The serial number is on the back panel of the appliance. If you do not have easy access to the back panel, you can get the appliance’s serial number by logging on to the LOM port. You can also retrieve the parameter settings assigned to the IP addresses configured on the appliance, such as the state of ARP, ICMP, telnet, secure shell access, and dynamic routing.

To obtain the MAC address, serial number, and host properties of the appliance by using the LOM GUI

1. In the Menu bar, click Remote Control.
2. Under Options, click Console Redirection.
3. Click Launch Console, and then click Yes.
4. Type the administrator credentials.
5. Type show interface<management_interface_id> to display the MAC address.
6. Type show hardware to display the serial number of the appliance.
7. Type sh snsip to display the host properties of the appliance.

To obtain the MAC address and host properties of the BMC by using the appliance shell

At the shell prompt, type:

ipmitool lan print

Example

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Set in Progress</td>
<td>Set Complete</td>
</tr>
<tr>
<td>2</td>
<td>Auth Type Support</td>
<td>MD2 MD5 OEM</td>
</tr>
<tr>
<td>3</td>
<td>Auth Type Enable</td>
<td>Callback : MD2 MD5 OEM</td>
</tr>
<tr>
<td></td>
<td>User</td>
<td>MD2 MD5 OEM</td>
</tr>
<tr>
<td>5</td>
<td>Operator</td>
<td>MD2 MD5 OEM</td>
</tr>
<tr>
<td>6</td>
<td>Admin</td>
<td>MD2 MD5 OEM</td>
</tr>
<tr>
<td>7</td>
<td>OEM</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>IP Address Source</td>
<td>Static Address</td>
</tr>
</tbody>
</table>
Performing power control operations by using the LOM port

February 11, 2019

Through the LOM port, you can remotely perform power control operations, such as graceful shutdown and restart, power cycling the appliance, and restarting the BMC microcontroller. A cold restart takes longer than a warm restart. In a cold restart, you switch off power to the appliance and then switch it back on.

To perform power control operations by using the GUI

1. In the Menu bar, click Remote Control.
2. Under Options, click Power Control, and then select one of the following options:
   • Reset System—Gracefully restart the appliance. All operations on the appliance are stopped, no new connections to the client or server are accepted, and all existing connections are closed before the appliance restarts. This is similar to a warm restart, such as by entering the reboot command. The BMC does not reboot itself during this operation.
- **Power Off System – Immediate**—Disconnect power to the appliance immediately, without gracefully shutting down the appliance. The BMC continues to operate normally in this mode to allow the user to remotely power on the appliance. This is the same as pushing the power button until the unit powers off.

- **Power Off System – Orderly Shutdown**—Gracefully shut down the appliance, and then disconnect power to the appliance. Has the same effect as pressing the power button on the back panel of the appliance for less than four seconds. All operations on the appliance are stopped, no new connections to the client or server are accepted, and all existing connections are closed before the appliance shuts down. The BMC continues to operate normally in this mode to allow the user to remotely power on the appliance. This is the same as entering the shutdown command in the appliance shell.

- **Power On System**—Turn on the appliance. The BMC does not reboot itself during this operation. This is the same as pushing the power button.

- **Power Cycle System**—Turn off the appliance, and then turn it back on. The BMC does not reboot itself during this operation. This is the same as pushing the power button until the unit powers off, and then pushing the power button to power on the unit.

3. Click **Perform Action**.

### Performing a power cycle of the BMC

A warm restart, cold restart, or a power cycle of the appliance, using the power button, does not include power cycling the BMC. The BMC runs on standby power directly from the power supply. Therefore, the BMC is not affected by any state of the power button on the appliance. The only way to power cycle the BMC is to remove all power cords from the appliance for 60 seconds.

### Performing power control operations on the BMC by using the appliance shell

When performing either a warm or cold restart of the BMC microcontroller, you cannot communicate with the LOM port. Both actions restart the BMC but not the main CPU. To perform a warm restart of LOM from the appliance, type:

```
ipmitool mc reset warm
```

To perform a warm restart remotely from another computer on the network, type:
```
ipmitool -U <bmc_gui_username> -P <bmc_gui_password> -H <bmc IP address> mc reset warm
```

To perform a cold restart of the LOM from the appliance, type:
```
ipmitool mc reset cold
```
To perform a warm restart remotely from another computer on the network, type:

```
ipmitool -U <bmc_gui_username> -P <bmc_gui_password> -H <bmc IP address> mc reset cold
```

**Performing a Core Dump**

If the appliance fails or becomes unresponsive, you can remotely perform a core dump. This procedure has the same effect as pressing the NMI button on the back panel of the appliance.

**To perform a core dump by using the GUI**

1. In the **Menu** bar, click **Remote Control**.
2. Under **Options**, click **NMI**, and then click **Initiate NMI**.

**To perform a core dump remotely from another computer on the network by using the shell**

At the shell prompt, type:

```
ipmitool -U <bmc_gui_username> -P <bmc_gui_password> -H <bmc IP address> chassispowerdiag
```

**Restoring the BMC configuration to factory defaults**

February 11, 2019

You can restore the BMC to its factory-default settings, including deleting the SSL Certificate and SSL key.

**To reset the configuration to factory defaults by using the GUI**

1. Navigate to **Maintenance > Factory Default**.
2. Click **Restore**.

**To reset the configuration to factory defaults by using the shell**

At the shell prompt, type:

```
ipmitool raw 0x30 0x40
```
Specifying the port for IPMI BMC failover

February 25, 2019

With LOM firmware version 3.x or later, the default mode for failover between the dedicated LOM port and the shared LOM/management port is to fail over to the active port. By default, no user configuration is needed other than selecting the port to which to connect the cable. The motherboard has an Ethernet switch between the management MAC and the management port, and between the LOM MAC and the LOM port. The following figure shows the Ethernet switch.

Figure 1. Ethernet Switch

You can set this switch to direct LOM traffic through the dedicated LOM port or through the shared management port. A dedicated LOM port removes the management port as a single point of failure, while a shared LOM/management port reduces the cabling costs.

Using the BIOS POST code to detect errors

December 9, 2019

You can read the BIOS POST code by using the LOM GUI or the shell. To interpret the BIOS Beep codes, see https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_(beep_checkpoint).pdf.

To read the BIOS Post Code by using the LOM GUI

Navigate to Miscellaneous > BIOS Post Snooping.
To read the BIOS Post Code by using the shell

At the prompt, type:

```
ipmitool raw 0x30 0x2a
```

Converting a Citrix ADC MPX appliance to a Citrix ADC SDX appliance

February 11, 2019

You can convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance to deploy multiple virtualized Citrix ADC instances on a single, purpose-built physical appliance with full multiservice and multitenant support.

You can convert the Citrix ADC MPX 11515/11520/11530/11540/11542 appliances to Citrix ADC SDX 11515/11520/11530/11540/11542 appliances by upgrading the software through a new Solid State Drive (SSD) and a new Hard Disk Drive (HDD).

The Citrix ADC models SDX 11515/11520/11530/11540/11542 are 2U appliances. Each model has two 6-core processors for a total of 12 physical cores (24 cores with hyper-threading), and 48 gigabytes (GB) of memory.

The SDX 11515/11520/11530/11540/11542 appliances have the following ports:

- RS232 serial console port.
- 10/100Base-T copper Ethernet Port (RJ45), also called the LOM port. You can use this port to remotely monitor and manage the appliance independently of the Citrix ADC software.

  **Note**

  The LEDs on the LOM port are not operational, by design.

- Two 10/100/1000Base-T copper Ethernet management ports (RJ45), numbered 0/1 and 0/2 from left to right. These ports are used to connect directly to the appliance for system administration functions. Eight 10G SFP+ ports and four copper or fiber 1G SFP ports.

You can convert the Citrix ADC MPX 8005/8010/8015/8200/8400/8600/8800 appliances to Citrix ADC SDX 8010/8015/8400/8600 appliances by upgrading the software through a new Solid State Drive (SSD).

The Citrix ADC models SDX 8010/8015/8400/8600 are 1U appliances. Each model has one quad-core processor (8 cores with hyper-threading) and 32 gigabytes (GB) of memory. The SDX 8010/8015/8400/8600 appliances are available in two port configurations:
Citrix ADC SDX

- Six 10/100/1000Base-T copper Ethernet ports and six 1G SFP ports (6x10/100/1000Base-T copper Ethernet ports + 6x1G SFP)
- Six 10/100/1000Base-T copper Ethernet ports and two 10G SFP+ ports (6x10/100/1000Base-T copper Ethernet ports + 2x10G SFP+)

Converting a Citrix ADC MPX 11515/11520/11530/11540/11542 appliance to a Citrix ADC SDX 11515/11520/11530/11540/11542 appliance

February 25, 2019

You can convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance by upgrading the software through a new Solid State Drive (SSD) and a new Hard Disk Drive (HDD). Citrix supplies a field conversion kit to migrate a Citrix ADC MPX appliance to a Citrix ADC SDX appliance.

Note

Citrix recommends that you configure the Lights Out Management (LOM) Port of the Citrix ADC appliance before starting the conversion process. For more information on the LOM port of the Citrix ADC appliance, see Lights Out Management Port of the Citrix ADC appliance.

To convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance, you must access the appliance through a console cable attached to a computer or terminal. Before connecting the console cable, configure the computer or terminal to support the following configuration:

- VT100 terminal emulation
- 9600 baud
- 8 data bits
- 1 stop bit
- Parity and flow control set to NONE

Connect one end of the console cable to the RS232 serial port on the appliance, and the other end to the computer or terminal.

Note

To use a cable with an RJ-45 converter, insert the optional converter into the console port and attach the cable to it.

With the cable attached, verify that the MPX appliance’s components are functioning correctly. You are then ready to begin the conversion. The conversion process modifies the Basic Input-Output System (BIOS), installs XenServer hypervisor and a Service Virtual Machine image, and copies the Citrix ADC VPX image to the Hard Disk Drive.
After the conversion process, you make a few modifications to the appliance’s configuration and apply a new license. You can then provision the VPX instances through the Management Service on what is now a Citrix ADC SDX appliance.

The following figure shows the front panel of the MPX 11515/11520/11530/11540/11542 appliance.

Figure 1. Citrix ADC MPX 11515/11520/11530/11540/11542, front panel

To verify proper operation of the MPX appliance’s components

1. Access the console port and enter the administrator credentials.

2. Run the following command from the command line interface of the appliance to display the serial number: **show hardware**

   The serial number might be helpful in case you want to contact Citrix Technical Support.

   **Example**

   1 > show hardware
   2     Platform: NSMPX-11500 12*CPU+8*IX+4*E1K+2*E1K+2*CVM N3
   3              1400210
   4     Manufactured on: 8/12/2014
   5     CPU: 2400MHZ
   6     Host Id: 872841350
   7     Serial no: 2NSHJ2DR9E
   8     Encoded serial no: 2NSHJ2DR9E
   9 Done
3. Run the following command to display the status of the active 1G and 10G interfaces: `show interface`

4. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

   **Note**
   If you do not have an SFP+ transceiver for every port, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports. The SFP+ transceivers are not hot-swappable. Therefore, restart the MPX appliance after you connect the transceivers.

5. Run the following commands for each of the interfaces that are not in the UP/UP state:
   - `enable interface 1/x`
   - `enable interface 10/x`

   where x is the new interface number.

6. Run the following command to verify that the status of the power supplies is normal: `stat system -detail`

   **Example**

   ```
   > stat system -detail
   NetScaler Executive View
   System Information:
   Up since Wed Aug 13 12:09:54 2014
   Memory usage (MB) 924
   InUse Memory (%) 5.64
   Number of CPUs 5
   System Health Statistics (Standard):
   CPU 0 Core Voltage (Volts) 1.10
   CPU 1 Core Voltage (Volts) 1.10
   Main 3.3 V Supply Voltage 3.26
   Standby 3.3 V Supply Voltage 3.22
   +5.0 V Supply Voltage 5.09
   +12.0 V Supply Voltage 12.14
   Battery Voltage (Volts) 3.17
   Intel CPU Vtt Power(Volts) 0.00
   5V Standby Voltage(Volts) 4.97
   Voltage Sensor2(Volts) 0.00
   CPU Fan 0 Speed (RPM) 5929
   CPU Fan 1 Speed (RPM) 5929
   System Fan Speed (RPM) 5929
   System Fan 1 Speed (RPM) 5929
   ```
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>System Fan 2 Speed (RPM)</td>
<td>5929</td>
</tr>
<tr>
<td>25</td>
<td>CPU 0 Temperature (Celsius)</td>
<td>49</td>
</tr>
<tr>
<td>26</td>
<td>CPU 1 Temperature (Celsius)</td>
<td>51</td>
</tr>
<tr>
<td>27</td>
<td>Internal Temperature (Celsius)</td>
<td>33</td>
</tr>
<tr>
<td>28</td>
<td>Power supply 1 status</td>
<td>NORMAL</td>
</tr>
<tr>
<td>29</td>
<td>Power supply 2 status</td>
<td>NORMAL</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>System Disk Statistics:</td>
<td></td>
</tr>
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<td>32</td>
<td>/flash Size (MB)</td>
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<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>System Health Statistics(Auxiliary):</td>
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<tr>
<td>42</td>
<td>Voltage 0 (Volts)</td>
<td>0.00</td>
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<td>43</td>
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<tr>
<td>57</td>
<td>Temperature 3 (Celsius)</td>
<td>0</td>
</tr>
<tr>
<td>58</td>
<td>Done</td>
<td></td>
</tr>
</tbody>
</table>

7. Run the following command to generate a tar of system configuration data and statistics: **show techsupport**

   Example

```
> show techsupport
showtechsupport data collector tool - $Revision: #1 $! NetScaler version 9.2
The NS IP of this box is 10.10.10.10
```
Current HA state: Primary (or this is not part of HA pair!)

All the data will be collected under

```
/var/tmp/support/collector_10.10.10.10_P_13May2011_12_01
```

Copying selected configuration files from nsconfig ....

---

### Note

The output of the command is available in the `/var/tmp/support/collector_<ip_address>_P_<date>.tar.gz` file. Copy this file to another computer for future reference. The output of the command might be helpful in case you want to contact Citrix Technical Support.

---

8. At the Citrix ADC command line interface, switch to the shell prompt. Type: `shell`

Run the following command to verify that 2 Cavium cards are available: `grep cavium`

Cavium cards are available: `**root@ns# dmesg`  

---

**Example**

```
root@ns# dmesg | grep cavium
```

```
Cavium cavium_probe : found card 0x177d,device=0x11
```

```
cavium0 mem 0xdd000000-0xdfffffff irq 24 at device 0.0 on pci20
```

```
Cavium cavium_probe : found card 0x177d,device=0x11
```

```
cavium1 mem 0xd6000000-0xdfffffff irq 32 at device 0.0 on pci5
```

---

Run the following command to verify that 596 MB of RAM is reserved for shared memory: `grep memory`

**Example**

```
root@ns# dmesg | grep memory
```

```
real memory = 52613349376 (50176 MB)
```

```
avail memory = 49645355008 (47345 MB)
```

```
NS-KERN map_shared_mem_ioctl (cpu 7, NSPPE-03): Reserving 596 MB for shared memory type 0
```

---

Run the following command to verify that the appliance has 12 CPU cores: `grep cpu`

---

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Example

```
1 root@ns# dmesg | grep cpu
2 cpu0 (BSP): APIC ID: 0
3 cpu1 (AP): APIC ID: 2
4 cpu2 (AP): APIC ID: 4
5 cpu3 (AP): APIC ID: 16
6 cpu4 (AP): APIC ID: 18
7 cpu5 (AP): APIC ID: 20
8 cpu6 (AP): APIC ID: 32
9 cpu7 (AP): APIC ID: 34
10 cpu8 (AP): APIC ID: 36
11 cpu9 (AP): APIC ID: 48
12 cpu10 (AP): APIC ID: 50
13 cpu11 (AP): APIC ID: 52
14 cpu0: <ACPI CPU> on acpi0
15 acpi_throttle0: <ACPI CPU Throttling> on cpu0
16 cpu1: <ACPI CPU> on acpi0
17 acpi_throttle1: <ACPI CPU Throttling> on cpu1
18 cpu2: <ACPI CPU> on acpi0
19 cpu3: <ACPI CPU> on acpi0
20 cpu4: <ACPI CPU> on acpi0
21 cpu5: <ACPI CPU> on acpi0
22 cpu6: <ACPI CPU> on acpi0
23 cpu7: <ACPI CPU> on acpi0
24 cpu8: <ACPI CPU> on acpi0
25 cpu9: <ACPI CPU> on acpi0
26 cpu10: <ACPI CPU> on acpi0
27 cpu11: <ACPI CPU> on acpi0
28 NS-KERN map_shared_mem_ioctl (cpu 7, NSPPE-03): Reserving 596 MB
```

Run the following command to verify that the /var drive is mounted as /dev/ad8s1e: `root@ns# df -h`

Example

```
1 root@ns# df -h
2 Filesystem Size Used Avail Capacity Mounted on
3 /dev/md0c 276M 246M 24M 91% /
4 devfs 1.0K 1.0K 0B 100% /dev
5 procfs 4.0K 4.0K 0B 100% /proc
6 /dev/ad4s1a 62G 149M 57G 0% /flash
7 /dev/ad8s1e 728G 299M 669G 0% /var
8 root@ns#
```
12. Run the following command to execute the ns_hw_err.bash script, which checks for latent hardware errors: `root@ns#/netscaler/ns_hw_err.bash`

Example

```bash
1 root@ns# /netscaler/ns_hw_err.bash
2 NetScaler NS10.1: Build 127.11.nc, Date: Aug 11 2014, 18:24:36
3 platform: serial 2NSHJ2DR9E
4 platform: sysid 1400210 - NSMPX-11500 12*CPU+8*IX+4*E1K+2*E1K+2*
   CVM N3
5 HDD MODEL: Device Model: ST1000NM0033-9ZM173
6 Generating the list of newnslog files to be processed...
7 Generating the events from newnslog files...
8 Checking for HDD errors...
9 /var/nslog/dmesg.prev:swap.NO
10 **********************************************
11 HDD ERROR: FOUND 1 HDD errors: swap.NO
12 **********************************************
13 Checking for HDD SMART errors...
14 Checking for Flash errors...
15 Checking for SSL errors...
16 Checking for BIOS errors...
17 Checking for SMB errors...
18 Checking for MotherBoard errors...
19 Checking for CMOS errors...
20 License year: 2014: OK
21 License server failed at startup. Check /var/log/license.log
22 Vendor daemon failed at startup. Check /var/log/license.log
23 Checking for SFP/NIC errors...
24 Checking for Firmware errors...
25 Checking for License errors...
26 Checking for Undetected CPUs...
27 Checking for DIMM flaps...
28 Checking the Power Supply Errors...
29 root@ns#
```

13. **Important**: Physically disconnect all ports except the LOM port, including the management port, from the network.

14. At the shell prompt, switch to the Citrix ADC command line. Type: `exit`

15. Run the following command to shut down the appliance: `shutdown -p now`

Example

```bash
1 > shutdown -p now
```
To upgrade the appliance

1. Locate the solid-state drive on the back panel of the appliance, as shown in the following figure:

   ![Solid-State Drive Diagram]

2. Verify that the replacement solid-state drive (SSD) is the one required for your Citrix ADC model. The Citrix label is on the top of the solid-state drive, which is pre-populated with a new version of BIOS and a recent build of the required Service VM software.

3. Remove the SSD drive by pushing the safety latch of the drive cover down while pulling the drive handle.

4. On the new SSD drive, open the drive handle completely, and then insert the new drive into the slot.

5. Close the handle flush with the rear side of the appliance so that the drive locks securely into the slot.

   **Important**
   
   The orientation of the solid-state drive is important. When you insert the drive, make sure that the Citrix product label is at the top.

6. Locate the hard disk drive (HDD) on the back panel of the appliance.

7. Remove the HDD by pushing the safety latch of the drive cover to the right and pulling the drive handle.

8. On the new disk drive, open the drive handle completely to the left, and then insert the new drive into the slot.

9. Close the handle flush with the rear side of the appliance so that the hard drive locks securely into the slot.

10. Store the old SSD/HDD pair for future handling.
Important

The orientation of the hard disk drive is important. When you insert the drive, make sure that the Citrix product label is at the top.

11. Start the Citrix ADC appliance. For instructions, see the Switching on the Appliance section in Installing the hardware.

The conversion process takes approximately 30 minutes to complete. The conversion process updates the BIOS, installs the XenServer hypervisor and the Management Service Operating system, and copies the Citrix ADC VPX image to the hard disk drive for instance provisioning. When the conversion begins, the LCD screen on the front bezel indicates NSMPX-11500 10G, as shown in the following figure.

![NSMPX-11500 10G Booting...](image)

When the conversion is successful, the LCD indicates Citrix NSSDX - 11515, as shown in the following figure.

![CITRIX NSSDX-11515](image)

Note

The serial number of the appliance remains the same.

12. Keep the console cable attached during the conversion process. Allow the process to complete, at which point the netscaler-sdx login: prompt appears.

If the boot SSD is not inserted completely into the designated slot, the Citrix ADC SDX appliance attempts to start from the hard disk drive, and the bootup process results in a prompt different from the one mentioned above. If the netscaler-sdx login: prompt does not appear, carefully reseat the SSD, close the locking handle, and restart the appliance.
Converting a Citrix ADC MPX 8005/8010/8015/8200/8400/8600/8800 appliance to a Citrix ADC SDX 8010/8015/8400/8600 appliance

February 25, 2019

To convert a Citrix ADC MPX 8005/8010/8015/8200/8400/8600/8800 appliance to a Citrix ADC SDX 8010/8015/8400/8600 appliance, you must access the appliance through a console cable attached to a computer or terminal.

Before connecting the console cable, configure the computer or terminal to support the following configuration:

1. VT100 terminal emulation
2. 9600 baud
3. 8 data bits
4. 1 stop bit
5. Parity and flow control set to NONE

To convert a Citrix ADC MPX 8005/8010/8015/8200/8400/8600/8800 appliance to a Citrix ADC SDX 8010/8015/8400/8600 appliance

1. Connect one end of the console cable to the RS232 serial port on the appliance and the other end to the computer or terminal.

   Note

   To use a cable with an RJ45 converter, insert the optional converter into the console port and attach the cable to it.

2. On the Citrix ADC MPX appliance, verify that the solid state drive, power supplies, CPU, SSL cores, and interfaces are operational.

3. Access the console port and enter the administrator credentials.

4. Run the following command from the Citrix ADC command line interface to display the serial number and confirm the SYSID of the appliance: > show hardware
5. Run the following command to display the status of the active interfaces: `> show interface`

6. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

**Note**
If you have only a limited number of SFP+ transceivers, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports. The SFP+ transceivers are not hot-swappable. Therefore, restart the MPX appliance after you connect the transceivers.

7. Run the following commands for each of the interfaces:
   ```
   enable interface 1/x
   enable interface 10/x
   ```
   where x is the new interface number.

8. For any interface that you do not want to use after conversion, run the following commands:
   ```
   disable interface 1/x
   disable interface 10/x
   ```

9. Run the following command to verify that the status of the power supplies is normal: `> stat system –detail`

10. Run the following command: `> show techsupport`

    **Note**
    The output of the command is available in the `/var/tmp/support/collector_<IP_address>_P_<date>.tar.gz` file. Copy this file to another computer for future reference. It might be helpful if you want to contact a Citrix technical support engineer.

11. At the Citrix ADC command line interface, switch to the shell prompt. Type: `shell`

    Run the following command to verify that 4 Cavium cores are available:
    ```
    grep cavium**
    ```
    Cavium cores are available: **root@ns# dmesg

12. Run the following command to verify that 132 MB of RAM is reserved for shared memory:
    ```
    grep memory**
    ```
    **root@ns# dmesg
13. Run the following command to verify that the appliance has 4 CPU cores: `grep cpu`.

14. Run the following command to verify that the `/var` drive is mounted as `/dev/ad4s1e`: `root@ns# df -h`.

15. Enter the following command to run the `ns_hw_err.bash` script. This script checks for latent hardware errors. `root@ns# /netscaler/ns_hw_err.bash`.

16. At the shell prompt, switch to the Citrix ADC command line interface. Type: `exit`.

17. Run the following command to shut down the appliance: `shutdown -p now`.

18. Locate the solid-state drive on the back panel of the appliance, as shown in the following figure:

20. Verify that the replacement solid-state drive is the one required for your Citrix ADC model. The Citrix label is on the top of the solid-state drive, which is pre-populated with a new version of BIOS and a recent build of the required Service VM software.

21. Remove the currently installed SSD drive by pushing the safety latch of the drive cover to the right and removing the drive handle and the existing drive.

22. Open the drive handle on the new drive completely to the left, and insert the drive into the slot. The following figure shows the drive partially inserted. Push the drive all the way into the slot.

23. Close the handle flush with the rear side of the appliance so that the solid-state drive locks securely into the slot.
The orientation of the solid-state drive is important. Make sure that the Citrix product label is facing up when you insert the drive.

24. Store the old SSD.

25. Start the Citrix ADC appliance. It takes approximately 30 minutes for the conversion process to complete. The conversion process updates the BIOS, installs the XenServer hypervisor and the Service VM operating system, and copies the Citrix ADC VPX image to the solid state drive for instance provisioning. When the conversion begins, the LCD screen on the front panel indicates NSMPX-8200 Booting… or NSMPX-8200 10G Booting… depending on the model of the appliance. When the conversion is successful, the LCD indicates Citrix NSSDX-8200 or Citrix NSSDX-8200 10G, depending on the model of the appliance.

Note
The serial number of the appliance remains the same.

26. Keep the console cable attached during the conversion process. Allow the process to continue until the netscaler-sdx login: prompt appears.

27. When the appliance finishes the conversion process, it no longer has the previously working configuration. Therefore, you can access the appliance through a Web browser only. Use the default IP address: 192.168.100.1/16. Configure a computer on network 192.168.0.0 and connect it directly to the management port 0/1 of the appliance by using a cross-over Ethernet cable, or access the Citrix ADC SDX appliance through a network hub by using a straight-through Ethernet cable. Use the default credentials. (Username: nsroot and Password: nsroot).

28. Select the Configuration tab.

29. Verify that the System Resource section displays 8 CPU cores, 4 SSL cores, and 32 GB of total memory for the Citrix ADC SDX appliance.

30. Select System node and click the Network Configuration link on the System page to modify the IP address of the Service VM.

31. In the Modify Network Configuration dialog box, specify the following details:
   - Interface—The interface through which clients connect to the Management Service. Possible values: 0/1, 0/2. Default: 0/1.
   - XenServer IP Address—The IP address of XenServer hypervisor.
   - Management Service IP Address—The IP address of the Management Service.
   - Netmask—The subnet mask for the subnet in which the SDX appliance is located.
   - Gateway—The default gateway for the network.
   - DNS Server*—The IP address of the DNS server.

*An optional parameter
32. Click **OK**.

33. Connect the Citrix ADC SDX appliance to a switch to access it through the network. Browse to the Management Service IP address defined in step 31 and log on with the default credentials.

34. For instructions for applying the licenses, see [Citrix ADC SDX Licensing Overview](#).

**Converting a Citrix ADC MPX 24100 and 24150 appliance to a Citrix ADC SDX 24100 and 24150 appliance**

February 25, 2019

You can convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance by upgrading the software through a new Solid State Drive (SSD). Citrix supplies a field conversion kit to migrate a Citrix ADC MPX appliance to a Citrix ADC SDX appliance.

The conversion requires minimum of four SSDs.

**Note**

Citrix recommends that you configure the Lights Out Management (LOM) Port of the Citrix ADC appliance before starting the conversion process. For more information on the LOM port of the Citrix ADC appliance, see [Lights Out Management Port of the Citrix ADC appliance](#).

To convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance, you must access the appliance through a console cable attached to a computer or terminal. Before connecting the console cable, configure the computer or terminal to support the following configuration:

- VT100 terminal emulation
- 9600 baud
- 8 data bits
- 1 stop bit
- Parity and flow control set to NONE

Connect one end of the console cable to the RS232 serial port on the appliance, and the other end to the computer or terminal.

**Note**

To use a cable with an RJ-45 converter, insert the optional converter into the console port and attach the cable to it.

Citrix recommends you to connect a VGA monitor to the appliance to monitor the conversion process, because the LOM connection is be lost during the conversion process.
With the cable attached, verify that the MPX appliance’s components are functioning correctly. You are then ready to begin the conversion. The conversion process modifies the Basic Input-Output System (BIOS), installs XenServer hypervisor and a Service Virtual Machine image, and copies the Citrix ADC VPX image to the Solid State Drive.

The conversion process also sets up a Redundant Array of Independent Disks (RAID) controller for local storage (SSD slot # 1 and SSD slot # 2) and Citrix ADC VPX storage (SSD slot # 3 and SSD slot # 4).

After the conversion process, you make a few modifications to the appliance’s configuration and apply a new license. You can then provision the VPX instances through the Management Service on what is now a Citrix ADC SDX appliance.

**To verify proper operation of the MPX appliance’s components**

1. Access the console port and enter the administrator credentials.

2. Run the following command from the command line interface of the appliance to display the serial number:
   ```
   show hardware
   ```
   The serial number might be helpful in the event that you want to contact Citrix Technical Support.

3. Run the following command to display the status of the active 10G interfaces: show interface

4. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

   **Note**
   If you do not have an SFP+ transceiver for every port, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports.

5. Run the following command for each of the interfaces that are not in the UP/UP state:

**To upgrade the appliance**

1. Power off the Citrix ADC appliance.

2. Locate two solid-state drives (SSDs) on the back of the appliance in slot #1 and slot #2, as shown in the following figure:
3. Verify that the replacement solid-state drives (SSDs) are the ones required for your Citrix ADC model. The conversion requires minimum of four SSDs. The Citrix label is on the top of one of the solid-state drives, which is pre-populated with a new version of BIOS and a recent build of the required Citrix ADC SDX Management Service. This SSD must be installed in slot #1.

4. Remove the SSDs by pushing the safety latch of the drive cover down while pulling the drive handle.

5. On the new Citrix Certified SSD drive, open the drive handle completely to the left, and then insert the new drive into the slot #1 as far as possible.

6. To seat the drive, close the handle flush with the rear side of the appliance so that the drive locks securely into the slot.

   **Important**

   The orientation of the SSD is important. When you insert the drive, make sure that the Citrix product label is at the top.

7. Insert a second Citrix certified SSD, which matches the capacity of the SSD in slot #1, in slot #2. Insert additional blank Citrix certified SSDs in slots #3 and #4.

   **Important**

   Note that mixing and matching of old and new SSDs is not supported. SSDs in slot #1 and slot #2, which constitute the first RAID pair (local storage), must be of same size and type. Similarly, SSDs in slot #3 and slot #4, which constitute the second RAID pair (VPX storage), must be of same size and type. Do not use any other drives that are not part of the provided conversion kit.

8. Disconnect all network cables from the data ports and the management ports.

9. Start the Citrix ADC appliance. For instructions, see “Switching on the Appliance” in Installing the Hardware. The conversion process can run for approximately 30 minutes, during which you
must not power cycle the appliance. The entire conversion process might not be visible on the console and might appear to be unresponsive. The conversion process updates the BIOS, installs the XenServer hypervisor and the Management Service Operating system, and copies the Citrix ADC VPX image to the SSD for instance provisioning, and forms the Raid1 pair.

**Note**
The serial number of the appliance remains the same.

10. Keep the console cable attached during the conversion process. Allow the process to complete, at which point the netscaler-sdx login: prompt appears.

11. During the conversion process the LOM port connection may be lost as it resets the IP address to the default value of 192.168.1.3. The conversion status output is available on the VGA monitor.

**Convert a Citrix ADC MPX 14020/14030/14040/14060/14080/14100 appliance to a Citrix ADC SDX 14020/14030/14040/14060/14080/14100 appliance**

May 15, 2019

You can convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance by upgrading the software through a new solid-state drive (SSD). Citrix supplies a field conversion kit to migrate a Citrix ADC MPX appliance to an SDX appliance.

The conversion requires minimum of four SSDs.

**Note** Citrix recommends that you configure the Lights Out Management (LOM) port of the Citrix ADC appliance before starting the conversion process. For more information on the LOM port of the Citrix ADC appliance, see Lights out management port of the Citrix ADC SDX appliance.

To convert a Citrix ADC MPX appliance to an SDX appliance, you must access the appliance through a console cable attached to a computer or terminal. Before connecting the console cable, configure the computer or terminal to support the following configuration:

- VT100 terminal emulation
- 9600 baud
- 8 data bits
- 1 stop bit
- Parity and flow control set to NONE

Connect one end of the console cable to the RS232 serial port on the appliance, and the other end to the computer or terminal.
Note: To use a cable with an RJ-45 converter, insert the optional converter into the console port and attach the cable to it.

Citrix recommends that you connect a VGA monitor to the appliance to monitor the conversion process, because the LOM connection might be lost during the conversion process.

With the cable attached, verify that the MPX appliance’s components are functioning correctly. You are then ready to begin the conversion. The conversion process modifies the Basic Input-Output System (BIOS), installs XenServer hypervisor and a Service Virtual Machine image, and copies the VPX image to the solid-state drive.

The conversion process also sets up a redundant array of independent disks (RAID) controller for local storage (SSD slot # 1 and SSD slot # 2) and Citrix ADC VPX storage (SSD slot # 3 and SSD slot # 4).

After the conversion process, you modify the configuration of the appliance and apply a new license. You can then provision the VPX instances through the Management Service on what is now an SDX appliance.

To verify proper operation of the MPX appliance’s components

1. Access the console port and enter the administrator credentials.

2. Run the following command from the command line interface of the appliance to display the serial number: show hardware

   The serial number might be helpful in case you want to contact Citrix Technical Support.

   Example

   ```
   1 show hardware
   2   Platform: NSMPX=14000 12*CPU+16*IX+2*E1K+2*CVM N3 250101
   3   Manufactured on: 10/2/2015
   4   CPU: 2600MHZ
   5   Host Id: 234913926
   6   Serial no: JSW4UCKKMS
   7   Encoded serial no: JSW4UCKKMS
   8   Done
   ```

3. Run the following command to display the status of the active 10G interfaces: show interface

4. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

   **Note:** If you do not have an SFP+ transceiver for every port, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports.
5. Run the following command for each of the interfaces that are not in the UP/UP state:
   * enable interface 10/x
   where x is the new interface number.

6. Run the following command to verify that the status of the power supplies is normal: stat system -detail

7. Run the following command to generate a tar of system configuration data and statistics: show techsupport

   **Note:** The output of the command is available in the /var/tmp/support/collector_<IP_address>_P_<date>.tar.gz file. Copy this file to another computer for future reference. The output of the command might be helpful in case you want to contact Citrix Technical Support.

8. At the command line interface, switch to the shell prompt. Type: shell

9. Run the following command to verify the number of Cavium cards available depending upon your appliance: `root@ns# grep "cavium" /var/nslog/dmesg.boot`

   **Example**
   
   ```
   root@ns# grep "cavium" /var/nslog/dmesg.boot
   Cavium cavium_probe : found card 0x177d, device=0x11
   cavium0 mem 0xdd600000-0xdd6fffff irq 32 at device 0.0 on pci3
   Cavium cavium_probe : found card 0x177d, device=0x11
   cavium1 mem 0xfaa00000-0xfaafffff irq 64 at device 0.0 on pci136
   ```

10. Run the following command to verify the RAM memory reserved for shared memory depending upon your appliance: `root@ns# grep "memory" /var/nslog/dmesg.boot`

    **Example**
    
    ```
    root@ns# grep "memory" /var/nslog/dmesg.boot
    real memory  = 70866960384 (67584 MB)
    avail memory = 66267971584 (63198 MB)
    ```

11. Run the following command to verify the number of CPU cores depending upon your appliance: `root@ns# grep "cpu" /var/nslog/dmesg.boot`

    **Example**
    
    ```
    root@ns# grep "cpu" /var/nslog/dmesg.boot
    cpu0 (BSP): APIC ID: 0
    cpu1 (AP): APIC ID: 2
    cpu2 (AP): APIC ID: 4
    cpu3 (AP): APIC ID: 6
    cpu4 (AP): APIC ID: 8
    cpu5 (AP): APIC ID: 10
    ```
12. Run the following command to verify that the /var drive is mounted as /dev/ad8s1e: root@ns# df -h

13. Run the following command to execute the ns_hw_err.bash script, which checks for latent hardware errors: root@ns# ns_hw_err.bash

Example

```bash
1 root@ns# ns_hw_err.bash
2 NetScaler NS10.1: Build 133.11.nc, Date: Sep 21 2015, 17:59:51
3 platform: serial JSW4UCKKM5
4 platform: sysid 250101 - NSMPX-14000 12*CPU+16*IX+2*E1K+2*CVM N3
5 HDD MODEL: ar0: 227328MB &lt;Intel MatrixRAID RAID1&gt;; status: READY
```
Generating the list of newnslog files to be processed...
Generating the events from newnslog files...
Checking for HDD errors...
Checking for HDD SMART errors...
Checking for Flash errors...
/var/nslog/dmesg.prev:* DEVELOPER mode - run NetScaler manually!
*****************************************************************************
FOUND 1 Flash errors: DEVELOPER mode - run NetScaler manually
*****************************************************************************
Checking for SSL errors...
Checking for BIOS errors...
Checking for SMB errors...
Checking for MotherBoard errors...
Checking for CMOS errors...
License year: 2015: OK
License server failed at startup. Check /var/log/license.log
Vendor daemon failed at startup. Check /var/log/license.log
Checking for SFP/NIC errors...
Checking for Firmware errors...
Checking for License errors...
Checking for Undetected CPUs...
Checking for DIMM flaps...
Checking for LOM errors...
Checking the Power Supply Errors...

14. Important: Physically disconnect all ports except the LOM port, including the management port, from the network.

15. At the shell prompt, switch to the Citrix ADC command line. Type: exit

16. Run the following command to shut down the appliance: shutdown -p now

To upgrade the appliance

1. Power off the Citrix ADC appliance.

2. Locate two solid-state drives (SSDs) on the back of the appliance in slot #1 and slot #2, as shown in the following figure:
3. Verify that the replacement SSDs are the ones required for your Citrix ADC model. The conversion requires minimum of four SSDs. The Citrix label is on the top of one of the solid-state drives, which is pre-populated with a new version of BIOS and a recent build of the required SDX Management Service. This SSD must be installed in slot #1.

4. Remove the SSDs by pushing the safety latch of the drive cover down while pulling the drive handle.

5. On the new Citrix Certified SSD drive, open the drive handle completely to the left, and then insert the new drive into the slot #1 as far as possible.

6. To seat the drive, close the handle flush with the rear side of the appliance so that the drive locks securely into the slot.

   **Important:** The orientation of the SSD is important. When you insert the drive, make sure that the Citrix product label is at the top.

7. Insert a second Citrix certified SSD, which matches the capacity of the SSD in slot #1, in slot #2. Insert other blank Citrix certified SSDs in slots #3 and #4.

   **Note:** If the license of your appliance is 14040, insert other blank Citrix certified SSDs in slots #3, #4, #5, and #6.

   If the license of your appliance is 14060/14080/14100, insert other blank Citrix certified SSDs in slots #3, #4, #5, #6, #7, and #8.

   **Important:** Mixing and matching of old and new SSDs is not supported. SSDs in slot #1 and slot #2, which constitute the first RAID pair (local storage), must be of the same size and type. Similarly, SSDs in slot #3 and slot #4, which constitute the second RAID pair (VPX storage), must be of the same size and type. Do not use any other drives that are not part of the provided conversion kit.

8. Store the old SSDs for future handling.
9. Disconnect all network cables from the data ports and the management ports.

10. Start the Citrix ADC appliance. For instructions, see “Switching on the Appliance” in Installing the hardware.

The conversion process can run for approximately 30 minutes, during which you must not power cycle the appliance. The entire conversion process might not be visible on the console and might appear to be unresponsive.

The conversion process updates the BIOS, installs the XenServer hypervisor and the Management Service Operating system, and copies the Citrix ADC VPX image to the SSD for instance provisioning, and forms the Raid1 pair.

**Note:** The serial number of the appliance remains the same.

11. Keep the console cable attached during the conversion process. Allow the process to complete, at which point the netscaler-sdx login: prompt appears.

12. During the conversion process the LOM port connection may be lost as it resets the IP address to the default value of 192.168.1.3. The conversion status output is available on the VGA monitor.

13. To make sure that the conversion is successful, verify that the FVT result indicates success. Run the following command: `tail /var/log/fvt/fvt.log`

**Example**

```
[1] [root@netscaler-sdx ~]# tail /var/log/fvt/fvt.log
2 Wed, 28 Oct 2015 04:40:47 /opt/xensource/packages/files/fvt/workers/check_vf_count --pf_device="0000:89:00.1" --vf_count="40";
3 Wed, 28 Oct 2015 04:40:47 =&gt; PASS
4 Wed, 28 Oct 2015 04:40:47 /opt/xensource/packages/files/fvt/workers/check_vf_count --pf_device="0000:03:00.0" --vf_count="8";
5 Wed, 28 Oct 2015 04:40:47 =&gt; PASS
6 Wed, 28 Oct 2015 04:40:47 /opt/xensource/packages/files/fvt/workers/check_vf_count --pf_device="0000:88:00.0" --vf_count="8";
7 Wed, 28 Oct 2015 04:40:47 =&gt; PASS
8 Wed, 28 Oct 2015 04:40:47 FVT RESULT: SUCCESS!<br />
9 [root@netscaler-sdx ~]#
```

**To reconfigure the converted appliance**

After the conversion process, the appliance no longer has its previous working configuration. Therefore, you can access the appliance through a web browser only by using the default IP address:
192.168.100.1/16. Configure a computer on network 192.168.0.0 and connect it directly to the appliance’s management port (0/1) with a cross-over Ethernet cable, or access the SDX appliance through a network hub by using a straight through Ethernet cable. Use the default credentials to log on (Username: nsroot and Password: nsroot), and then do the following:

1. Select the Configuration tab.

2. Verify that the System Resource section displays the accurate number of CPU cores, SSL cores, and the total memory for your SDX appliance.

3. Select the System node and, under Set Up Appliance, click Network Configuration to modify the IP address of the Management Service.

4. In the Configure Network Configuration dialog box, specify the following details:
   - Interface*—The interface through which clients connect to the Management Service. Possible values: 0/1, 0/2. Default: 0/1.
   - XenServer IP Address*—The IP address of XenServer hypervisor.
   - Management Service IP Address*—The IP address of the Management Service.
   - Netmask*—The subnet mask for the subnet in which the SDX appliance is located.
   - Gateway*—The default gateway for the network.
   - DNS Server—The IP address of the DNS server.

   *A mandatory parameter

5. Click OK. Connection to the Management Service is lost as the network information was changed.

6. Connect the SDX appliance's management port 0/1 to a switch to access it through the network. Browse to the IP address used above and log on with the default credentials.

7. Apply the new licenses. For instructions, see SDX Licensing Overview.

8. Navigate to Configuration > System and, in the System Administration group, click Reboot Appliance. Click Yes to confirm. You are now ready to provision the VPX instances on the NetScaler SDX appliance. For instructions, see Provisioning Citrix ADC Instances.

Convert a Citrix ADC MPX 14020 40G, MPX 14040 40G, MPX 14060 40G, MPX 14080 40G appliance to a Citrix ADC SDX 14020 40G, SDX 14040 40G, SDX 14060 40G, SDX 14080 40G appliance

May 15, 2019
You can convert a Citrix ADC MPX appliance to a NetScaler SDX appliance by upgrading the software through a new solid-state drive (SSD). Citrix supplies a field conversion kit to migrate a Citrix ADC MPX appliance to an SDX appliance.

The conversion requires minimum of four SSDs.

Note: Citrix recommends that you configure the Lights Out Management (LOM) Port of the NetScaler appliance before starting the conversion process. For more information on the LOM port of the NetScaler appliance, see Lights out management port of the Citrix ADC SDX appliance.

To convert a MPX appliance to an SDX appliance, you must access the appliance through a console cable attached to a computer or terminal. Before connecting the console cable, configure the computer or terminal to support the following configuration:

- VT100 terminal emulation
- 9600 baud
- 8 data bits
- 1 stop bit
- Parity and flow control set to NONE

Connect one end of the console cable to the RS232 serial port on the appliance, and the other end to the computer or terminal.

Note: To use a cable with an RJ-45 converter, insert the optional converter into the console port and attach the cable to it.

Citrix recommends you to connect a VGA monitor to the appliance to monitor the conversion process, because the LOM connection is lost during the conversion process.

With the cable attached, verify that the MPX appliance’s components are functioning correctly. You are then ready to begin the conversion. The conversion process modifies the Basic Input-Output System (BIOS), installs XenServer hypervisor and a Service Virtual Machine image, and copies the NetScaler VPX image to the Solid State Drive.

The conversion process also sets up a redundant array of independent disks (RAID) controller for local storage (SSD slot #1 and SSD slot #2) and Netscaler VPX storage (SSD slot #3 and SSD slot #4).

After the conversion process, you make a few modifications to the appliance's configuration and apply a new license. You can then provision the VPX instances through the Management Service on what is now a NetScaler SDX appliance.

### Verify proper operation of the MPX appliance’s components

1. Access the console port and enter the administrator credentials.
2. Run the following command from the command line interface of the appliance to display the serial number: show hardware
Example

```
1 show hardware
2    Platform: NSMPX-14000-40G 12*CPU+16*F1X+4*F4X+2*E1K+2*CVM N3 250140
3    Manufactured on: 3/21/2016
4    CPU: 2600MHZ
5    Host Id: 234913926
6    Serial no: KZCHGCN810
7    Encoded serial no: KZCHGCN810
8 Done
```

The serial number might be helpful in the event that you want to contact Citrix Technical Support.

```
3.Run the following command to display the status of the active interfaces:
   show interface
```

Example

```
1 show interface
2 1) Interface 0/1 (Gig Ethernet 10/100/1000 MBits) #10
3      flags=0x20 &lt;ENABLED, UP, UP, autoneg, HAMON, 802.1q&gt;
4      MTU=1500, native vlan=1, MAC=0:c:4:7:a:41:e:a:94, uptime 43 h59m55s
5      Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
6            throughput 0
7      Actual: media UTP, speed 1000, duplex FULL, fctl OFF,
8            throughput 1000
9      LLDP Mode: NONE
10     RX: Pkts(44337150) Bytes(2767558041) Errs(0) Drops(41260552)
11        Stalls(0)
12     TX: Pkts(128116) Bytes(9004699) Errs(0) Drops(0) Stalls(0)
13     NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
14     Bandwidth thresholds are not set.
15 2) Interface 0/2 (Gig Ethernet 10/100/1000 MBits) #11
16      flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
17      MTU=1500, native vlan=1, MAC=0:c:4:7:a:41:e:a:95, downtime 44 h00m08s
18      Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
19            throughput 0
20      LLDP Mode: NONE
21     RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
22     TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
```

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<table>
<thead>
<tr>
<th>NIC</th>
<th>InDisc(0)</th>
<th>OutDisc(0)</th>
<th>Fctls(0)</th>
<th>Stalls(0)</th>
<th>Hangs(0)</th>
<th>Muted(0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth thresholds are not set.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3) Interface 10/1 (10G Ethernet) #17
```plaintext
flags=0x4000 <; ENABLED, DOWN, down, autoneg, HAMON, 802.1q>
MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:40, downtime 44h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
```
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

4) Interface 10/2 (10G Ethernet) #18
```plaintext
flags=0x4000 <; ENABLED, DOWN, down, autoneg, HAMON, 802.1q>
MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:41, downtime 44h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
```
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

5) Interface 10/3 (10G Ethernet) #19
```plaintext
flags=0x4000 <; ENABLED, DOWN, down, autoneg, HAMON, 802.1q>
MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:42, downtime 44h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
```
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

6) Interface 10/4 (10G Ethernet) #20
```plaintext
flags=0x4000 <; ENABLED, DOWN, down, autoneg, HAMON, 802.1q>
MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:43, downtime 44h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
```
LLDP Mode: NONE

RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

7) Interface 10/5 (10G Ethernet) #13
flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt; ;
MTU=1500, native vlan=1, MAC=68:05:ca:2e:6b:a0, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

8) Interface 10/6 (10G Ethernet) #14
flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
MTU=1500, native vlan=1, MAC=68:05:ca:2e:6b:a1, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

9) Interface 10/7 (10G Ethernet) #15
flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt; ;
MTU=1500, native vlan=1, MAC=68:05:ca:2e:6b:a2, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

10) Interface 10/8 (10G Ethernet) #16
flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt; ;
MTU=1500, native vlan=1, MAC=68:05:ca:2e:6b:a3, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
  throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0)Hangs(0) Muted(0)
  Bandwidth thresholds are not set.
  Interface 10/9 (10G Ethernet) #0
  flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
  MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:a0, downtime 44
         h00m08s
  Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
            throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0)Hangs(0) Muted(0)
  Bandwidth thresholds are not set.
  Interface 10/10 (10G Ethernet) #1
  flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
           ;
  MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:a1, downtime 44
         h00m08s
  Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
            throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0)Hangs(0) Muted(0)
  Bandwidth thresholds are not set.
  Interface 10/11 (10G Ethernet) #2
  flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
           ;
  MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:a2, downtime 44
         h00m08s
  Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
            throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0)Hangs(0) Muted(0)
  Bandwidth thresholds are not set.
  Interface 10/12 (10G Ethernet) #3
  flags=0x4000 &lt;ENABLED, DOWN, down, autoneg, HAMON, 802.1q&gt;
           ;
MTU=1500, native vlan=1, MAC=68:05:ca:30:e1:a3, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE

RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 10/13 (10G Ethernet) #4
flags=0x4000 &lt; ENABLED, DOWN, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=68:05:ca:30:e2:70, downtime 44 h00m08s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 10/14 (10G Ethernet) #5
flags=0x4000 &lt; ENABLED, DOWN, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=68:05:ca:30:e2:71, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 10/15 (10G Ethernet) #6
flags=0x4000 &lt; ENABLED, DOWN, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=68:05:ca:30:e2:72, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE
RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 10/16 (10G Ethernet) #7
flags=0x4000 &lt; enabled, down, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=68:05:ca:30:e2:73, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE

RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 40/1 (40G Ethernet) #9
flags=0x4000 &lt; enabled, down, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=3c:fd:fe:9c:f9:98, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE

RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 40/2 (40G Ethernet) #21
flags=0x4000 &lt; enabled, down, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=3c:fd:fe:9c:fa:68, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF, throughput 0
LLDP Mode: NONE

RX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
TX: Pkts(0) Bytes(0) Errs(0) Drops(0) Stalls(0)
NIC: InDisc(0) OutDisc(0) Fctls(0) Stalls(0) Hangs(0) Muted(0)
Bandwidth thresholds are not set.

Interface 40/3 (40G Ethernet) #12
flags=0x4000 &lt; enabled, down, down, autoneg, HAMON, 802.1q &gt;
MTU=1500, native vlan=1, MAC=3c:fd:fe:9c:f9:f8, downtime 44 h00m15s
Requested: media AUTO, speed AUTO, duplex AUTO, fctl OFF,
4. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
</table>
| · The interface status is displayed as UP/UP only if the cables are connected to the interfaces.  
· If you do not have an SFP+ transceiver for every port, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports. |

5. Run the following command for each of the interfaces that are not in the UP/UP state:
* enable interface 10/x
* enable interface 40/x

where x is the new interface number.
**Example**

<table>
<thead>
<tr>
<th>1</th>
<th>enable interface 10/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Done</td>
</tr>
<tr>
<td>3</td>
<td>&gt; enable interface 40/1</td>
</tr>
<tr>
<td>4</td>
<td>Done</td>
</tr>
</tbody>
</table>

6. Run the following command to verify that the status of the power supplies is normal: stat system -detail

**Example**

<table>
<thead>
<tr>
<th>1</th>
<th>stat system -detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>NetScaler Executive View</td>
</tr>
<tr>
<td>3</td>
<td>System Information:</td>
</tr>
<tr>
<td>4</td>
<td>Up since Mon Mar 21 13:53:22 2016</td>
</tr>
<tr>
<td>5</td>
<td>Memory usage (MB) 1177</td>
</tr>
<tr>
<td>6</td>
<td>InUse Memory (%) 5.37</td>
</tr>
<tr>
<td>7</td>
<td>Number of CPUs 7</td>
</tr>
<tr>
<td>8</td>
<td>System Health Statistics (Standard):</td>
</tr>
<tr>
<td>9</td>
<td>CPU 0 Core Voltage (Volts) 0.99</td>
</tr>
<tr>
<td>10</td>
<td>CPU 1 Core Voltage (Volts) 0.98</td>
</tr>
<tr>
<td>11</td>
<td>Main 3.3 V Supply Voltage 3.36</td>
</tr>
<tr>
<td>12</td>
<td>Standby 3.3 V Supply Voltage 3.31</td>
</tr>
<tr>
<td>13</td>
<td>+5.0 V Supply Voltage 5.06</td>
</tr>
<tr>
<td>14</td>
<td>+12.0 V Supply Voltage 12.08</td>
</tr>
<tr>
<td>15</td>
<td>Battery Voltage (Volts) 3.17</td>
</tr>
<tr>
<td>16</td>
<td>Intel CPU Vtt Power(Volts) 1.01</td>
</tr>
<tr>
<td>17</td>
<td>5V Standby Voltage(Volts) 0.00</td>
</tr>
<tr>
<td>18</td>
<td>Voltage Sensor2(Volts) 0.00</td>
</tr>
<tr>
<td>19</td>
<td>CPU Fan 0 Speed (RPM) 4650</td>
</tr>
<tr>
<td>20</td>
<td>CPU Fan 1 Speed (RPM) 4575</td>
</tr>
<tr>
<td>21</td>
<td>System Fan Speed (RPM) 4650</td>
</tr>
<tr>
<td>22</td>
<td>System Fan 1 Speed (RPM) 4650</td>
</tr>
<tr>
<td>23</td>
<td>System Fan 2 Speed (RPM) 4650</td>
</tr>
<tr>
<td>24</td>
<td>CPU 0 Temperature (Celsius) 42</td>
</tr>
<tr>
<td>25</td>
<td>CPU 1 Temperature (Celsius) 49</td>
</tr>
<tr>
<td>26</td>
<td>Internal Temperature (Celsius) 36</td>
</tr>
<tr>
<td>27</td>
<td>Power supply 1 status NORMAL</td>
</tr>
<tr>
<td>28</td>
<td>Power supply 2 status NORMAL</td>
</tr>
<tr>
<td>29</td>
<td>Power supply 3 status NOT SUPPORTED</td>
</tr>
<tr>
<td>30</td>
<td>Power supply 4 status NOT SUPPORTED</td>
</tr>
</tbody>
</table>
| 31 | System Disk Statistics:
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>/flash Size (MB)</td>
<td>16858</td>
</tr>
<tr>
<td>33</td>
<td>/flash Used (MB)</td>
<td>186</td>
</tr>
<tr>
<td>34</td>
<td>/flash Available (MB)</td>
<td>15323</td>
</tr>
<tr>
<td>35</td>
<td>/flash Used (%)</td>
<td>1</td>
</tr>
<tr>
<td>36</td>
<td>/var Size (MB)</td>
<td>143802</td>
</tr>
<tr>
<td>37</td>
<td>/var Used (MB)</td>
<td>781</td>
</tr>
<tr>
<td>38</td>
<td>/var Available (MB)</td>
<td>131517</td>
</tr>
<tr>
<td>39</td>
<td>/var Used (%)</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>System Health Statistics (Auxiliary):</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Voltage 0 (Volts)</td>
<td>1.49</td>
</tr>
<tr>
<td>42</td>
<td>Voltage 1 (Volts)</td>
<td>1.49</td>
</tr>
<tr>
<td>43</td>
<td>Voltage 2 (Volts)</td>
<td>1.50</td>
</tr>
<tr>
<td>44</td>
<td>Voltage 3 (Volts)</td>
<td>1.49</td>
</tr>
<tr>
<td>45</td>
<td>Voltage 4 (Volts)</td>
<td>1.49</td>
</tr>
<tr>
<td>46</td>
<td>Voltage 5 (Volts)</td>
<td>0.00</td>
</tr>
<tr>
<td>47</td>
<td>Voltage 6 (Volts)</td>
<td>0.00</td>
</tr>
<tr>
<td>48</td>
<td>Voltage 7 (Volts)</td>
<td>0.00</td>
</tr>
<tr>
<td>49</td>
<td>Fan 0 Speed (RPM)</td>
<td>4650</td>
</tr>
<tr>
<td>50</td>
<td>Fan 1 Speed (RPM)</td>
<td>0</td>
</tr>
<tr>
<td>51</td>
<td>Fan 2 Speed (RPM)</td>
<td>0</td>
</tr>
<tr>
<td>52</td>
<td>Fan 3 Speed (RPM)</td>
<td>0</td>
</tr>
<tr>
<td>53</td>
<td>Temperature 0 (Celsius)</td>
<td>28</td>
</tr>
<tr>
<td>54</td>
<td>Temperature 1 (Celsius)</td>
<td>43</td>
</tr>
<tr>
<td>55</td>
<td>Temperature 2 (Celsius)</td>
<td>0</td>
</tr>
<tr>
<td>56</td>
<td>Temperature 3 (Celsius)</td>
<td>0</td>
</tr>
<tr>
<td>57</td>
<td>Done</td>
<td></td>
</tr>
</tbody>
</table>

7. Run the following command to generate a tar of system configuration data and statistics: show techsupport

Example

```
1    show techsupport
2    showtechsupport data collector tool - $Revision: #2 $!
3    NetScaler version 10.5
4    Creating /var/tmp/support ....
5    The NS IP of this box is 192.168.100.1
6    Current HA state: Primary (or this is not part of HA pair!)
7    All the data will be collected under
8        /var/tmp/support/collector_P_192.168.100.1_23Mar2016_10_00
9    Copying selected configuration files from nsconfig ....
10   Copying WebInterface configuration files (if WI is installed) ....
11      WI is not installed on this system. Nothing to copy.
12   Running shell commands ....
13   Running CLI show commands ....
```
Running CLI stat commands ....
Running vtysh commands ....
Determining newnslog files to archive ....
Last newnslog file index=1
Warning! Missing newnslog.0 and newnslog.0.tar and newnslog.0.tar.gz file!
Warning! Missing newnslog.199 and newnslog.199.tar and newnslog.199.tar.gz file!
Warning! Missing newnslog.198 and newnslog.198.tar and newnslog.198.tar.gz file!
Warning! Missing newnslog.197 and newnslog.197.tar and newnslog.197.tar.gz file!
Warning! Missing newnslog.196 and newnslog.196.tar and newnslog.196.tar.gz file!
Five newnslog files missing
.... copied 2 files from this directory.
Copying core files from /var/core .... (last 5 files created within the last week)
.... Nothing to copy .... No files created within the last one week
Copying core files from /var/crash .... (last 5 files created within the last week)
.... Nothing to copy .... No files created within the last one week
Copying imported files and mapping files ....
Copying GSLB location database files ....
Copying files from /var/log/db ....
Copying messages,ns.log,dmesg and other log files ....
Warning: cluster showtech node failure log file: /var/tmp/support/
collector_P_192.168.100.1_23Mar2016_10_00/
cluster_showtech_node_failure.log is not present
Archiving all the data into &quot;/var/tmp/support/collector_P_192
.168.100.1_23Mar2016_10_00.tar.gz&quot; ....
Created a symbolic link for the archive with /var/tmp/support/support.
tgz
/var/tmp/support/support.tgz ---- points to --&gt; /var/tmp/support/
collector_P_192.168.100.1_23Mar2016_10_00.tar.gz
If this node is part of HA pair, please run it on the other node also !!
Done

Note: The output of the command is available in the /var/tmp/support/collector_<IP_address>_P_<date>.tar.gz file. Copy this file to another computer for future reference. The output of the command might be
helpful in the event that you want to contact Citrix Technical Support.

8. At the NetScaler command line interface, switch to the shell prompt. Type: shell

Example

```
shell
```

9. Run the following command to verify the number of Cavium cards available depending upon your appliance:

```
root@ns# grep “cavium” /var/nslog/dmesg.boot
```

Example

```
/var/nslog/dmesg.boot
Cavium cavium_probe: found card 0x177d,device=0x11
cavium0 mem 0xde200000-0xde2fffff irq 32 at device 0.0 on pci3
cavium0: [ITHREAD]
Cavium cavium_probe: found card 0x177d,device=0x11
cavium1 mem 0xfb400000-0xfb4fffff irq 64 at device 0.0 on pci136
cavium1: [ITHREAD]
Cavium cavium_probe: found card 0x177d,device=0x11
cavium0 mem 0xde200000-0xde2fffff irq 32 at device 0.0 on pci3
cavium0: [ITHREAD]
Cavium cavium_probe: found card 0x177d,device=0x11
cavium1 mem 0xfb400000-0xfb4fffff irq 64 at device 0.0 on pci136
cavium1: [ITHREAD]
root@ns#
```

1. Run the following command to verify the RAM memory reserved for shared memory depending upon your appliance:

```
root@ns# grep “memory” /var/nslog/dmesg.boot
```

Example

```
/var/nslog/dmesg.boot
real memory = 70866960384 (67584 MB)
avail memory = 66206515200 (63139 MB)
```
NS-KERN map_shared_mem_ioctl (cpu 11, NSPPE=00): Reserving 596 MB for shared memory type 0
real memory = 70866960384 (67584 MB)
avail memory = 66206515200 (63139 MB)

root@ns#

1. Run the following command to verify the number of CPU cores depending upon your appliance:

root@ns# grep “cpu” /var/nslog/dmesg.boot

Example

root@ns# grep "cpu" /var/nslog/dmesg.boot

cpu0 (BSP): APIC ID: 0
cpu1 (AP): APIC ID: 2
cpu2 (AP): APIC ID: 4
cpu3 (AP): APIC ID: 6
cpu4 (AP): APIC ID: 8
cpu5 (AP): APIC ID: 10
cpu6 (AP): APIC ID: 32
cpu7 (AP): APIC ID: 34
cpu8 (AP): APIC ID: 36
cpu9 (AP): APIC ID: 38
cpu10 (AP): APIC ID: 40
cpu11 (AP): APIC ID: 42
cpu0: &lt;ACPI CPU&gt; on acpi0
cpu1: &lt;ACPI CPU&gt; on acpi0
cpu2: &lt;ACPI CPU&gt; on acpi0
cpu3: &lt;ACPI CPU&gt; on acpi0
cpu4: &lt;ACPI CPU&gt; on acpi0
cpu5: &lt;ACPI CPU&gt; on acpi0
cpu6: &lt;ACPI CPU&gt; on acpi0
cpu7: &lt;ACPI CPU&gt; on acpi0
cpu8: &lt;ACPI CPU&gt; on acpi0
cpu9: &lt;ACPI CPU&gt; on acpi0
cpu10: &lt;ACPI CPU&gt; on acpi0
cpu11: &lt;ACPI CPU&gt; on acpi0
est0: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu0
p4tcc0: &lt;CPU Frequency Thermal Control&gt; on cpu0
est1: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu1
p4tcc1: &lt;CPU Frequency Thermal Control&gt; on cpu1
est2: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu2
p4tcc2: &lt;CPU Frequency Thermal Control&gt; on cpu2
est3: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu3
p4tcc3: &lt;CPU Frequency Thermal Control&gt; on cpu3
est4: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu4
p4tcc4: &lt;CPU Frequency Thermal Control&gt; on cpu4
est5: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu5
p4tcc5: &lt;CPU Frequency Thermal Control&gt; on cpu5
est6: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu6
p4tcc6: &lt;CPU Frequency Thermal Control&gt; on cpu6
est7: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu7
p4tcc7: &lt;CPU Frequency Thermal Control&gt; on cpu7
est8: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu8
p4tcc8: &lt;CPU Frequency Thermal Control&gt; on cpu8
est9: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu9
p4tcc9: &lt;CPU Frequency Thermal Control&gt; on cpu9
est10: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu10
p4tcc10: &lt;CPU Frequency Thermal Control&gt; on cpu10
est11: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu11
p4tcc11: &lt;CPU Frequency Thermal Control&gt; on cpu11
NS-KERN map_shared_mem_ioctl (cpu 11, NSPPE-00): Reserving 596 MB for
  shared memory type 0
cpu0 (BSP): APIC ID:  0
cpu1 (AP): APIC ID:  2
cpu2 (AP): APIC ID:  4
cpu3 (AP): APIC ID:  6
cpu4 (AP): APIC ID:  8
cpu5 (AP): APIC ID: 10
cpu6 (AP): APIC ID: 32
cpu7 (AP): APIC ID: 34
cpu8 (AP): APIC ID: 36
cpu9 (AP): APIC ID: 38
cpu10 (AP): APIC ID: 40
cpu11 (AP): APIC ID: 42
cpu0: &lt;ACPI CPU&gt; on acpi0
cpu1: &lt;ACPI CPU&gt; on acpi0
cpu2: &lt;ACPI CPU&gt; on acpi0
cpu3: &lt;ACPI CPU&gt; on acpi0
cpu4: &lt;ACPI CPU&gt; on acpi0
cpu5: &lt;ACPI CPU&gt; on acpi0
cpu6: &lt;ACPI CPU&gt; on acpi0
cpu7: &lt;ACPI CPU&gt; on acpi0
cpu8: &lt;ACPI CPU&gt; on acpi0
cpu9: &lt;ACPI CPU&gt; on acpi0
cpu10: &lt;ACPI CPU&gt; on acpi0
cpu11: &lt;ACPI CPU&gt; on acpi0
est0: &lt;Enhanced SpeedStep Frequency Control&gt; on cpu0
p4tcc0: &lt;CPU Frequency Thermal Control&gt; on cpu0
| est1: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu1 |
| p4tcc1: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu1 |
| est2: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu2 |
| p4tcc2: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu2 |
| est3: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu3 |
| p4tcc3: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu3 |
| est4: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu4 |
| p4tcc4: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu4 |
| est5: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu5 |
| p4tcc5: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu5 |
| est6: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu6 |
| p4tcc6: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu6 |
| est7: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu7 |
| p4tcc7: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu7 |
| est8: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu8 |
| p4tcc8: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu8 |
| est9: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu9 |
| p4tcc9: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu9 |
| est10: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu10 |
| p4tcc10: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu10 |
| est11: &lt;Enhanced SpeedStep Frequency Control&gt; &gt; on cpu11 |
| p4tcc11: &lt;CPU Frequency Thermal Control&gt; &gt; on cpu11 |
| root@ns# |

1. Run the following command to verify that the /var drive is mounted as /dev/ar0s1a: `root@ns# df -h`

**Example**

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Capacity</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/md0</td>
<td>327M</td>
<td>317M</td>
<td>3.1M</td>
<td>99%</td>
<td>/</td>
</tr>
<tr>
<td>devfs</td>
<td>1.0k</td>
<td>1.0k</td>
<td>0B</td>
<td>100%</td>
<td>/dev</td>
</tr>
<tr>
<td>procfs</td>
<td>4.0k</td>
<td>4.0k</td>
<td>0B</td>
<td>100%</td>
<td>/proc</td>
</tr>
<tr>
<td>/dev/ar0s1a</td>
<td>16G</td>
<td>186M</td>
<td>15G</td>
<td>1%</td>
<td>/flash</td>
</tr>
<tr>
<td>/dev/ar0s1e</td>
<td>140G</td>
<td>857M</td>
<td>128G</td>
<td>1%</td>
<td>/var</td>
</tr>
<tr>
<td>root@ns#</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Run the following command to execute the ns\_hw\_err.bash script, which checks for latent hardware errors: `root@ns# ns\_hw\_err.bash`

**Example**
1. Important: Physically disconnect all ports except the LOM port, including the management port, from the network.

1. At the shell prompt, switch to the NetScaler command line. Type: `exit`

Example

1. root@ns# exit
2. logout
1. Run the following command to shut down the appliance. You will be asked if you want to completely stop the NetScaler. Type: shutdown -p now

Example

```
1 root@ns#
2 root@ns# exit
3 logout
4 Done
```

**Upgrade the appliance**

To upgrade the appliance, follow these steps:

1. Power off the NetScaler appliance.
2. Locate two solid-state drives (SSDs) on the back of the appliance in slot #1 and slot #2, as shown in the following figure:

![Solid-State Drives Diagram](image)

3. Verify that the replacement solid-state drives (SSDs) are the ones required for your NetScaler model. The conversion requires minimum of four SSDs. The Citrix label is on the top of one of the solid-state drives, which is pre-populated with a new version of BIOS and a recent build of the required NetScaler SDX Management Service. This SSD must be installed in slot #1.
4. Remove the SSDs by pushing the safety latch of the drive cover down while pulling the drive handle.
5. On the new Citrix Certified SSD drive, open the drive handle completely to the left, and then insert the new drive into the slot #1 as far as possible.

6. To seat the drive, close the handle flush with the rear side of the appliance so that the drive locks securely into the slot.

**Important:** The orientation of the SSD is important. When you insert the drive, make sure that the Citrix product label is at the side.

7. Insert a second Citrix certified SSD, which matches the capacity of the SSD in slot #1, in slot #2.

**Note:** If the license of your appliance is 14040 40G, 14060 40G, 14080 40G, insert additional blank Citrix certified SSDs in slots #3, #4, #5, and #6.

<table>
<thead>
<tr>
<th>NetScaler SDX Model</th>
<th>Included Virtual Instances</th>
<th>Platform Maximum</th>
<th>SSDs included on base model</th>
<th>Extra SSDs for max instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDX 14020 40G</td>
<td>5</td>
<td>25</td>
<td>Two 240 GB; Two 300 GB</td>
<td>Two 300GB</td>
</tr>
<tr>
<td>SDX 14040 40G, SDX 14060 40G, SDX 14080 40G</td>
<td>25</td>
<td>25</td>
<td>Two 240 GB; Four 300 GB</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Important:** Note that mixing and matching of old and new SSDs is not supported. SSDs in slot #1 and slot #2, which constitute the first RAID pair (local storage), must be of same size and type. Similarly, SSDs in slot #3 and slot #4, which constitute the second RAID pair (VPX storage), must be of same size and type. Do not use any other drives that are not part of the provided conversion kit.

8. Disconnect all network cables from the data ports and the management ports.

9. Start the NetScaler appliance. For instructions, see “Switching on the Appliance” in Installing the Hardware.

The conversion process can run for approximately 30 minutes, during which you must not power cycle the appliance. The entire conversion process might not be visible on the console and might appear to be unresponsive.

The conversion process updates the BIOS, installs the XenServer hypervisor and the Management Service Operating system, and copies the NetScaler VPX image to the SSD for instance provisioning, and forms the Raid1 pair.

**Note:** The serial number of the appliance remains the same.

10. Keep the console cable attached during the conversion process. Allow the process to complete, at which point the netscaler-sdx login: prompt appears.

11. During the conversion process the LOM port connection may be lost as it resets the IP address to

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the default value of 192.168.1.3. The conversion status output is available on the VGA monitor.

12. The default credentials are now changed from nsroot/nsroot to root/nsroot once the appliance is converted from an MPX to SDX.

13. To make sure that the conversion is successful, verify that the FVT result indicates success. Run the following command: `tail /var/log/fvt/fvt.log`

**Reconfigure the converted appliance**

After the conversion process, the appliance no longer has its previous working configuration. Therefore, you can access the appliance through a web browser only by using the default IP address: 192.168.100.1/16. Configure a computer on network 192.168.0.0 and connect it directly to the appliance’s management port (0/1) with a cross-over Ethernet cable, or access the NetScaler SDX appliance through a network hub by using a straight through Ethernet cable. Use the default credentials to log on (Username: nsroot and Password: nsroot), and then do the following:

1. Select the Configuration tab.
2. Verify that the System Resource section displays the accurate number of CPU cores, SSL cores, and the total memory for your NetScaler SDX appliance.
3. Select the System node and, under Set Up Appliance, click Network Configuration to modify network information of Management Service.
4. In the Modify Network Configuration dialog box, specify the following details:
   - Interface*—The interface through which clients connect to the Management Service. Possible values: 0/1, 0/2. Default: 0/1.
   - XenServer IP Address*—The IP address of XenServer hypervisor.
   - Management Service IP Address*—The IP address of the Management Service.
   - Netmask*—The subnet mask for the subnet in which the SDX appliance is located.
   - Gateway*—The default gateway for the network.
   - DNS Server—The IP address of the DNS server.

* A mandatory parameter

1. Click OK. Connection to the Management Service is lost as the network information was changed.
2. Connect the NetScaler SDX appliance’s management port 0/1 to a switch to access it through the network. Browse to the IP address used above and log on with the default credentials.
3. Apply the new licenses. For instructions, see [SDX Licensing Overview](#).
4. Navigate to Configuration > System and, in the System Administration group, click Reboot Appliance. Click Yes to confirm. You are now ready to provision the VPX instances on the NetScaler SDX appliance. For instructions, see [Provisioning Citrix ADC instances](#).
Convert a Citrix ADC MPX 8900 appliance to a Citrix ADC SDX 8900 appliance

February 25, 2019

You can convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance by upgrading the software through a new solid-state drive (SSD). Citrix supplies a field conversion kit to migrate a Citrix ADC MPX appliance to a Citrix ADC SDX appliance.

Note
Citrix recommends that you configure the Lights Out Management (LOM) Port of the Citrix ADC appliance before starting the conversion process. For more information on the LOM port of the Citrix ADC appliance, see Lights Out Management Port of the Citrix ADC appliance.

To convert a Citrix ADC MPX appliance to a Citrix ADC SDX appliance, you must access the appliance through a console cable attached to a computer or terminal. Before connecting the console cable, configure the computer or terminal to support the following configuration:

- VT100 terminal emulation
- 9600 baud
- 8 data bits
- 1 stop bit
- Parity and flow control set to NONE

Connect one end of the console cable to the RS232 serial port on the appliance, and the other end to the computer or terminal.

Note
To use a cable with an RJ-45 converter, insert the optional converter into the console port and attach the cable to it.

With the cable attached, verify that the MPX appliance’s components are functioning correctly. You are then ready to begin the conversion. The conversion process modifies the Basic Input-Output System (BIOS), installs Citrix Hypervisor and a Service Virtual Machine image, and copies the Citrix ADC VPX image to the SSD.

After the conversion process, you make a few modifications to the appliance’s configuration and apply a new license. You can then provision the VPX instances through the Management Service on what is now a Citrix ADC SDX appliance.

The following figure shows the front panel of the MPX 89xx.

Figure 1. Citrix ADC MPX 89xx front panel
To verify proper operation of the MPX appliance’s components

1. Access the console port and enter the administrator credentials.

2. Run the following command from the command line interface of the appliance to display the serial number: **show hardware**

   Example

   ```bash
   > show hardware
   Platform: NSMPX-8900 8*CPU+4*F1X+6*E1K+1*E1K+1*COL 8955 30010
   Manufactured on: 12/3/2018
   CPU: 2100MHz
   Host Id: 1862303878
   Serial no: JVFUJCZT1E
   Encoded serial no: JVFUJCZT1E
   BMC Revision: 4.51
   Done
   ```

3. Run the following command to display the status of the active 1G and 10G interfaces: **show interface**

4. In the show interface command’s output, verify that all of the interfaces are enabled and the status of every interface is shown as UP/UP.

   Note

   If you do not have an SFP+ transceiver for every port, verify the interfaces in stages. After checking the first set of interfaces, unplug the SFP+ transceivers and plug them in to the next set of ports. The SFP+ transceivers are not hot-swappable. Therefore, restart the MPX appliance after you connect the transceivers.

5. Run the following commands for each of the interfaces that are not in the UP/UP state:

   - **enable interface 1/x**
• **enable interface 10/x**

where x is the new interface number.

6. Run the following command to verify that the status of the power supplies is normal: **stat system -detail**

**Example**

```
1 > stat system -detail
2 NetScaler Executive View
3 System Information:
4 Up since Tue Dec 4 14:01:49 2018
5 Memory usage (MB) 859
6 InUse Memory (%) 4.81
7 Number of CPUs 5
8 System Health Statistics (Standard):
9 CPU 0 Core Voltage (Volts) 1.78
10 CPU 1 Core Voltage (Volts) 0.00
11 Main 3.3 V Supply Voltage 3.28
12 Standby 3.3 V Supply Voltage 3.28
13 +5.0 V Supply Voltage 4.90
14 +12.0 V Supply Voltage 11.81
15 Battery Voltage (Volts) 3.02
16 Intel CPU Vtt Power(Volts) 0.00
17 5V Standby Voltage(Volts) 5.05
18 Voltage Sensor2(Volts) 0.00
19 CPU Fan 0 Speed (RPM) 6900
20 CPU Fan 1 Speed (RPM) 6700
21 System Fan Speed (RPM) 6800
22 System Fan 1 Speed (RPM) 6800
23 System Fan 2 Speed (RPM) 6900
24 CPU 0 Temperature (Celsius) 44
25 CPU 1 Temperature (Celsius) 0
26 Internal Temperature (Celsius) 37
27 Power supply 1 status NORMAL
28 Power supply 2 status NORMAL
29 Power supply 3 status NOT SUPPORTED
30 Power supply 4 status NOT SUPPORTED
31 System Disk Statistics:
32 /flash Size (MB) 16858
33 /flash Used (MB) 323
34 /flash Available (MB) 15186
35 /flash Used (%) 2
36 /var Size (MB) 143802
37 /var Used (MB) 1880
```
7. Run the following command to generate a tar of system configuration data and statistics: `show techsupport`

Example

```
> show techsupport
showtechsupport data collector tool - $Revision: #13 $
NetScaler version 11.1
Creating /var/tmp/support ....
The NS IP of this box is 10.221.44.30
This is not HA configuration
Copying selected configuration files ....
Running shell commands ....
Running CLI show commands ....
Collecting ns running configuration....
Collecting running gslb configuration....
Running CLI stat commands ....
Running vtysh commands ....
Copying newnslog files ....
Copying core files from /var/core ....
Copying core files from /var/crash ....
Copying GSLB location database files ....
Copying GSLB auto sync log files ....
Copying Safenet Gateway log files ....
```
20 Copying messages, ns.log, dmesg and other log files ....
21 Creating archive ....
22 /var/tmp/support/support.tgz ---- points to ----> /var/tmp/support/collector_P_10.221.44.30_4Dec2018_14_14.tar.gz
23
24 Done

Note
The output of the command is available in the /var/tmp/support/collector_<IP_address>_P_<date>.tar.gz file. Copy this file to another computer for future reference. The output of the command might be helpful in case you want to contact Citrix Technical Support.

8. At the Citrix ADC command line interface, switch to the shell prompt. Type `shell`

9. Run the following command to verify that 270 MB of RAM is reserved for shared memory:
   `root@ns## dmesg | grep memory`

   **Example**
   ```
   1 root@ns# dmesg | grep memory
   2 real memory = 36507222016 (34816 MB)
   3 avail memory = 32728735744 (31212 MB)
   4 NS-KERN nsppe_rendezvous: NSPPE-02 on CPU3NS-KERN
      map_shared_mem_ioctl (cpu 2, NSPPE-01): Reserving 270 MB for
      shared memory type 0
   5 root@ns#
   ```

10. Run the following command to verify that the appliance has 12 CPU cores: `root@ns## dmesg | grep cpu`

   **Example**
   ```
   1 root@ns# dmesg | grep cpu
   2 cpu0 (BSP): APIC ID: 0
   3 cpu1 (AP): APIC ID: 2
   4 cpu2 (AP): APIC ID: 4
   5 cpu3 (AP): APIC ID: 6
   6 cpu4 (AP): APIC ID: 8
   7 cpu5 (AP): APIC ID: 10
   8 cpu6 (AP): APIC ID: 12
   9 cpu7 (AP): APIC ID: 14
   10 cpu0: <ACPI CPU> on acpi0
   11 cpu1: <ACPI CPU> on acpi0
   12 cpu2: <ACPI CPU> on acpi0
   13 cpu3: <ACPI CPU> on acpi0
   14 cpu4: <ACPI CPU> on acpi0
   ```
15 cpu5: <ACPI CPU> on acpi0
16 cpu6: <ACPI CPU> on acpi0
17 cpu7: <ACPI CPU> on acpi0
18 est0: <Enhanced SpeedStep Frequency Control> on cpu0
19 p4tcc0: <CPU Frequency Thermal Control> on cpu0
20 est1: <Enhanced SpeedStep Frequency Control> on cpu1
21 p4tcc1: <CPU Frequency Thermal Control> on cpu1
22 est2: <Enhanced SpeedStep Frequency Control> on cpu2
23 p4tcc2: <CPU Frequency Thermal Control> on cpu2
24 est3: <Enhanced SpeedStep Frequency Control> on cpu3
25 p4tcc3: <CPU Frequency Thermal Control> on cpu3
26 est4: <Enhanced SpeedStep Frequency Control> on cpu4
27 p4tcc4: <CPU Frequency Thermal Control> on cpu4
28 est5: <Enhanced SpeedStep Frequency Control> on cpu5
29 p4tcc5: <CPU Frequency Thermal Control> on cpu5
30 est6: <Enhanced SpeedStep Frequency Control> on cpu6
31 p4tcc6: <CPU Frequency Thermal Control> on cpu6
32 est7: <Enhanced SpeedStep Frequency Control> on cpu7
33 p4tcc7: <CPU Frequency Thermal Control> on cpu7
34 NS-KERN nsppe_rendezvous: NSPPE-02 on CPU3
35 NS-KERN map_shared_mem_ioctl (cpu 2, NSPPE-01): Reserving 270 MB for
36 shared memory type 0
37 root@ns#

11. Run the following command to verify that the /var drive is mounted as /dev/ad0s1e: root@ns
    
```
    df -h
    
    Example
    
    1    root@ns# df -h
    2    Filesystem  Size  Used  Avail  Capacity Mounted on
    3    /dev/md0      354M  342M   5M   99%        /
    4    devfs        1.0k  1.0k   0B 100%     /dev
    5    procfs       4.0k  4.0k   0B 100%    /proc
    6    /dev/ad0s1a   16G  323M  14G   2%   /flash
    7    /dev/ad0s1e  140G  1.9G  127G   1%   /var
    8    root@ns#
    
```

12. Run the following command to execute the ns_hw_err.bash script, which checks for latent hardware errors: root@ns\## /netscaler/ns\\_hw\\_err.bash

```
    Example
    
    1    root@ns# ns_hw_err.bash
    2    NetScaler NS11.1: Build 60.5.0c, Date: Oct 3 2018, 10:58:21
    3    platform: serial JVFUJCZT1E
    
```
13. **Important**: Physically disconnect all ports except the LOM port, including the management port, from the network.

14. At the shell prompt, switch to the Citrix ADC command line. Type: `exit`

15. Run the following command to shut down the appliance: `shutdown -p now`

**Example**
Upgrade the appliance

The upgrade process involves the following two steps:

- Replace the SSD
- Start the appliance

Replace the SSD

1. Locate the solid-state drive on the back panel of the appliance, as shown in the following figure:

   ![Solid State Drive Image]

2. Verify that the replacement solid-state drive (SSD) is the one required for your Citrix ADC model. The Citrix label is on the top of the SSD, which is pre-populated with a new version of BIOS and a recent build of the required Service VM software.

3. Remove the currently installed SSD drive by pushing the safety latch of the drive cover to the right and removing the drive handle and the existing drive.

4. Open the drive handle on the new drive completely to the left, and insert the drive into the slot. The following figure shows the drive partially inserted. Push the drive all the way into the slot.

   ![Drive Insertion Image]

1. Close the handle flush with the rear side of the appliance so that the drive locks securely into the slot.

   **Important**

   The orientation of the solid-state drive is important. When you insert the drive, make sure
Start the appliance

1. Start the Citrix ADC appliance. For instructions, see the Switching on the Appliance section in Installing the hardware.

   The conversion process takes approximately 30 minutes to complete. The conversion process updates the BIOS, installs the XenServer hypervisor and the Management Service Operating system, and copies the Citrix ADC VPX image to the hard disk drive for instance provisioning. When the conversion begins, the LCD screen on the front bezel indicates NSMPX-8900, as shown in the following figure.

   ![NSMPX-8900 Booting...](image)

   When the conversion is successful, the LCD indicates Citrix NSSDX - 8900, as shown in the following figure.

   ![CITRIX NSSDX-8900](image)

   Note

   The serial number of the appliance remains the same.

2. Keep the console cable attached during the conversion process. Allow the process to complete, at which point the netscaler-sdx login: prompt appears.

3. When the appliance finishes the conversion process, it no longer has the previously working configuration. Therefore, you can access the appliance through a Web browser only. Use the default IP address: 192.168.100.1/16. Configure a computer on network 192.168.0.0 and connect it directly to the management port 0/1 of the appliance by using a cross-over Ethernet cable, or access the Citrix ADC SDX appliance through a network hub by using a straight-through Ethernet cable. Use the default credentials. (Username: nsroot and Password: nsroot).

4. Select the Configuration tab.

5. Verify that the System Resource section displays CPU cores, SSL cores, and total memory for the Citrix ADC SDX appliance.
6. Select System node and click the Network Configuration link on the System page to modify the IP address of the Service VM.

7. In the Modify Network Configuration dialog box, specify the following details:
   • Interface—The interface through which clients connect to the Management Service. Possible values: 0/1, 0/2. Default: 0/1.
   • XenServer IP Address—The IP address of XenServer hypervisor
   • Management Service IP Address—The IP address of the Management Service.
   • Netmask—The subnet mask for the subnet in which the SDX appliance is located.
   • Gateway—The default gateway for the network.
   • DNS Server*—The IP address of the DNS server. *An optional parameter

8. Click OK.

9. Connect the Citrix ADC SDX appliance to a switch to access it through the network. Browse to the Management Service IP and log on with the default credentials.

10. For instructions for applying the licenses, see Citrix ADC SDX Licensing Overview.

Troubleshooting

February 11, 2019

Following is the list of troubleshooting articles for Citrix ADC SDX hardware issues:

1. Troubleshooting Citrix ADC Power Supply Issues: https://support.citrix.com/article/CTX202340
2. Troubleshooting Citrix ADC Small Form Pluggable (SFP) Issues: https://support.citrix.com/article/CTX236074
3. Troubleshooting Citrix ADC SSL Card Issues: https://support.citrix.com/article/CTX236094