

# ExtremeCloud SD-WAN Appliance Quick Installation Sheet

This document describes how to install appliances for ExtremeCloud SD-WAN network deployment.

Prior to installation, the SD-WAN appliance must have been provisioned on the **Zero Touch Provisioning** Server.

Before installing an appliance, you should sign in to the **ExtremeCloud SD-WAN Orchestrator** and benefit from the **ZTP** service to identify the appliance and configure it according to the appliance deployment mode and type (hybrid/full router mode, multi-wan/multi-path, etc.).

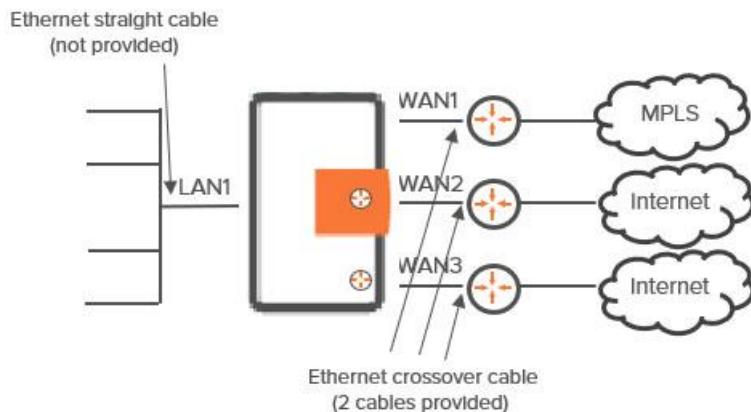
You may also start installing and connecting the appliance and subsequently log in to the ExtremeCloud SD-WAN Orchestrator to finetune its configuration.

Refer to ExtremeCloud SD-WAN Orchestrator Online Help for configuration explanations.

## Installation

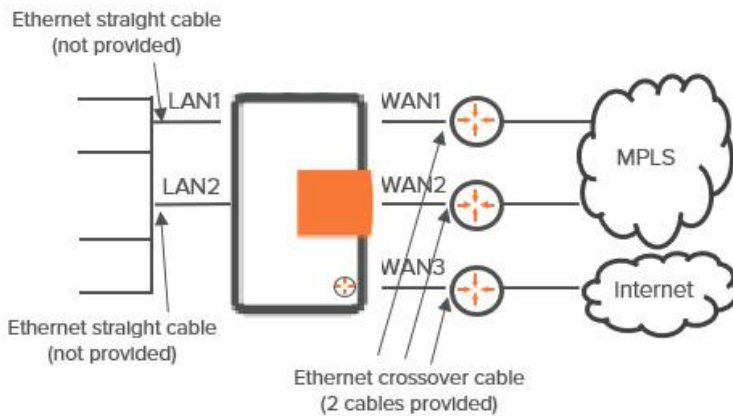
The installation procedures listed below correspond to the most common use cases – they are not exhaustive.

### Hybrid SD-WAN appliance with 1 MPLS link and 2 Internet Access links (factory configuration)



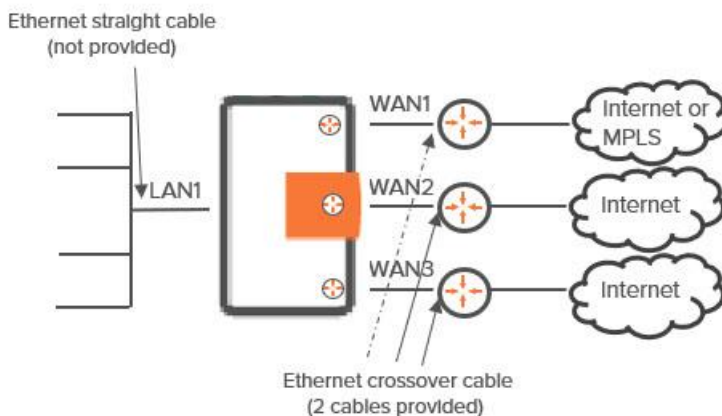
1. Install the appliance between your WAN router(s) and the LAN as shown in the diagram.
2. Connect the appliance to the mains. Check that the Power LED goes on.
3. Plug a straight cable into the appliance LAN1 port.
4. To connect the appliance to the Internet, connect one provided crossover cable to the WAN Internet Access router and to the appliance WAN2 **or** WAN3 port.
5. Then, use other crossover cables to connect the other WAN ports to the WAN Internet Access or CE (MPLS) routers.

## Hybrid SD-WAN appliance with 2 MPLS links and 1 Internet Access link – Multi-path (2 LANs)



1. Install the appliance between your WAN router(s) and the LAN as shown in the diagram.
2. Connect the appliance to the mains. Check that the Power LED goes on.
3. Plug a straight cable into the appliance LAN1 **and** LAN2 ports.
4. Use the provided crossover cables to connect the appliance WAN1 and WAN2 ports to the CE (MPLS) routers.
5. Then, connect another crossover cable to the appliance WAN3 port and to the WAN Internet Access router, to enable the appliance to access the Internet.

## Full Router SD-WAN appliance with 2 Internet Access links and a third link, either Internet or MPLS



1. Install the appliance between your WAN router(s) and the LAN as shown in the diagram.
2. Connect the appliance to the mains. Check that the Power LED goes on.
3. Plug a straight cable into the appliance LAN1 port.
4. To connect the appliance to the Internet, connect one provided crossover cable to the WAN Internet Access router and to the appliance WAN2 **or** WAN3 port.
5. Then, use other crossover cables to connect the other appliance WAN ports to the WAN Internet Access routers, or to one WAN Internet Access router for WAN2 and one CE (MPLS) router for WAN1 in the case this interface is connected to MPLS.

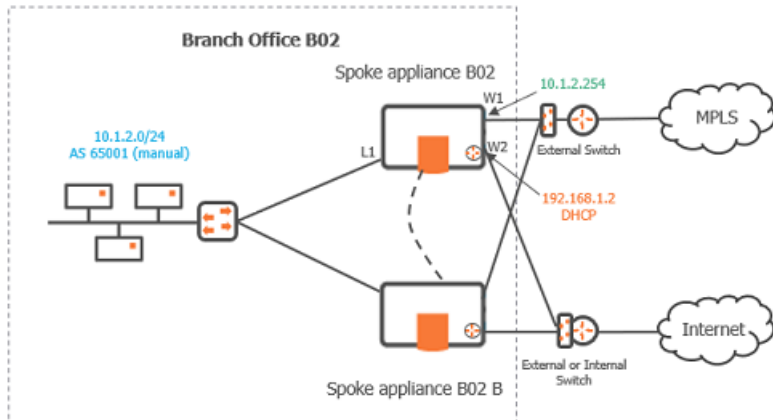
**Warning:** WAN1 is connected only after it has been configured in full router mode in the SD-WAN Orchestrator.

## Advanced Installation

### Bridge or Hybrid SD-WAN appliance: installation for IHAP deployment

With High Availability, two appliances are declared on a cluster site but only one appliance executes Application Visibility, Application Control, WAN Optimization and Dynamic WAN Selection processes. This appliance is called HA active appliance. The other appliance is kept as HA standby appliance.

In a standard IHAP nominal/backup configuration, the active appliance is the nominal one. When this appliance goes down, the standby appliance becomes active and starts the processes.



### IHAP Deployment – Site Upgrade with a second Hybrid appliance

In this deployment,

- the first hybrid appliance already operates in your network. It is completely wired (LAN1, WAN1, WAN2) and is configured as the HA 'nominal' appliance in the SD-WAN Orchestrator
- the second appliance is new. It will be configured as the HA 'backup' appliance in the SD-WAN Orchestrator

#### Installing and configuring the new Backup appliance

1. If this B02B device was previously used at another location of your network, reset it to its [factory configuration](#) (see the last section of this document) and power it off.
2. Configure the appliance in the SD-WAN Orchestrator (refer to 'Deploying the Network -> Configuring multi-appliance Sites -> Configuring a multi-appliance Branch Office Site through IHAP' in the **ExtremeCloud SD-WAN Orchestrator User Guide**).
3. Wire this appliance on WAN1.
4. Power the appliance on.
5. Check the B02 Troubleshooting information in the SD-WAN Orchestrator to ensure IHAP is configured with B02B.
6. Wire the B02B appliance completely – add LAN1 and WAN2 connections.
7. Check the Supervision information of both appliances in the SD-WAN Orchestrator.

### IHAP Deployment – Fresh Installation of 2 Hybrid appliances

In this deployment, the two appliances are new; they must be configured and installed in your network.

If these devices were previously used at another location of your network, reset them to their [factory configuration](#) (see the last section of this document) and power the appliances off.

#### Installing and configuring the appliances

1. Configure both appliances in the SD-WAN Orchestrator (refer to 'Deploying the Network -> Configuring multi-appliance Sites -> Configuring a multi-appliance Branch Office Site through IHAP' in the **ExtremeCloud SD-WAN Orchestrator User Guide**).
2. Wire the nominal appliance completely and power it on.
3. Check the B02 Supervision and Troubleshooting information in the SD-WAN Orchestrator.
4. Then, for the backup B02B appliance, repeat steps 3 to 7 of the previous procedure [IHAP Deployment – Site Upgrade with a second Hybrid appliance](#).

## Testing the IHAP Configuration

The `hatestest` command enables you to simulate several HA scenarios.

For example, you can simulate a dead unresponsive appliance or bad appliance health and check whether your configuration is correct to authorize the backup appliance to take over when the nominal active appliance is down or when its health is bad.

```
# hatestest
```

```
Test tool for forcibly changing HA behaviour
Usage: hatestest Print this help and exit
hatestest -s, --stop Makes engine unresponsive from HA perspective
hatestest -f, --fake Send fake bad health to peer
hatestest -t, --period Time period for which HA will behaves as per the
given command. (Allowed range: 200 msec to 2 mins)
```

1. Make the appliance unresponsive during 60 seconds: `hatestest -s -t 60000`  
This command sends the nominal appliance to a backup state. If the backup appliance is not ready to take over the Visibility, Control and Optimization tasks, user traffic might be blocked during the test period.
2. Generate fake bad health during 50 seconds: `hatestest -f -t 50000`

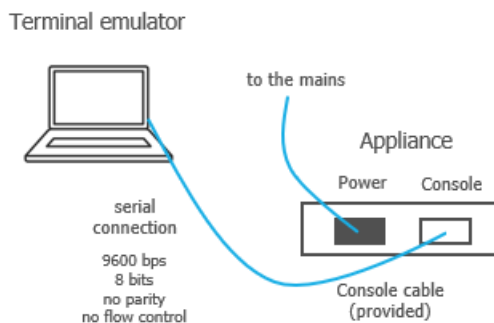
After the specified period has elapsed, the nominal appliance normally resumes its HA tasks.

## Local Configuration

### Full Router SD-WAN appliance: configuring WAN interfaces locally

If the appliance cannot retrieve its WAN configuration parameters automatically (IP address, subnet mask, default gateway, DNS server list) because there is no DHCP server in the router in front of the WAN interface, you must manually define a temporary address for this WAN interface to enable its connection to the SD-WAN Orchestrator.

1. Launch a terminal emulator on your laptop (for instance Putty under Windows) and establish a serial connection to the appliance.



2. Log in as user `ipanema`, password `ipanema`.
3. Use the following command to set the appliance WAN interface IP address and subnet mask (`-a`), default gateway (`-g`) and dns servers (`-s`) to match your network addresses.

```
inetconfig -i <WAN interface> -a <ip address/mask> -g <ip address>
-s <dns1 ip address> -s <dns2 ip address>
```

4. Reboot the appliance.

As soon as the appliance is able to contact the SD-WAN Orchestrator, this manual configuration is replaced with the configuration defined in the SD-WAN Orchestrator.

## Bridge or Hybrid SD-WAN appliance: configuring the LAN locally

If the appliance cannot retrieve its configuration parameters automatically because there is no DHCP server, you must manually define a temporary address for the appliance LAN to enable its connection to the SD-WAN Orchestrator.

1. Launch a terminal emulator on your laptop (for instance Putty under Windows) and establish a serial connection to the appliance as described in the previous section. Log in as user **ipanema**, password **ipanema**.
2. Use the following command to set the appliance IP address and subnet mask (**-a**, **-m**), default gateway (**-g**), hostname (**-h**) and dns servers (**-ns**) to match your network addresses.

```
ipconfig lan -a <ip address> -m <ip mask> -g <gateway ip address> -h <hostname> -ns1 <DNS1> -ns2 <DNS2>
```

3. Reboot the appliance.

As soon as the appliance is able to contact the SD-WAN Orchestrator, this manual configuration is replaced with the configuration defined in the SD-WAN Orchestrator.

## Resetting an appliance to its factory configuration

Factory configuration corresponds to the Installation first Use Case: ['Hybrid SD-WAN appliance with 1 MPLS link and 2 Internet Access links \(factory configuration\)'](#).

You may need to reset an appliance to its factory configuration for the current version of the SD-WAN Agent (the last version you installed), if you move the appliance from one Site to another Site or if you receive it back from after-sale Customer Service.

Use one of the following methods:

1. Unplug all the WAN cables.
2. Connect to the appliance via your Ipanema user account.
3. Enter the following command:

```
factory_reset and select y to confirm
```

Cleanup is executed by the system. At the end of the process, you may reconfigure the appliance.

OR

1. Unplug all the WAN cables.
2. Connect the appliance to your PC or laptop in console mode (ip|e console port – laptop serial port) via the provided console cable.
3. Reboot the appliance and when prompted by the system, press Escape to display the GRUB menu.
4. Select the second GRUB entry (Rescue Mode Agent) and press Enter.

Cleanup is executed by the system. At the end of the process, you may reconfigure the appliance.

Also refer to the Support Website.