Configure the Overlay Addressing Scheme

For supported software information, click here.

Versa Director acts as an orchestrator for all SD-WAN CPE devices. To perform its orchestration function, Versa Director implements an overlay addressing scheme, in which it assigns a unique management IP address to each device from a pre-allocated pool of address within an IP address prefix.

By default, Versa Director assigns the pre-allocated addresses from the private address space 10.0.0.0/8. You can configure Versa Director to allocate the management addresses from a different IP prefix. You must ensure that each CPE device has a unique management IP address and that there is no address overlap or duplication.

When you configure the overlay address prefix, for Releases 21.1 and later, Versa Director assigns the IP addresses sequentially from the pool of overlay addresses that you configure. For Release 20.2, Versa Direcor divides the pool equally among the organizations (tenants) on the CPE device. When it assigns an IP address to a tenant's SD-WAN CPE device, Versa Director uses an IP address from that tenant's portion of the address pool.

For Releases 21.1 and later, when you deploy SD-WAN Controller and branch devices, the Director node uses the NetBox IP address management (IPAM) service to allocate IP addresses from the configured overlay prefixes. IPAM allocates IP addresses for each provider organization and for all other tenants. IPAM manages all the device IP addresses and WAN interface address pools. The IP address for each device is allocated randomly from the IPAM pool, using the first available address. For a multitenant device, two IP addresses are allocated, which are for two tunnel interfaces. One IP address is used to establish a VXLAN tunnel over the internet or MPLS underlay, and the second IP address is used to establish an IPsec tunnel on top of the VXLAN tunnel. This multilayered approach allows the VOS device to perform traffic steering on a single IPsec tunnel between multiple VXLAN tunnels. No tenant ID or device ID is encoded in the IP addresses allocated to the device. The IP addresses allocated to overlay tunnels for each tenant are the same. For example, if Tenant1 has Tunnel-0/0:10.10.10.1 and Tunnel-0/1:10.10.10.2, then the IP addresses for Tenant2 are Tunnel0/2:10.10.10.1 and Tunnel0/3:10.10.10.2. Each tenant uses a separate VRF for interbranch communication and for the establishment of the BGP control plane. Communication between a brand and a Director node always happens only through the tenant that owns the device.

When you migrate an existing Controller node using IPAM, by default, all IP addresses, including tenant-specific IP addresses for which encodeTenant ID is enabled, are migrated to IPAM, and two new IP addresses are assigned to the newly deployed Controller node. However, if these addresses lay outside of the allocated overlay address prefixes, you must change the IP addresses allocated by the WAN interface address pool.

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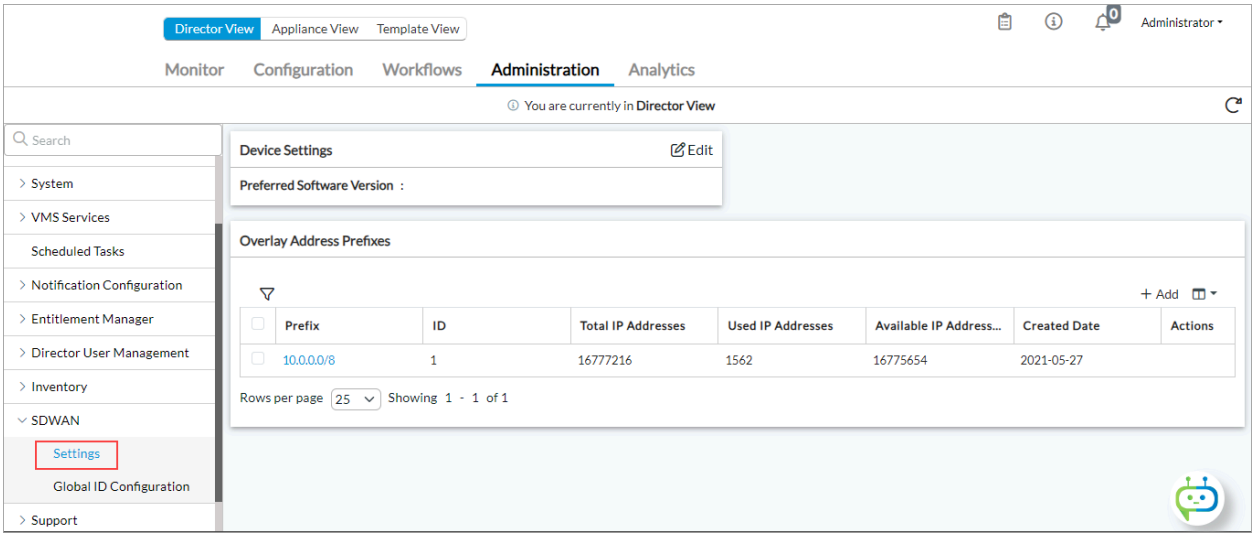
For Releases 21.1.1 and later.

As part of configuring the overlay address scheme, you configure the IPv4 prefix to use for the overlay address. The Versa Director pushes the overlay prefix or prefixes that you configure to the Control-VR on the Controller node to allow BGP neighboring with branch devices using the new overlay IP prefixes.

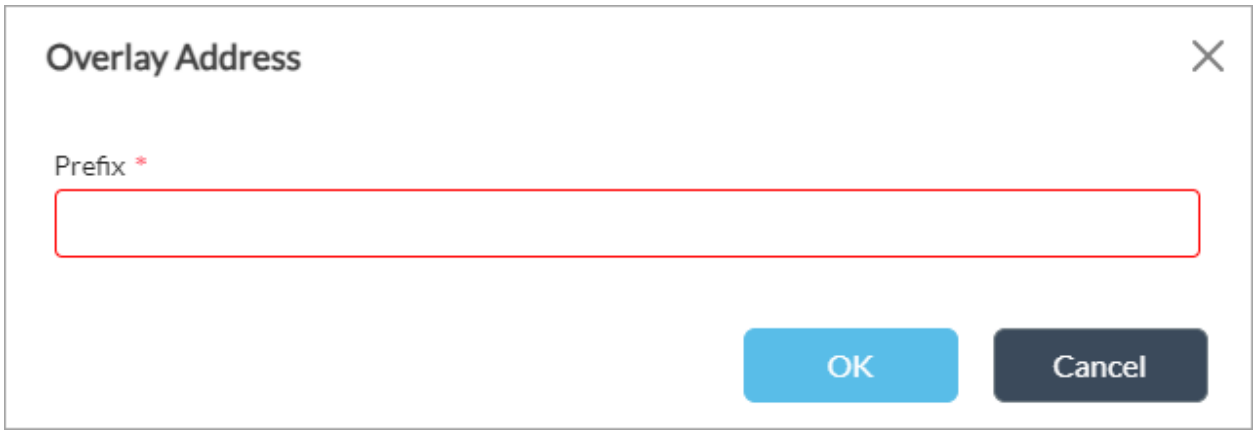
Note that if you do not configure an IPv4 prefix before you deploy the first Controller node in the network, the default overlay prefix, 10.0.0.0/8, is used. After you deploy the first Controller node, you cannot modify or select which overlay prefix to use. Therefore, if you want to use a different overlay prefix, configure and deploy it immediately after you install the Versa Director.

To configure the overlay addressing scheme:

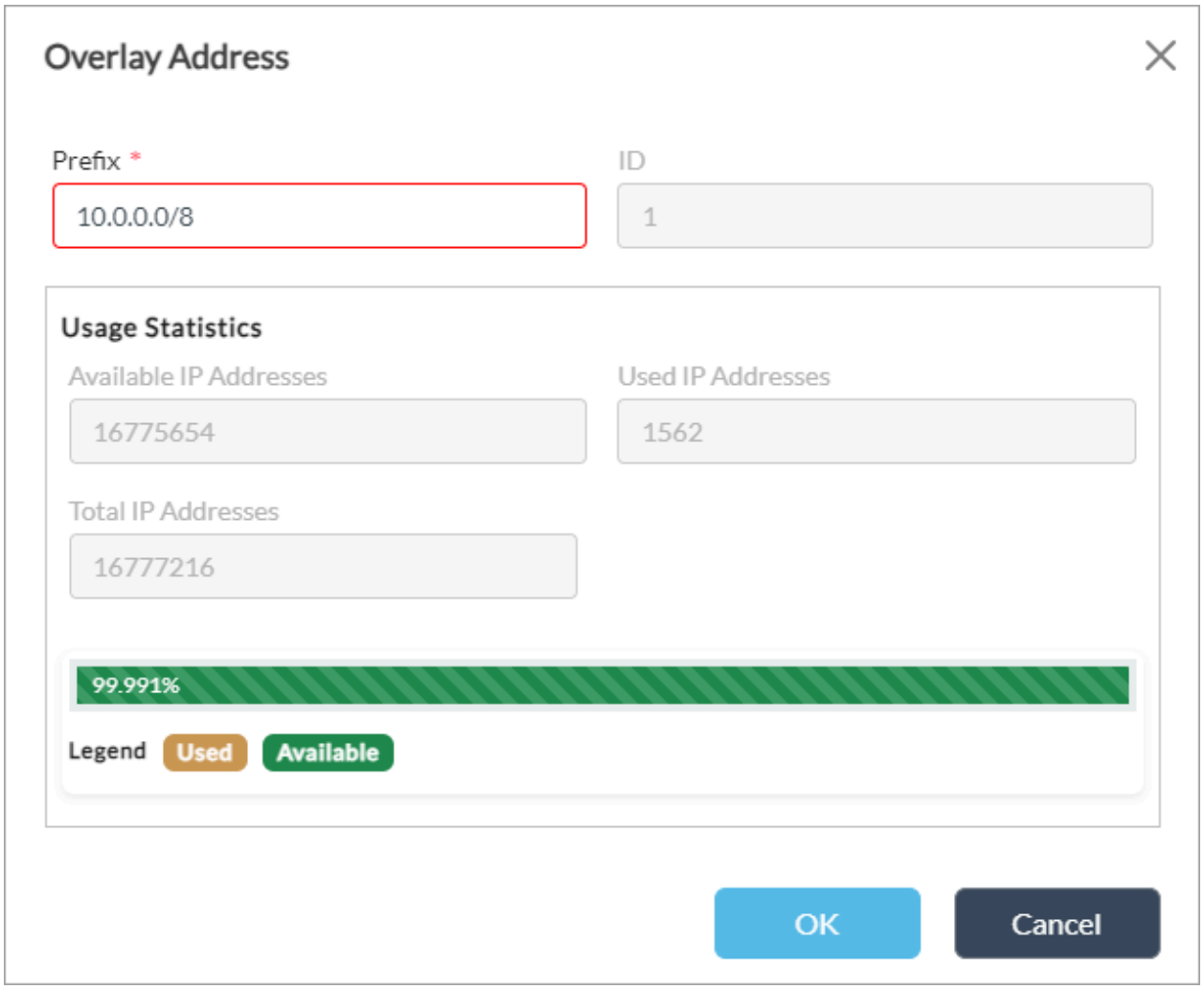
1. In Director view, select the Administration tab in the menu bar.
2. Select SD-WAN > Settings in the left menu bar. The main pane displays the Device Settings and Overlay Address Prefixes panes.



3. Click the + Add icon in the Overlay Address Prefixes pane. The Overlay Address popup window displays.



4. Enter the prefix for the IPv4 address for the overlay IP address.
5. Click OK.
6. To display statistics about the number of IP addresses in an overlay address prefix, select a prefix in the Overlay Address Prefixes pane.



Field	Description
Prefix (Required)	Enter the prefix for the IPv4 address.
ID	Displays the overlay address profile identifier
Usage Statistics (Group of Fields)	
◦ Available IP Addresses	Displays the number of IP addresses in the IP address prefix that are available.
◦ Used IP Addresses	Displays the number of IP addresses in the IP address prefix that are already used
◦ Total IP Addresses	Displays the total number of IP addresses in the IP address prefix.

7. Click OK.

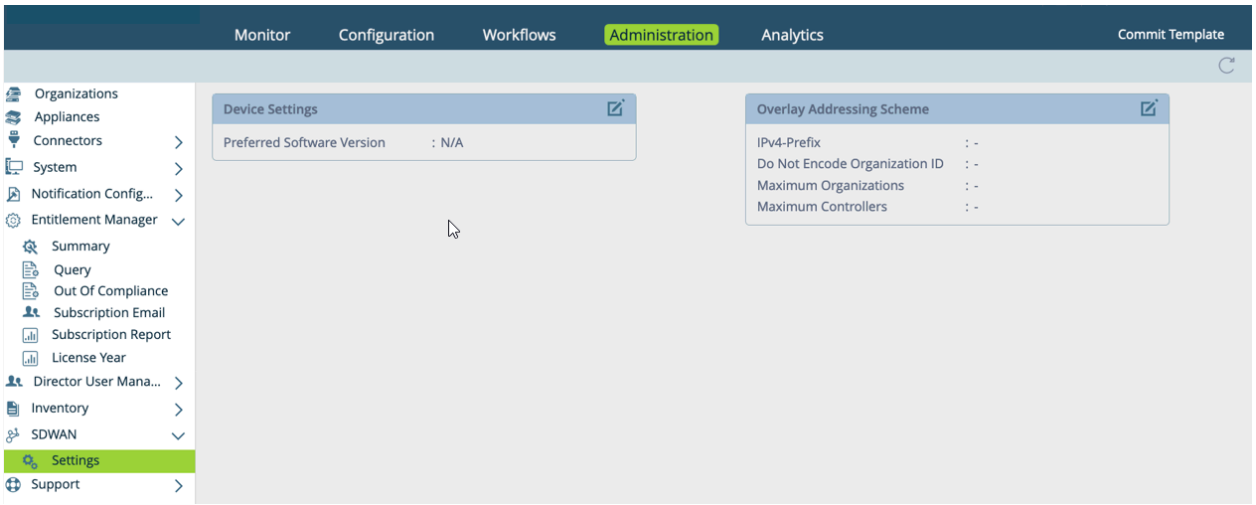
Configure the Overlay Addressing Scheme for Release 20.2

For Release 20.2.

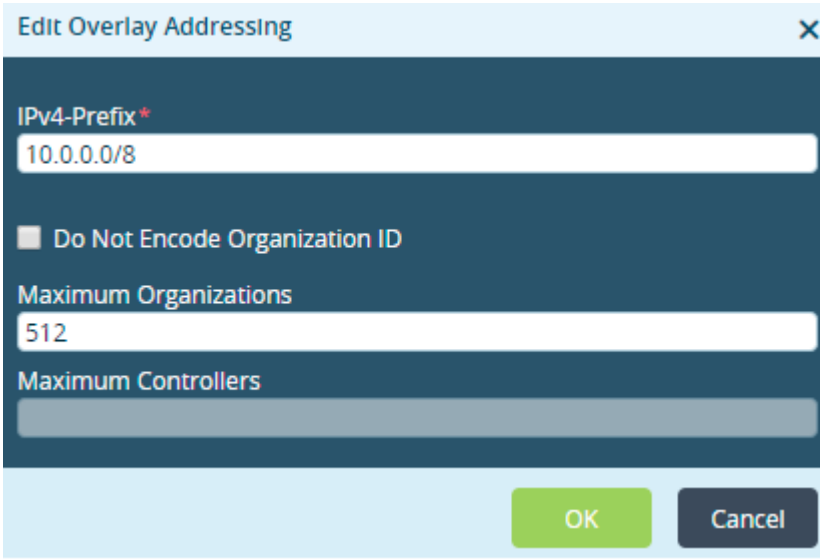
Release 20.2 does not use the IPAM server.

To configure the overlay addressing scheme in Release 20.2:

1. In Director view, select the Administration tab in the top menu bar.
2. Select SD-WAN > Settings in the left menu bar. The main pane displays the Overlay Addressing Scheme pane.



3. Click the Add icon in the Overlay Addressing Scheme pane. In the Edit Overlay Addressing popup window, enter information for the following fields.



Field	Description
IPv4 Prefix	Enter the IPv4 address prefix.
Do Not Encode Organization ID	Click to not encode the organization's ID in the virtual network layer.
Maximum Organizations	Enter the maximum number of organizations to which to apply this overlay address.
Maximum Controllers	Enter the maximum number of Controller nodes for which this overlay address applies.

4. Click OK.

Supported Software Information

Releases 20.2 and later support all content described in this article, except:

- Releases 21.1.1 and later support the IPAM service.