



## Network Definitions (Layer 2 and 3)

Table 1: Layer 2 and 3 Network Definition, on page 1 is intended to be used as a template for recording your Ultra M network Layer 2 and Layer 3 deployments.

Some of the Layer 2 and 3 networking parameters identified in Table 1: Layer 2 and 3 Network Definition, on page 1 are configured directly on the UCS hardware via CIMC. Other parameters are configured as part of the VIM Orchestrator or VIM configuration. This configuration is done through various configuration files depending on the parameter:

- undercloud.conf
- network.yaml
- layout.yaml
- AutoDeploy Configuration file for the pod

**Table 1: Layer 2 and 3 Network Definition**

VLAN ID / Range	Network	Gateway	IP Range Start	IP Range End	Description	Where Configured	Routable?
<b>External-Internet Meant for OSP-D Only</b>							
<b>100</b>	<b><u>192.168.1.0/24</u></b>	<b><u>192.168.1.1</u></b>			Internet access required: - 1 IP Address for OSP-D - 1 IP for default gateway	On Ultra M Manger Node hardware	Yes
<b>External – Floating IP Addresses (Virtio)*</b>							

VLAN ID / Range	Network	Gateway	IP Range Start	IP Range End	Description	Where Configured	Routable?
<u>101</u>	<u>192.168.10.0/24</u>	<u>192.168.10.1</u>			Routable addresses required: - 3 IP addresses for Controllers - 1 VIP for master Controller Node (Horizon IP address) 4 Floating IP Addresses per VNF for management VMs (CF, VNFM, UEM, and UAS software modules) - 1 IP for default gateway	<i>network.yaml</i> and/or <i>layout.yaml</i> **	Yes
<b>Provisioning</b>							
<u>105</u>	192.0.0.0/ 8		192.200.0.100	192.200.0.254	Required to provision all configuration via PXE boot from OSP-D for Ceph, Controller and Compute. Intel-On-Board Port 1 (1G).	<i>undercloud.conf</i>	No
<b>IPMI-CIMC</b>							
<u>105</u>	192.0.0.0/ 8		192.100.0.100	192.100.0.254		On UCS servers through CIMC	No
<b>Tenant (Virtio)</b>							
<u>17</u>	11.117.0.0/ 24				All Virtio based tenant networks. (MLOM)	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No

VLAN ID / Range	Network	Gateway	IP Range Start	IP Range End	Description	Where Configured	Routable?
<b>Storage (Virtio)</b>							
<u>18</u>	11.118.0.0/ 24				Required for Controllers, Computes and Ceph for read/write from and to Ceph. (MLOM)	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No
<b>Storage-MGMT (Virtio)</b>							
<u>19</u>	11.119.0.0/ 24				Required for Controllers and Ceph only as Storage Cluster internal network. (MLOM)	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No
<b>Internal-API (Virtio)</b>							
<u>20</u>	11.120.0.0/ 24				Required for Controllers and Computes for openstack manageability. (MLOM)	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No
<b>Mgmt (Virtio)</b>							
<u>21</u>	172.16.181.0/ 24		172.16.181.100	172.16.181.254	Tenant based virtio network on openstack.	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No
<b>Other-Virtio</b>							
<u>1001:</u> <u>1500</u>					Tenant based virtio networks on openstack.	<i>network.yaml</i> and/or <i>layout.yaml</i> **	No
<b>SR-IOV (Phys-PCIe1)</b>							

VLAN ID / Range	Network	Gateway	IP Range Start	IP Range End	Description	Where Configured	Routable?
<u>2101:</u> <u>2500</u>					Tenant SRIOV network on openstack. (Intel NIC on PCIe1)  NOTE: A unique VLAN from this range is used by each VNF for the DI-internal network.	<i>network.yaml</i> and/or <i>layout.yaml</i> **	Yes
<b>SR-IOV (Phys-PCIe4)</b>							
<u>2501:</u> <u>2900</u>					Tenant SRIOV network on openstack. (Intel NIC on PCIe4)  NOTE: Ensure that the same DI-internal network VLAN ID is configured for both PCIe1 and PCIe4 for the same VNF. (For example, if VLAN ID 2111 is configured for VNF1 on PCIe1, VLAN ID 2111 must be configured on PCIe4 for VNF1)	<i>network.yaml</i> and/or <i>layout.yaml</i> **	Yes

VLAN ID / Range	Network	Gateway	IP Range Start	IP Range End	Description	Where Configured	Routable?
<p><b>NOTE: <u>Bold underlined</u></b> text is provided as example configuration information. Your deployment requirements will vary. The IP addresses in <b>bold</b> text are the recommended address used for internal routing between VNF components. All other IP addresses and VLAN IDs may be changed/assigned.</p> <p>* You can ensure that the same floating IP address can assigned to the AutoVNF, CF, UEM, and VNFM after a VM restart by configuring parameters in the AutoDeploy configuration file or the UWS service delivery configuration file. Refer to <a href="#">Table 2: Floating IP address Reuse Parameters, on page 5</a> for details.</p> <p>** For Hyper-converged Ultra M models based on OpenStack 10, these parameters must configured in the both the <i>networks.yaml</i> and the <i>layout.yaml</i> files unless the VIM installation automation feature is used. Refer to the <i>Ultra Services Platform Deployment Automation Guide</i> for details.</p> <p><b>Caution</b> IP address ranges used for the Tenant (Virtio), Storage (Virtio), and Internal-API (Virtio) in <i>network.yaml</i> cannot conflict with the IP addresses specified in <i>layout.yaml</i> for the corresponding networks. Address conflicts will prevent the VNF from functioning properly.</p>							

Table 2: Floating IP address Reuse Parameters

Component	Construct	AutoDeploy Configuration File Parameters	UWS Service Deployment Configuration File
AutoVNF	autovnfd	<b>networks management floating-ip true</b>  <b>networks management ha-vip &lt;vip_address&gt;</b>  <b>networks management floating-ip-address &lt;floating_address&gt;</b>	<management> <---SNIP---> <floating-ip>true </floating-ip> <ha-vip> vip_address</ha-vip> <floating-ip-address>floating_address </floating-ip-address> </management>
VNFM	vnfmd	<b>floating-ip true</b>  <b>ha-vip &lt;vip_address&gt;</b>  <b>floating-ip-address &lt;floating_address&gt;</b>	<management> <---SNIP---> <floating-ip>true </floating-ip> <ha-vip> vip_address</ha-vip> <floating-ip-address>floating_address </floating-ip-address> </management>

Component	Construct	AutoDeploy Configuration File Parameters	UWS Service Deployment Configuration File
UEM	vnfd	<b>vnf-em ha-vip</b> <vip_address> <b>vnf-em floating-ip true</b> <b>vnf-em floating-ip-address</b> <floating_address>	<vnf-em> <---SNIP---> <ha-vip> vip_address</ha-vip> <---SNIP---> <floating-ip>true </floating-ip> <floating-ip-address>floating_address </floating-ip-address> <---SNIP---> </vnf-em>
CF	vnfd	interfaces mgmt <---SNIP---> <b>enable-ha-vip</b> <vip_address> <b>floating-ip true</b> <b>floating-ip-address</b> <floating_address> <---SNIP--->	<interfaces> <---SNIP---> <b>&lt;enable-ha-vip&gt;</b> vip_address</enable-ha-vip> <b>&lt;floating-ip&gt;true &lt;/floating-ip&gt;</b> <b>&lt;floating-ip-address&gt;</b> floating_address <b>&lt;/floating-ip-address&gt;</b> <---SNIP---> </interfaces>
Controllers	networking network-types external	<---SNIP---> <b>ip-prefix</b> <floating_address_ network > <mask_bits> <b>vlan-id</b> <vlan_id> <b>allocation-pool</b> <b>start</b> <1st_floating_address_for_controllers> <b>allocation-pool end</b> <4th_floating_address_for_ controllers > <b>default-route</b> <actual_gw_Ip_dress of_floating_ip_network> <---SNIP--->	
<b>Note</b>	This functionality is disabled by default. Set the <b>floating-ip</b> and/or <b>&lt;floating-ip&gt;</b> parameters to <i>true</i> to enable this functionality.		
<b>Note</b>	Prior to assigning floating and virtual IP addresses, make sure that they are not already allocated through OpenStack. If the addresses are already allocated, then they must be freed up for use or you must assign a new IP address that is available in the VIM.		