



Overview of 1.5 Release

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Introduction to CML 1.5

Cisco Modeling Labs (CML) version 1.5.145 is an incremental update to CML 1.3, including bug fixes, updated reference platforms, and some enhancements since the CML 1.3.296 release. To address many of the problems users have encountered with upgrades breaking an existing CML installation, the 1.5 release also includes some significant changes in how the product is installed. These changes also impact the system configuration process, both for first-time installation and subsequent system configuration updates. CML 1.5 also introduces a different approach to installing a CML Cluster.



Note

- If you use the `vir1_local_ip` setting, normally used when running your CML server behind a firewall that does NAT, do **NOT** upgrade to CML 1.5 at this time. See the explanation for VIRLDEV-6250 below.
 - CML does not support in-place upgrades in this release. Migrating to CML 1.5 requires a fresh installation either by deploying the OVA or, on bare metal systems, by installing the ISO image.
 - Due to space constraints, the ISO image only contains a minimum set of VM images (IOSv, IOSv-L2 and the Server image). Additional images can be added using UWM once the system is installed.
 - If deploying on a Cisco UCS C220M4 with Cisco 12G SAS Modular RAID Controller, you must enable RAMdisk using the UWM System Configuration pages in order to support IOS XRv images.
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What's New?

Updated Installation Procedure

With the 1.5 release, the OVA is based on a partially-configured system. At install time, after importing the OVA and booting the system, all users must now specify the remaining settings before the system will be operational. The installation process will then complete the system configuration.

Before beginning the installation process, you should decide the values that you will use for the following core settings:

- hostname
- domain name
- whether to use a static or dynamic IP address for the system's management interface
- a valid NTP server that will be reachable from your new installation
- system passwords

Infrastructure Password

used by OpenStack, MySQL, RabbitMQ, etc.

uwmsadmin Password

the admin password for administrative Web access to the UWM

Primary Project / User Name

the initial project and user account that is created at install time. This account will be able to login to the UWM and use the web services, and you will use this account to launch simulations from the UI. This account defaults to *guest*, which was the default project and user created in previous releases. Since CML is limited to a single account, the specified project is the only project that can be created.

Primary Account Password

the password for the primary project/user. The primary account and password are used to launch and manage simulations via the GUI or the UWM.

virI User Password

the password used to login to the back end Linux system as the *virI* user

- whether to set up a cluster



Note As part of these changes, note that CML 1.5 **does not support** reconfiguring the following settings after initial installation:

- The controller hostname. (You may use any DNS name for the CML server or controller node, but the hostname itself cannot be changed.)
 - The (notional) domain name of the CML server or controller node. It's set in `/etc/hosts`, but it's not used for much at the moment.
 - The primary network interface (e.g., `eth0`).
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See the installation documentation below in the section on *Performing a New Installation* for more details about the installation process.

This new installation process is a change from previous releases. In previous releases, installing the product as a VM involved deploying the OVA disk image of a pre-configured installation. Therefore, all of the default configuration settings used to be baked into the OVA, whether those settings were applicable to the target installation environment or not. For the most part, after importing the OVA, the original VM as built by Cisco would be running in your environment with all of the default settings retained. While this worked for many users out-of-the-box, it did not work well for other users who needed or wanted to change some aspects of the system. Part of the installation process used to involve reconfiguring some of the default settings, resulting in a time-consuming re-configuration of the system. To permit reconfiguration during installation, the core infrastructure settings were also exposed in the System Configuration page in the UWM web console. Mixing

these core infrastructure settings with other system settings made the System Upgrade and System Configuration processes more time-consuming and fragile. The changes in the 1.5 release should address many of these problems.

Changes to the System Configuration Pages in the UWM

Changes to System Configuration Pages

The User Workspace Management (UWM) web admin portal has been updated in the 1.5 release. In particular, the System Configuration pages have been improved by

- providing a consistent look and feel with tool tips, sensible defaults, and a 're-apply' function
- adding value checking / field validation (e.g. a pool address must fall into the proper network range to be valid)
- identifying the set of tasks required to apply the selected system configuration changes, resulting in faster system configuration changes
- removing the core infrastructure settings from the UWM
 - The following infrastructure settings **cannot be reconfigured** after the initial installation in CML 1.5 without a reinstallation:
 - The CML server's / controller' hostname. (You may use any DNS name for the CML server or controller node, but the hostname itself cannot be changed.)
 - The (notional) domain name of the CML server or controller node. It's set in /etc/hosts, but it's not used for much at the moment.
 - The primary network interface (e.g., eth0).
 - The following infrastructure settings may be changed by the `virl_setup` script (see also the section on Changing Core Infrastructure Settings below):
 - Whether the primary interface is configured for DHCP or Static IP address.
 - The configuration settings related to the primary interface, such as the netmask and default gateway when "Static IP" is selected.

The tool tips of the individual fields provide good information about each field. Consult the tool tips when in doubt about the meaning of an individual field or about proper or valid values for the field.

New UWM System Configuration Tabs

The settings in the **System Configuration** page of the UWM have been regrouped into a new set of tabs. Each tab holds a group of related settings. The new tabs on the **System Configuration** tab are

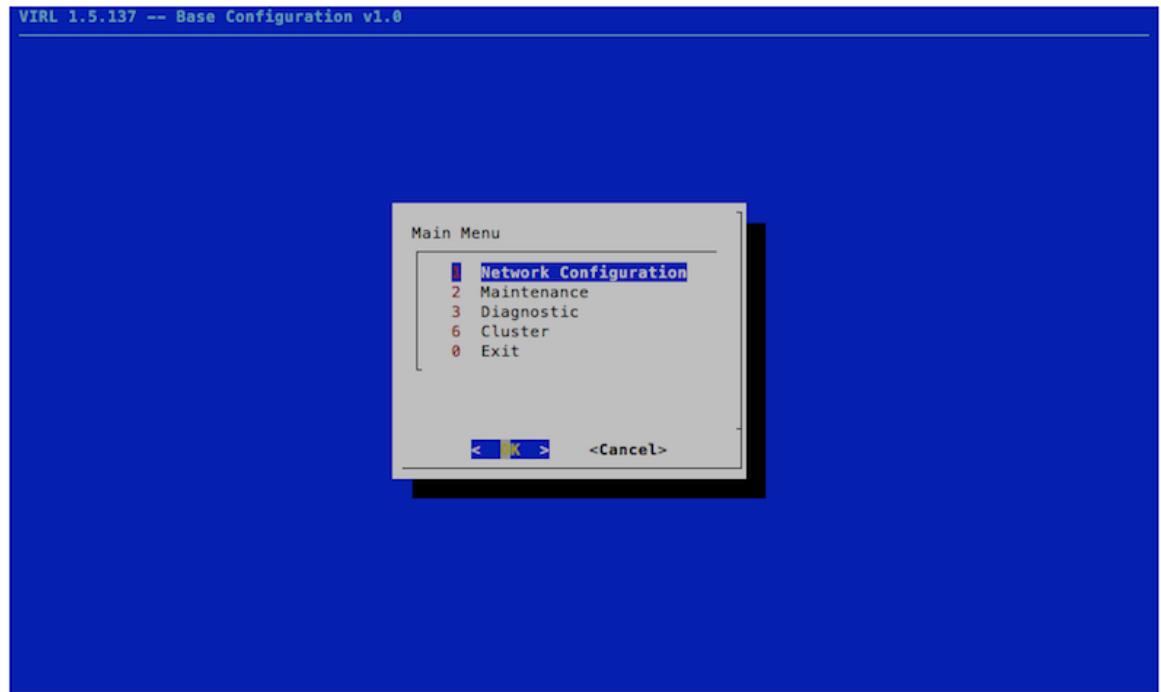
- Remote Connections
 - NTP server
 - Proxies
 - DNS rerenameservers

- Hardware
 - CPU and Memory oversubscription
 - RAMDISK
 - KSM kernel module
- Shared Networks
 - FLAT network settings for external connectivity
- L3 SNAT
 - SNAT network settings for external connectivity
- Service Ports
 - Ports used by web server, web services, etc.
 - Port ranges used for serial consoles of simulated nodes
 - Port ranges used for TCP connections (including packet captures) of the simulations
- Users
 - Primary (guest) user account settings
 - Password reset for infrastructure password and uwmadmin account
 - Admin permission restrictions
- Simulation Details
- Open VPN
- Cisco Call-Home

Changing Core Infrastructure Settings

Some core infrastructure settings have been removed from the UWM's System Configuration pages. These settings are rarely changed, and separating them from the other settings in the UWM's System Configuration pages makes the process of applying system configuration changes from the UWM faster and more robust. Some of these core infrastructure settings may still be changed on an existing installation by logging into the back end as the *vir1* user and running `vir1_setup`.

The `vir1_setup` script will present a menu of options. The Network Configuration menu will permit switching between using a DHCP or static IP address on the system's management interface, setting static IP address settings, and setting the NTP server.



Permissions Restriction for Admin Users

By default, the primary (e.g., guest) user has always been configured as an admin account. The admin privileges were needed so that the guest user could, for example, run simulations that requested a static IP or static MAC address for an interface on a management network or on a shared L2 FLAT / L3 SNAT network. (Note that since the 1.3 release, admin privileges are no longer required for a user's simulation to set such a static IP or static MAC address.) As an admin account, the guest user also used to be able to add "global" VM images instead of just user-level or project-level VM images, make system configuration changes, and even upgrade the entire system.

In the 1.5 release, the primary user created during installation is still granted an admin role, but the UWM now restricts certain operations to the *uwadmin* system admin account only. By default, only the *uwadmin* user will be permitted to make changes in the **CML Server > System Configuration** pages of the UWM. Installing or upgrading software on the **CML Server > CML Software** page or upgrading the system on the **CML Server > System Upgrade** page will also be restricted to the *uwadmin* user account. If you would like to revert your 1.5 installation to the previous behavior, where the guest user could perform these operations, use the *uwadmin* account to change the "Restrict System Configuration and Upgrades to System Admin" setting in the **CML Server > System Configuration > Users** page.

By default, all user accounts in 1.5, including the primary user account created during the installation, will still have permission to manage node resources. For example, the guest user would be able to add or delete VM images. Users may also add or edit LXC templates, subtypes, and flavors. You may restrict these pages to just users with the admin role or just to the *uwadmin* user. Use the *uwadmin* account to set the "Users allowed resource management" setting on the Users **CML Server > System Configuration > Users** page to the desired value.

