



Introduction to Cisco Modeling Labs

- [Overview of CML 2.0, on page 1](#)
- [Using CML and the HTML5 UI, on page 2](#)

Overview of CML 2.0

Cisco Modeling Labs 2.0 is a major update of the entire Cisco Modeling Labs (CML) network simulation platform. While the platform still uses KVM as the hypervisor to run the same network OS virtual machine (VM) images, we have completely rewritten the rest of the platform. For example, we replaced the desktop GUI application with a new HTML5 browser-based user interface (UI). The software that orchestrates and runs the simulation is brand new and has a much smaller memory footprint. We greatly simplified the installation and initial simulation creation to improve the user experience. The virtual machines in the network simulations are connected via a custom-designed fabric. These changes provide for a more secure, easier-to-use network simulation platform and enable new core concepts in the product.

Starting with CML 2.0, you can think of each of your network topologies as a *lab*. You create and modify your labs on the CML server. With some limitations, you can modify the topology while the lab simulation is running. For example, you can change the connections between nodes, and you can add new nodes and connect them to the topology without stopping the simulation. Labs are also persistent by default now, unlike in the 1.x versions of the product. That is, when you stop a simulation, the disk images for the VMs in the lab are not discarded. This persistence preserves the state of each node, including crypto keys, license keys, and newly-installed packages.

CML 2.0 is built on top of REST-based web service APIs designed with both security and automation in mind. You can use these APIs to create labs and drive the entire simulation lifecycle programmatically. The new release was designed "API first" to ensure that fine-grained operations are exposed via the APIs in a consistent way. The product uses these APIs in its own user-facing interfaces:

- the HTML5 UI
- companion utilities, such as the Breakout Tool
- the Python client library

CML enables you to create and run virtual networks. You can use these labs for personal study for certification, for teaching networking classes, and for testing out new protocols or configuration changes. With the changes in the 2.0 release, CML also becomes part of a larger NetDevOps ecosystem, enabling you to test and validate network changes in an automated workflow. CML 2.0 is a complete rewrite of the product and introduces

fundamental changes. If you use CML 1.x or Cisco VIRL Personal Edition 1.x, then we recommend that you read the entire CML 2.0 release notes before you get started.

Using CML and the HTML5 UI

Cisco Modeling Labs is a network simulation platform. You can use CML to create lab networks and run simulations of those labs. Once you have a running lab simulation, you can interact with the VMs in the lab just as you would with devices in a real network. This guide documents the CML HTML5 UI and the use of the [Breakout Tool](#), which gives you local access to consoles of the nodes in the remote lab. For information on administrative tasks, such as installation and licensing, see [Administering Cisco Modeling Labs 2.0](#).

To open the CML UI, use a supported web browser to visit the URL for the CML server. The URL is shown in the message above the login prompt in the VMware console for the CML server's virtual machine: "Access the CML UI from https://nnn.nnn.nnn.nnn/". The CML UI requires you to log in using an application account. During installation, an *initial user* was created that you can use to log into the UI. If you are using CML-Enterprise, ask the application administrator for the credentials to use with CML.

The primary pages for working with labs in the CML UI are the **Lab Manager** and the **Workbench**. The **Lab Manager** provides access to all of the labs that you have created and the ability to navigate to the other pages of the UI. Clicking on a lab opens it in the **Workbench**. You edit a lab and interact with the lab's simulation on the **Workbench** page. There is a menu bar at the top of each page that provides easy access to navigation controls, your user menu, and any additional menus or actions that are relevant to the current page. You can return to the **Lab Manager** page at any time by clicking on **Lab Manager** in the menu bar or by clicking on the Cisco logo at the top-left corner of the page.