



New Horizons Labs on Demand Technical Requirements

Welcome to New Horizons Labs on Demand (abbreviated in this document as “LoD”). LoD is a cloud-based technical lab training environment designed specifically for New Horizons students to access during and after class.

To fully participate in the LoD service, a student’s system will need to meet these minimum requirements detailed below.

Student workstation minimum system requirements

- 1 GHz 32-bit (x86) or 64-bit (x64) processor with at least 2 GB of system memory
- Microsoft Windows Vista SP2 or higher
- A supported web browser (See detailed list below)
- Monitor with a minimum screen resolution 1280 x 960 and at least with 16-bit color depth (1280 x 1024 or higher 32 bit color depth recommended)
- High speed Internet connection (200 Kb/s per user with 1 Mb burst capacity)

The LoD user interface is an HTML based application that wraps one of three virtual machine access controls. The control used depends on the type of browser, available browser add-ins and the style of lab being taken. It will be one of the following:

- The Virtual Machine Remote Control Active-X control which uses port 2179. This control has two types:
 - The Hyper-V Active-X VMRC (VMRDP over port 2179)
 - The Virtual Server Active-X VMRC (VMRDP over port 2179)
- The HyperVMRC control. The HyperVMRC control has three options:
 - HTML5 (Websockets over port 443)
 - Flash (Websockets over port 80 & 843*. *Port 843 is to connect to the Flash Websocket Policy Server)
 - Silverlight (HTML over port 443)
- The VMware Remote Console Plug-in (Port 902) **

All of the virtual machine access controls offer excellent performance, however, where a student’s Internet connection has consistency/quality of service issues, the best performance will be achieved using the Active-X plug-ins.

Connection requirements depend upon which of the LoD clients utilized. Each browser can support a different combination of clients. Use the table below to determine specific browser level requirements.

Virtual Machine Client	Internet Explorer		Firefox		Chrome		Safari	
	Version	Ports	Version	Ports	Version	Ports	Version	Ports
VMRC ActiveX*	8+	2179	NA	NA	NA	NA	NA	NA
Hyper-VMRC HTML5	10+	443	11+	443	16+	443	6+	443
HyperVMRC Flash	Flash 11+	80 & 843	Flash 11+	80 & 843	Flash 11+	80 & 843	Flash 11+	80 & 843
HyperVMRC Silverlight	Silverlight 4+	80	Silverlight 4+	80	Silverlight 4+	80	Silverlight 4+	80
VMware Remote Console**	6+	902	11+	902	16+	902	NA	NA

* Preferred Client

Each browser has a preferred virtual machine client order and will attempt to use its preferred client by default.

- Internet Explorer will use Active-X first, then HTML5 (IE 10 or higher), then Flash, then Silverlight.
- Chrome, Firefox and Safari will attempt to use HTML5 first, then Flash, then Silverlight.

Virtual machine interface clients can be switched in the lab interface by clicking on the Options section and then selecting the desired client from the drop down list.

Firewall Exception Rule Information

Should a firewall exception rule to allow connectivity to the LoD servers need to be created, the following information can be used to create a limited destination rule, only allow the above protocols and ports from your network to the LoD cloud.

- IP Ranges: 65.38.27.1/24 and 67.214.104.1/25

The LoD system is a cloud platform that automatically provisions and connects the student with private sandboxed resources. There is no way to predict which IP address in the cloud the student will connect to for the provisioning of their virtual machines. This is why we provide a “range” of IP addresses instead of a single IP address.