

The logo features a dark, circular emblem with a crown-like top. Inside the circle, the text "RADEON PRO" is written in a small, white, sans-serif font, and "Software" is written in a larger, white, sans-serif font below it. The background of the top section of the page is a dark blue, abstract, leaf-like pattern.

RADEON PRO
Software

Radeon Pro V340 MxGPU Deployment Guide for VMware vSphere

Version 2.0

This document covers set up, installation, and configuration of MxGPU with Radeon Pro V340 in a VMware vSphere environment.

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Supported Deployments

For best results in your enterprise deployment, please take note of AMD-vetted software and hardware configurations in this section of the document.

- **Host/Server**

- **Graphics adapter:** AMD Radeon™ Pro V340
- **CPU:** Two or more quad-core Intel VT or AMD-V 64-bit x86-based CPU(s) with MMU support
- **System memory:** 32 GB (minimum; 1TB maximum). The number of guest VMs and individual use cases will determine the optimum amount of RAM needed.
- **Storage:** 500 GB (minimum). The number of guest VMs and individual use cases will determine the optimum type(s) and amount of storage needed.
- **Network adapter:** Gigabit Ethernet (GbE) and up.
- **BIOS:** Enable IOMMU (AMD CPUs) or VT-d (Intel CPUs), SR-IOV, Alternative Routing ID (ARI), memory mapping above 4GB, MMIO High Size (if available). UEFI boot is recommended, but not required. Please refer to your BIOS documentation for instructions on enabling these options.



Note: Some platforms support additional virtualization options. For example, the AMD kaveri APU includes an ARI (Alternative Reroute Interface). Please refer to your platform documentation for information and instructions.

- **Software:** The host/server must have VMware vSphere® 6.5 U2 or VMware vSphere® 6.7 U2 installed.
- **Client:** Any of the following client devices can be used to access virtual machines that have been configured on the host/server:
 - Zero client (up to 4 connectors) with standard mouse, keyboard and monitor.
 - Thin client with standard mouse, keyboard and monitor running Microsoft® Windows® Embedded OS.
 - Laptop/desktop with standard mouse, Keyboard, and monitor running with Microsoft Windows 7 or later (64-bit).

- **Guest VM configuration:** Each guest VM must be configured as follows:
 - **Software:** VMware Horizon View™ 7.6
 - **Supported Protocols:** PCoIP or Blast.
 - **Operating systems:**

| Supported Guest Operating Systems |
|---|
| Windows 10 64-bit (<i>April 2018 Update+</i>) |
| Windows 7 64-bit (<i>SP1+</i>) |
| Windows Server 2016 64-bit |

Suggested MxGPU Configurations

Below are the per-GPU suggested configurations for Radeon Pro V340 across a variety of use cases:

| Use Case | GPU Memory | Users Per GPU | vCPU | RAM | Maximum Displays* |
|-----------------------|------------|---------------|-------|---------|-------------------|
| Productivity | 1-2 GB | 8-16 | 2 | 4 GB | 1 |
| Enhanced Productivity | 2-4 GB | 4-8 | 4 | 4-8 GB | 2 |
| Professional Design | 4-8 GB | 2-4 | 8 | 8-16 GB | 4 |
| Full Graphics | 16 GB | 1 | 8-16+ | 16+ GB | 4 |

*Maximum displays guideline is based on 1080p desktops at 30 fps. Higher resolutions are supported at reduced display count or with potential impact to perceived performance.

API Support

| AMD Radeon™ Pro V340 API Support |
|----------------------------------|
| OpenGL 4.5 |
| OpenCL 2.0 |
| DirectX 12.0 |
| Vulkan 1.1 |

Host Driver Installation

This section of the document covers the installation of the Host Driver for MxGPU onto vSphere ESXi.

The Host Driver for MxGPU exposes Radeon Pro V340 partitioning functionality to the hypervisor.

1. Download the Host Driver for MxGPU from:

<https://www.amd.com/en/support/professional-graphics/radeon-pro/radeon-pro-v-series/radeon-pro-v340>



Radeon™ Pro Software for VMware vSphere® (ESXi™) 6.5

| Revision Number | File Size | Release Date | |
|-----------------|-----------|--------------|------------------|
| 2.06 | 1.6 MB | 10/16/2018 | DOWNLOAD* |

– Driver Details

Release Notes

Host Driver: VIB for AMD MxGPU on VMware vSphere® (ESXi™) 6.5.

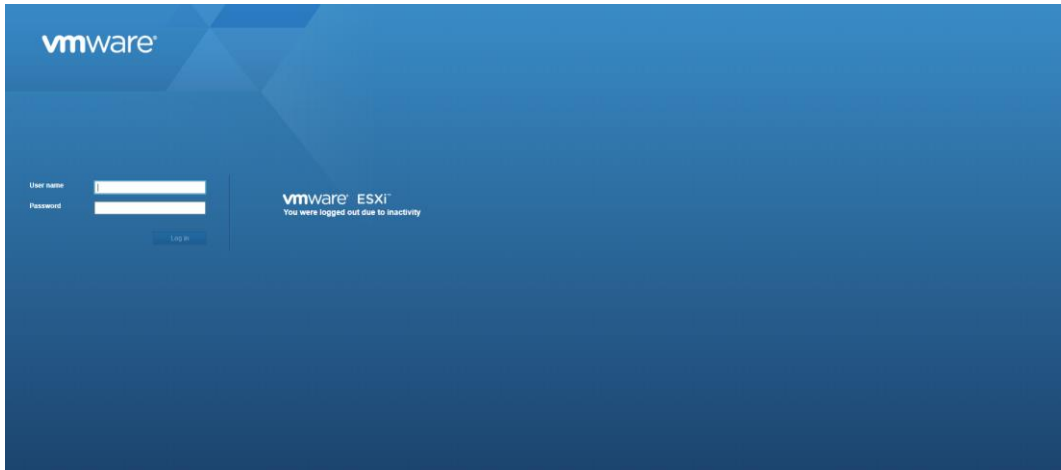
2. The Host Driver for MxGPU is a VIB (VMware Installation Bundle) file inside the zipped folder *vmw-esx-6.5.0-amdgpuv-2.0.6-10415709.zip*.

Extract the contents of this folder and **copy** the .vib file. This will be named *amdgpuv-<VERSION>-<IDENTIFIER>.x86_64.vib*.

3. Copy the .vib file into the target host's Datastore. This can be done a number of ways. An easy method is to use the Datastore browser feature in VMware Host Client. This is documented below:

- 3.1. Enter the host IP address into a browser of a client device that is on the same local network. The IP address can be conveniently found in the host console.

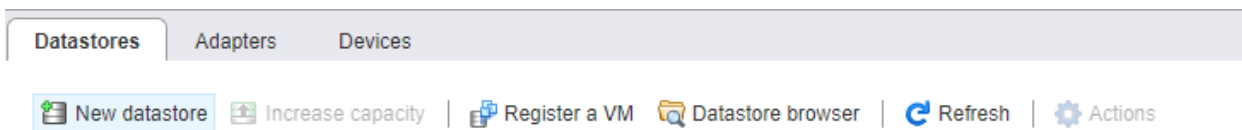
3.2. Login with the host credentials.



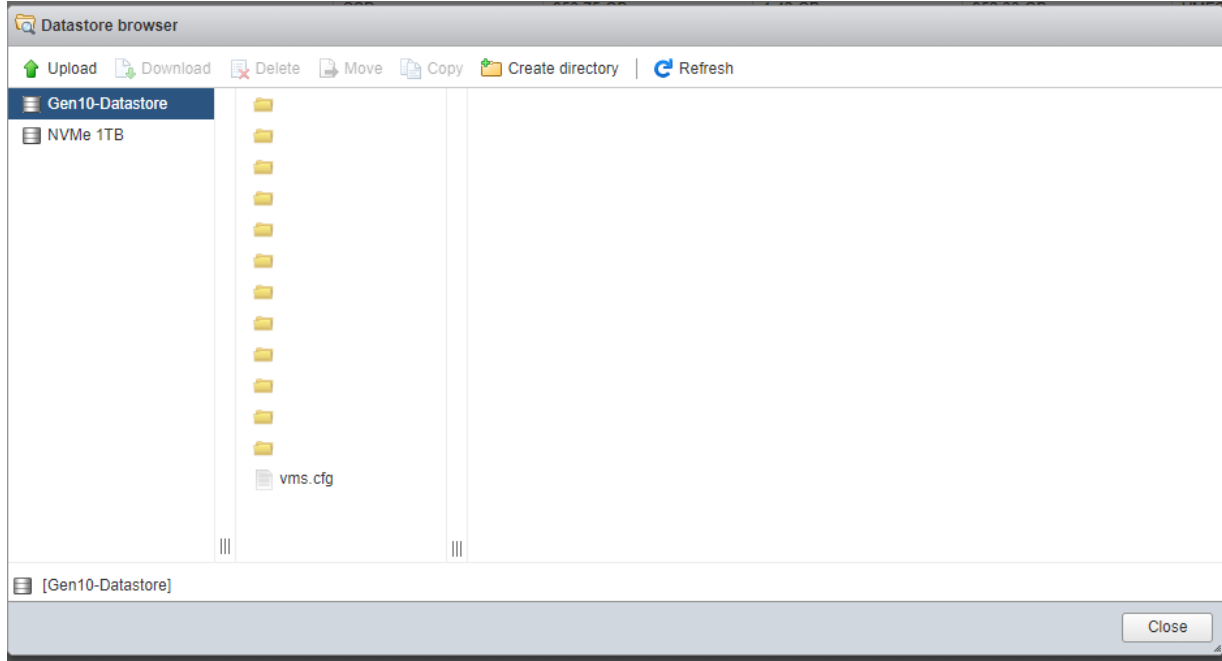
3.3. In the left hand panel, click on **Storage**.



3.4. Click on **Datastore browser**



3.5. Select the target Datastore and click **Upload**. Choose the .vib file from [Step 2](#).



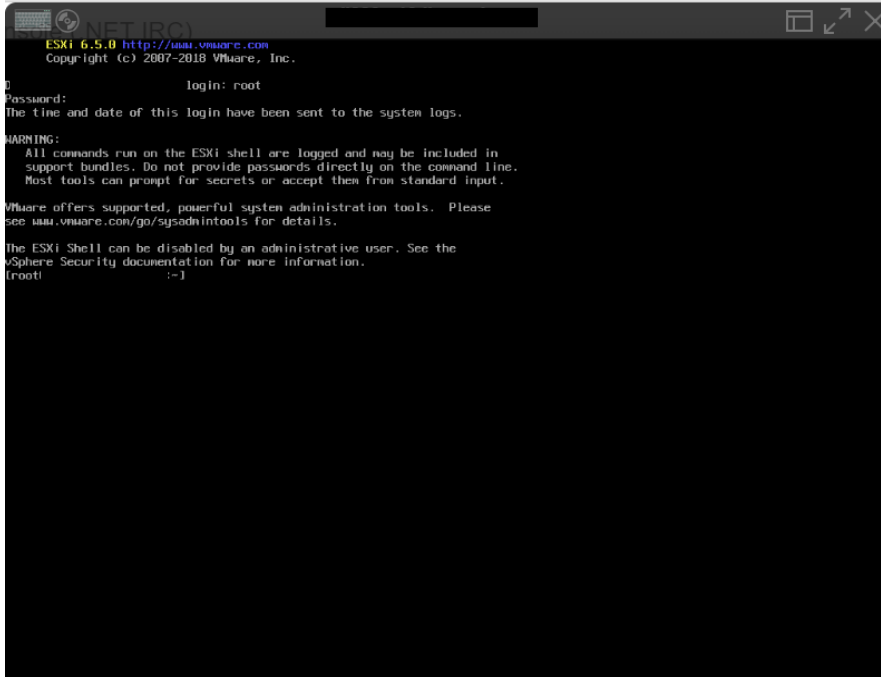
3.6. The .vib file will now appear in the Datastore.

4. Open the VMware ESXi console prompt. This can be done in several ways. One method is documented below.

4.1. Open the default VMware ESXi console view.



4.2. Press **ALT + F1** to access the console prompt.



```
NET IRG
ESXi 6.5.0 http://www.vmware.com
Copyright (c) 2007-2018 VMware, Inc.

login: root
Password:
The time and date of this login have been sent to the system logs.

WARNING:
All commands run on the ESXi shell are logged and may be included in
support bundles. Do not provide passwords directly on the command line.
Most tools can prompt for secrets or accept them from standard input.

VMware offers supported, powerful system administration tools. Please
see www.vmware.com/go/sysadmintools for details.

The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
[root] :~1
```

5. Run the following command to install the target VIB file.

```
esxcli software vib install -v <path of vib file> --maintenance-mode
```

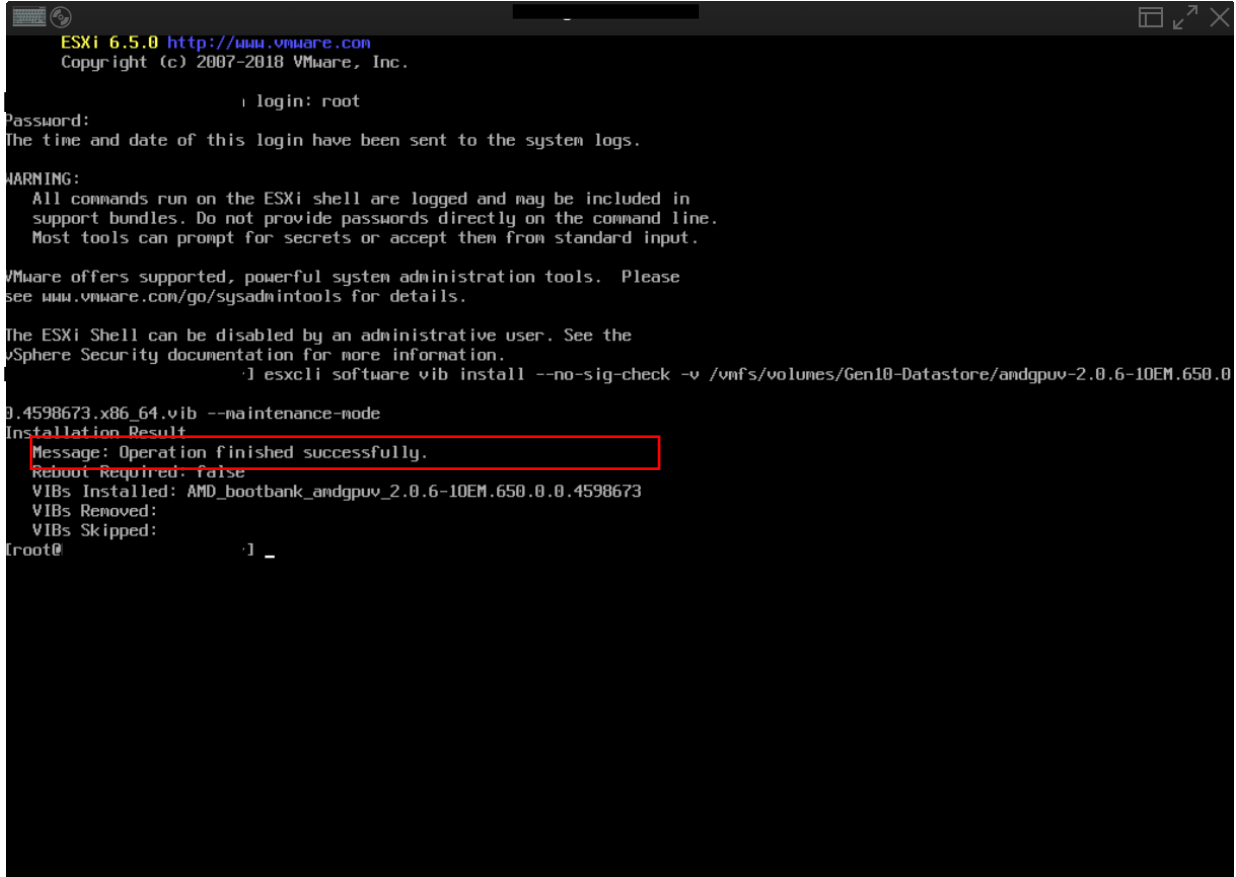
Please note that the Host Driver for MxGPU supports live install and thus can be installed without a host reboot. To facilitate this, the server must be placed in Maintenance Mode, hence the suffixed command above.

In this example, we'll be running the following command:

```
esxcli software vib install -v /vmfs/volumes/Gen10-Datastore/amdgpuv-2.0.6-1OEM.650.0.0.4598673.x86_64.vib --maintenance-mode
```

where /vmfs/volumes.... is the path of the VIB file in the Datastore.

6. The following screen should confirm successful installation,

A terminal window showing the ESXi 6.5.0 shell. The user logs in as root and runs the command 'esxcli software vib install --no-sig-check -v /vmfs/volumes/Gen10-Datastore/amdgpuv-2.0.6-10EM.650.0.4598673.x86_64.vib --maintenance-mode'. The output shows 'Installation Result' with a red box highlighting 'Message: Operation finished successfully.' and 'Reboot Required: false'. Other output includes 'VIBs Installed: AMD_bootbank_amdgpuv_2.0.6-10EM.650.0.4598673', 'VIBs Removed:', and 'VIBs Skipped:'.

```
ESXi 6.5.0 http://www.vmware.com
Copyright (c) 2007-2018 VMware, Inc.

login: root
Password:
The time and date of this login have been sent to the system logs.

WARNING:
  All commands run on the ESXi shell are logged and may be included in
  support bundles. Do not provide passwords directly on the command line.
  Most tools can prompt for secrets or accept them from standard input.

VMware offers supported, powerful system administration tools. Please
see www.vmware.com/go/sysadmintools for details.

The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
root@esx:~# esxcli software vib install --no-sig-check -v /vmfs/volumes/Gen10-Datastore/amdgpuv-2.0.6-10EM.650.0.4598673.x86_64.vib --maintenance-mode
Installation Result
Message: Operation finished successfully.
Reboot Required: false
VIBs Installed: AMD_bootbank_amdgpuv_2.0.6-10EM.650.0.4598673
VIBs Removed:
VIBs Skipped:
root@esx:~#
```

7. Installation of the VIB can also be confirmed via the following command:

```
esxcli software vib list | grep amdgpuv
```

This outputs the list of all installed VIBs prefixed with “amdgpuv” on the host.

Host Driver Configuration

This section of the document shows how to configure MxGPU on V340 for a given number of users via command line.

1. Run the following command to configure MxGPU for a given number of users:

```
esxcfg-module -s "GPU1=<#of users on GPU1> GPU2=<#of users on GPU2> MxGPUi=0" amdgpuv
```

Here are a few examples:

- `esxcfg-module -s "GPU1=2 GPU2=4 MxGPUi=0" amdgpuv`
- `esxcfg-module -s "GPU1=4 GPU2=4 MxGPUi=0" amdgpuv`
- `esxcfg-module -s "GPU1=4 GPU2=8 MxGPUi=0" amdgpuv`



Note: Each GPU on the Radeon Pro V340 can be configured for up to 16 users.

2. Reboot the host system.

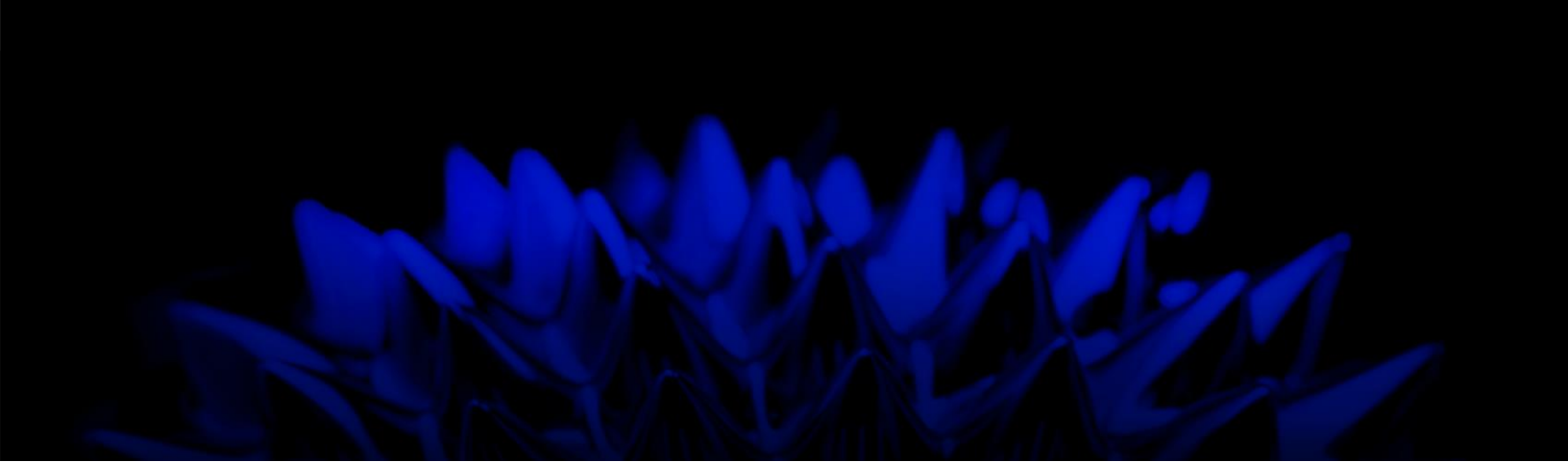
Host Driver Uninstallation

1. Run the following command to uninstall the Host Driver for MxGPU:

```
esxcli software vib remove --vibName="<vibName>" --maintenance-mode
```

```
the ESXi Shell can be disabled by an administrative user. See the
Sphere Security documentation for more information.
root@-----:~# esxcli software vib list | grep amdgpu
amdgpu-cin                1.23-7.89                AMD                VMwareAccepted        2018-10-04
amdgpu                    2.0.6-10EM.650.0.0.4598673  AMD                VMwareAccepted        2018-10-19
root@-----:~# esxcli software vib remove --vibName=amdgpu --maintenance-mode
Removal Result
Message: Operation finished successfully.
Reboot Required: false
VIBs Installed:
VIBs Removed: AMD_bootbank_amdgpu_2.0.6-10EM.650.0.0.4598673
VIBs Skipped:
```

“VIBs Removed: AMD_bootbank_amdgpu_...” indicates that the VIB driver was successfully uninstalled.



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