Stratus everRun Enterprise

Zehra Balkic / Patrick Skwara/Georg Dier

Avance-eE Migration

- Ist die Audio Qualität OK?
- Fragen bitte per Chat, diese werden im Anschluss beantwortet.

Always-on berührt jeden Aspekt unseres Lebens

Produktivität maximieren

Hersteller müssen ihre Fertigungsstraße ständig in Betrieb halten. Systemausfälle dürfen dabei nicht zu Betriebsunterbrechungen führen.

Zugriff kontrollieren

Unternehmen für Gebäudesicherheit verhindern externe Bedrohungen für Organisationen. Ausfallzeiten bei Sicherheitsanwendungen dürfen keine interne Bedrohung sein.

Profit schützen

Einzelhändler müssen tagtäglich Umsatzziele erfüllen. Ausfallzeiten bei Transaktionssystemen dürfen dem nicht im Wege stehen.

Leben schützen

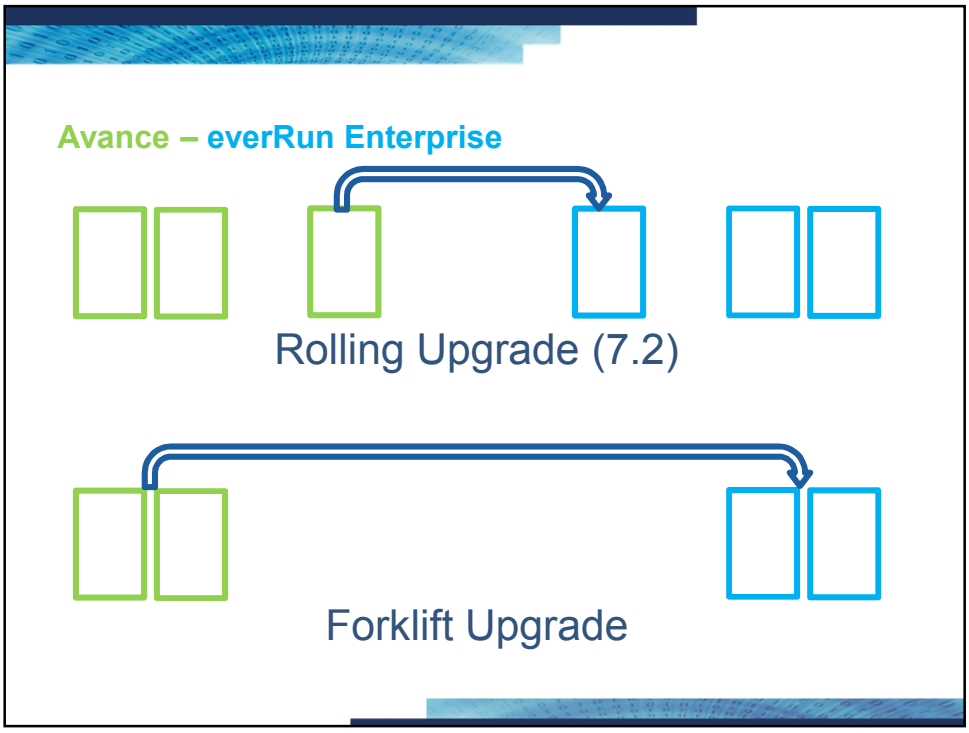
Rettungsdienste kümmern sich das ganze Jahr rund um die Uhr um Notfälle. Anwendungsausfälle darf es dabei nicht geben.

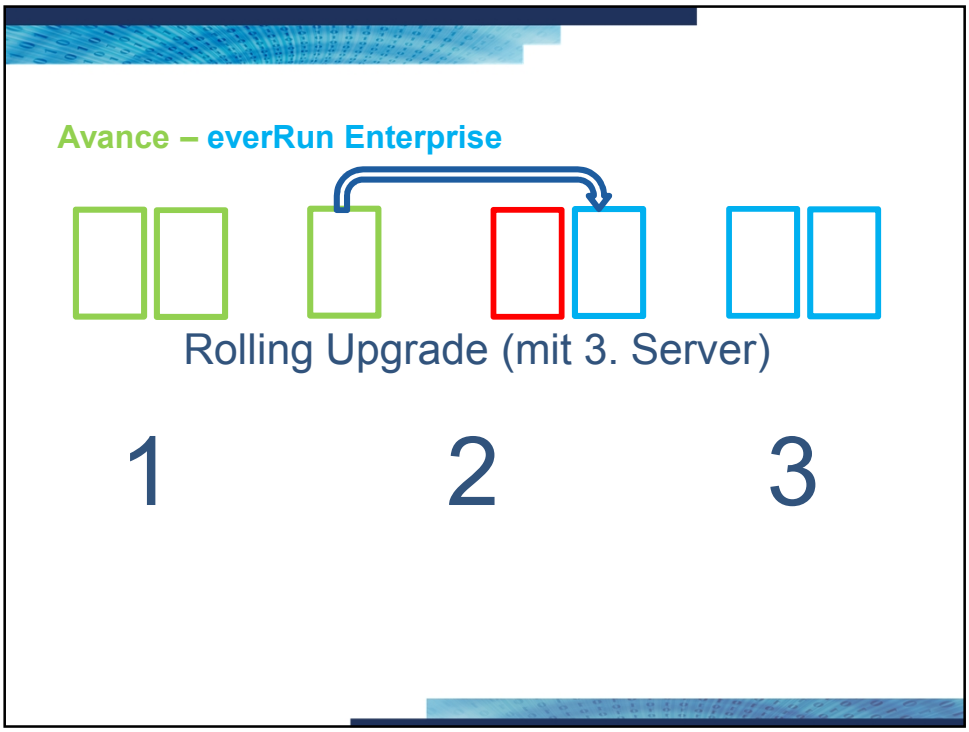
Transaktionen verarbeiten

Finanzdienstleister verwalten Tausende von Transaktionen pro Sekunde. Ihre Verarbeitungssysteme dürfen einfach nicht ausfallen.

Qualität und Datenschutz im Gesundheitswesen

Einrichtungen des Gesundheitswesens müssen auf Patientendaten zugreifen können und jederzeit gesetzliche Vorgaben erfüllen. Systemausfälle dürfen keine dieser Anforderungen gefährden.


Avance – everRun Enterprise
Rolling Upgrade (7.2)
Forklift Upgrade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Rolling Upgrade (mit 3. Server)
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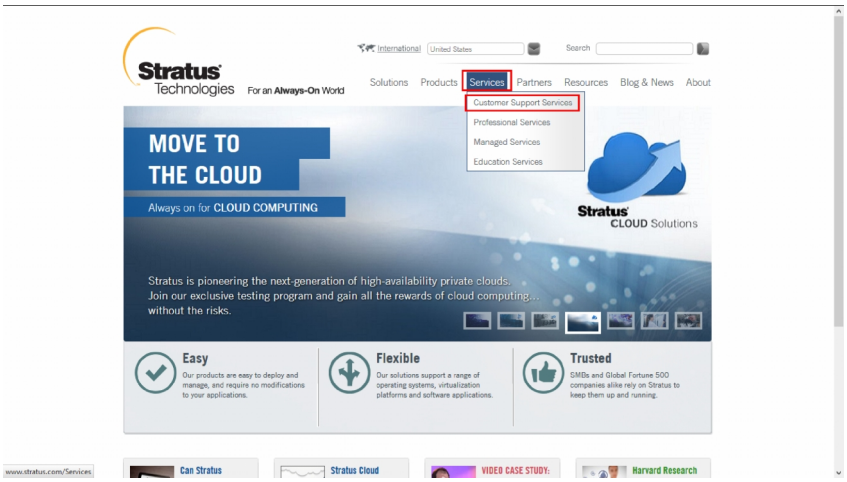
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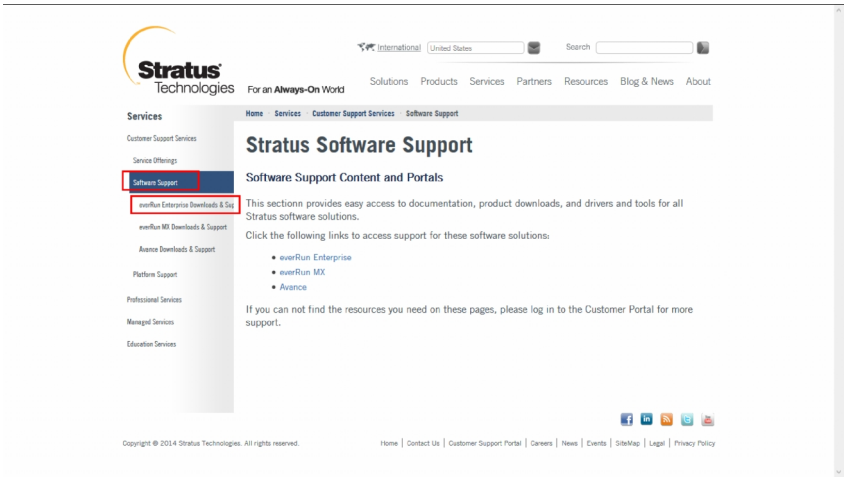
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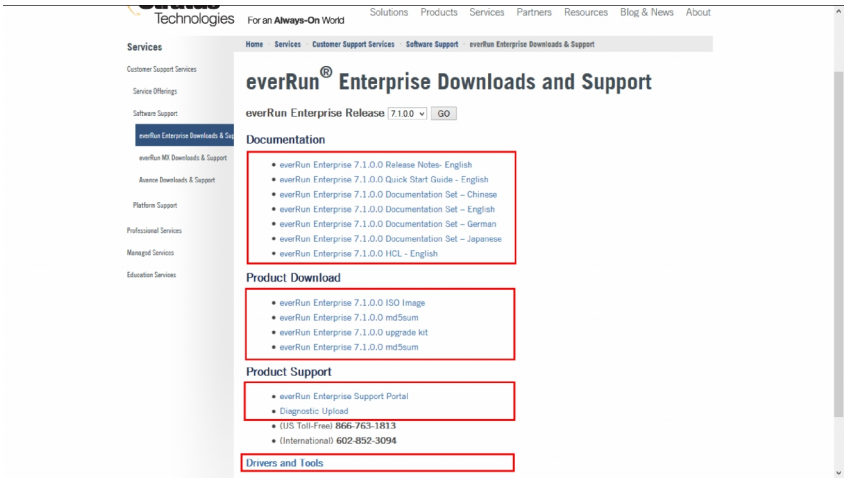
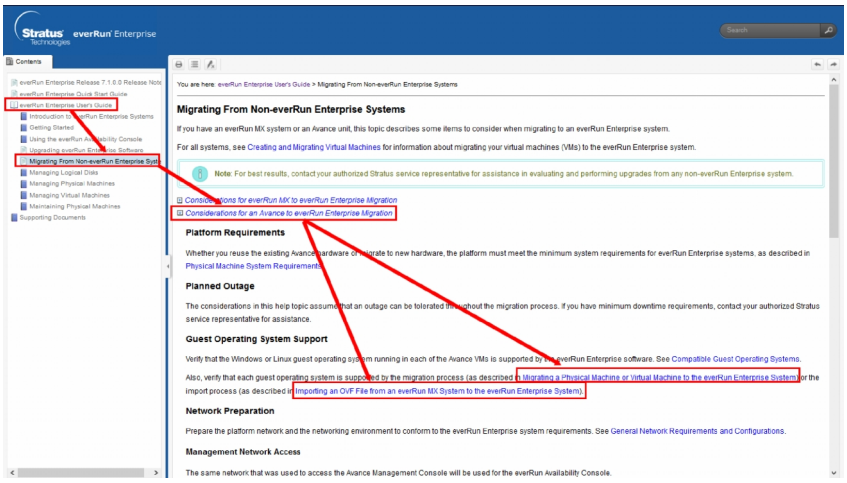
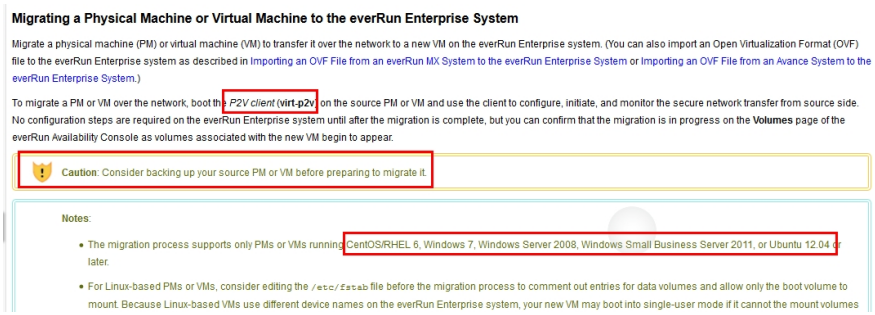


Migrating a Physical Machine or Virtual Machine to the everRun Enterprise System

Importing an OVF File from an everRun MX System to the everRun Enterprise System



Migrating a Physical Machine or Virtual Machine to the everRun Enterprise System



Migrating a Physical Machine or Virtual Machine to the everRun Enterprise System

Migrate a physical machine (PM) or virtual machine (VM) to transfer it over the network to a new VM on the everRun Enterprise system. (You can also import an Open Virtualization Format (OVF) file to the everRun Enterprise system as described in Importing an OVF File from an everRun MX System to the everRun Enterprise System or Importing an OVF File from an Avance System to the everRun Enterprise System.)

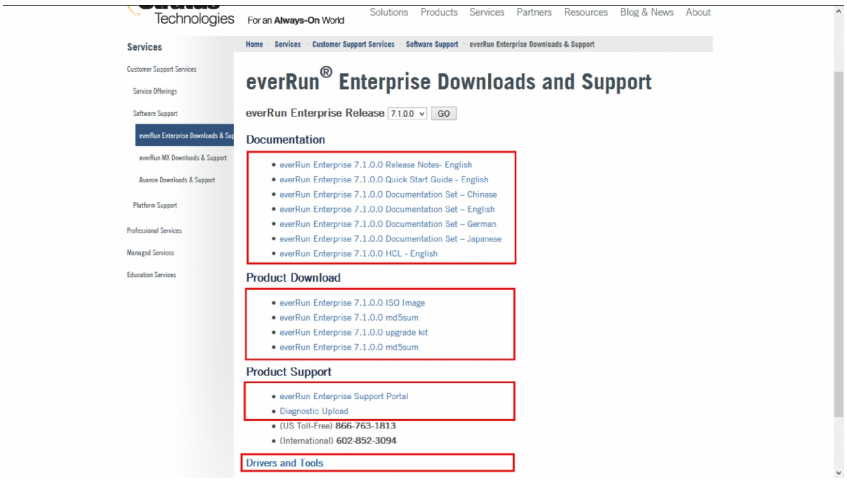
To migrate a PM or VM over the network, boot the *P2V client* (**virt-p2v**) on the source PM or VM and use the client to configure, initiate, and monitor the secure network transfer from source side. No configuration steps are required on the everRun Enterprise system until after the migration is complete, but you can confirm that the migration is in progress on the **Volumes** page of the everRun Availability Console as volumes associated with the new VM begin to appear.

Caution: Consider backing up your source PM or VM before preparing to migrate it.

Notes:

- The migration process supports only PMs or VMs running CentOS/RHEL 6, Windows 7, Windows Server 2008, Windows Small Business Server 2011, or Ubuntu 12.04 or later.
- For Linux-based PMs or VMs, consider editing the `/etc/fstab` file before the migration process to comment out entries for data volumes and allow only the boot volume to mount. Because Linux-based VMs use different device names on the everRun Enterprise system, your new VM may boot into single-user mode if it cannot the mount volumes

To migrate a PM or VM over the network, boot the P2V client (virt-p2v) on the source PM or VM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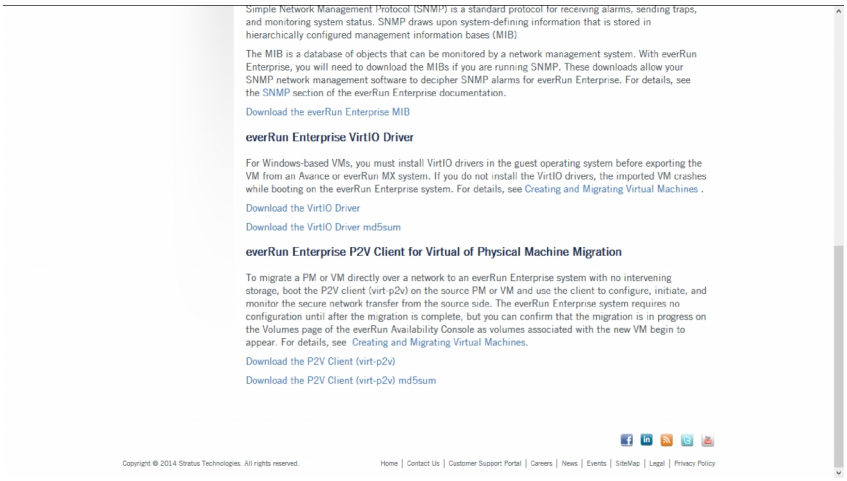
Drivers and Tools


Simple Network Management Protocol (SNMP) is a standard protocol for receiving alarms, sending traps, and monitoring system status. SNMP draws upon system-defining information that is stored in hierarchically configured management information bases (MIB)
The MIB is a database of objects that can be monitored by a network management system. With everRun Enterprise, you will need to download the MIBs if you are running SNMP. These downloads allow your SNMP network management software to decipher SNMP alarms for everRun Enterprise. For details, see the SNMP section of the everRun Enterprise documentation.
Download the everRun Enterprise MIB
everRun Enterprise VirtIO Driver
For Windows-based VMs, you must install VirtIO drivers in the guest operating system before exporting the VM from an Avance or everRun MX system. If you do not install the VirtIO drivers, the imported VM crashes while booting on the everRun Enterprise system. For details, see Creating and Migrating Virtual Machines .
Download the VirtIO Driver
Download the VirtIO Driver md5sum
everRun Enterprise P2V Client for Virtual of Physical Machine Migration
To migrate a PM or VM directly over a network to an everRun Enterprise system with no intervening storage, boot the P2V client (virt-p2v) on the source PM or VM and use the client to configure, initiate, and monitor the secure network transfer from the source side. The everRun Enterprise system requires no configuration until after the migration is complete, but you can confirm that the migration is in progress on the Volumes page of the everRun Availability Console as volumes associated with the new VM begin to appear. For details, see Creating and Migrating Virtual Machines.
Download the P2V Client (virt-p2v)
Download the P2V Client (virt-p2v) md5sum
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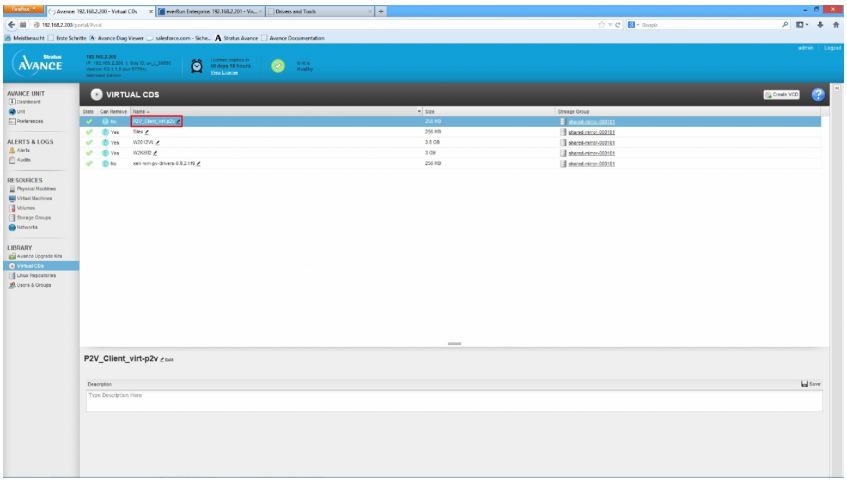
everRun Enterprise P2V Client for Virtual of Physical Machine Migration



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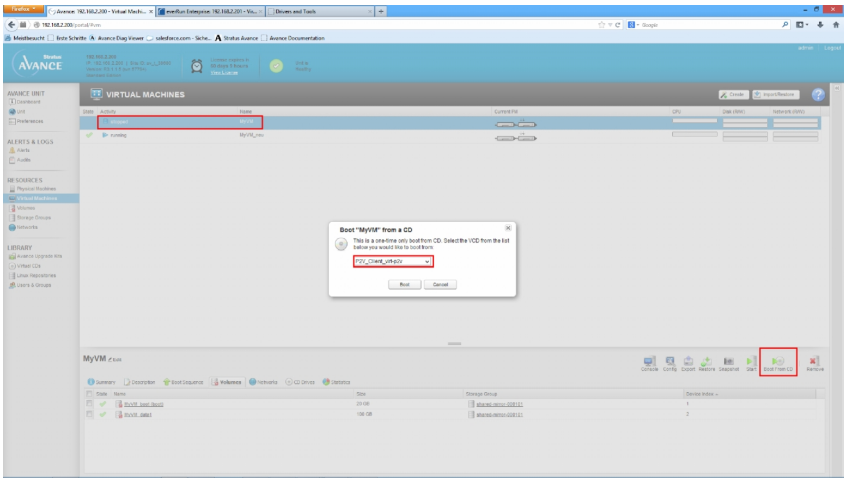

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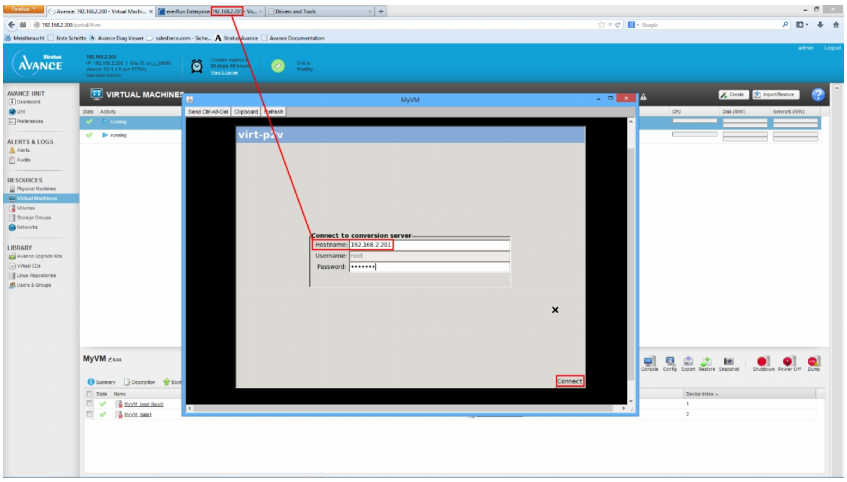

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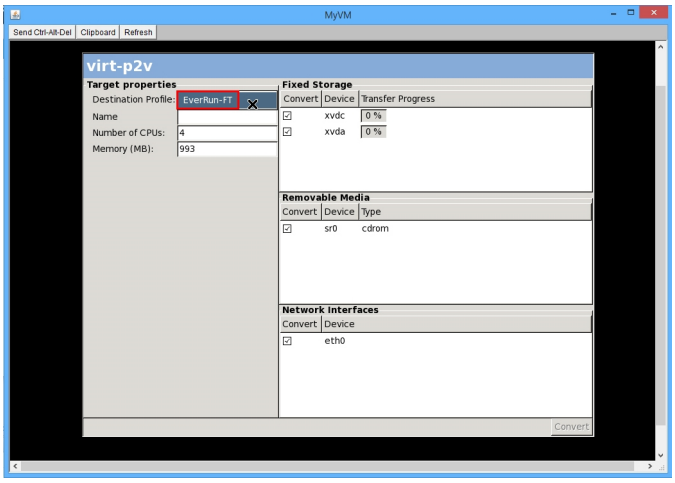

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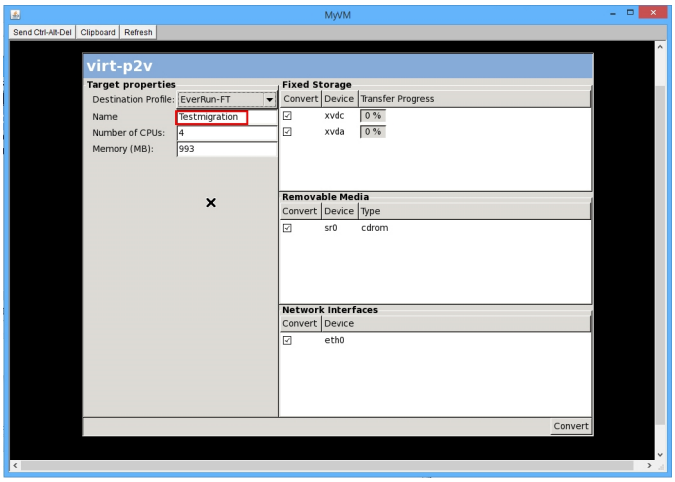

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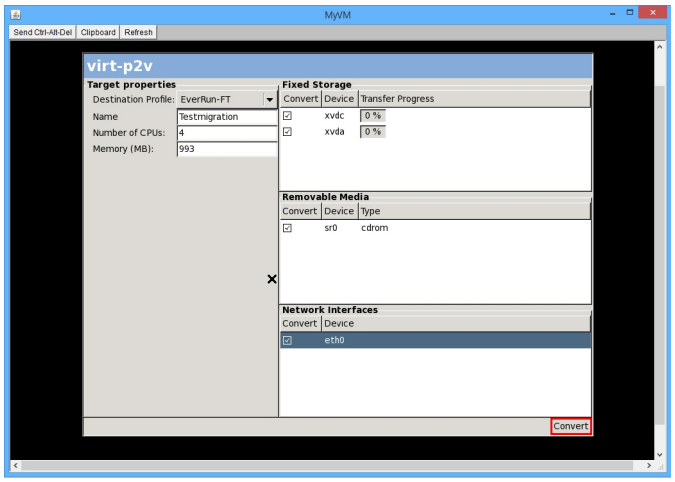

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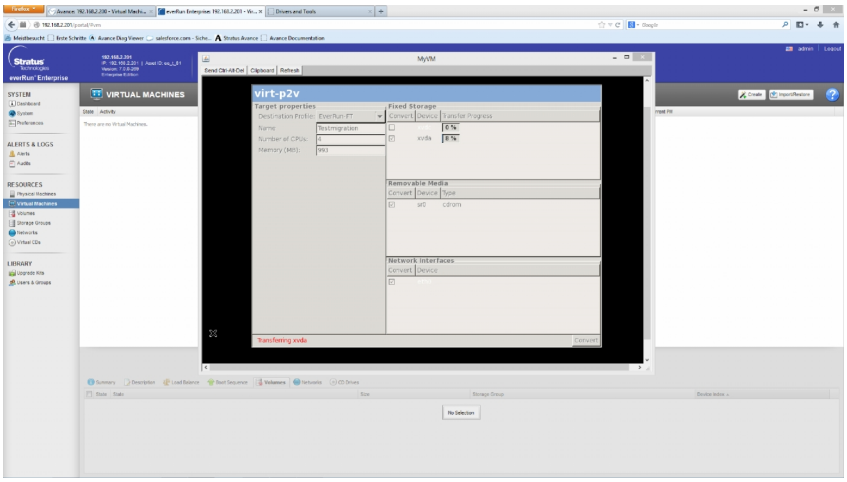

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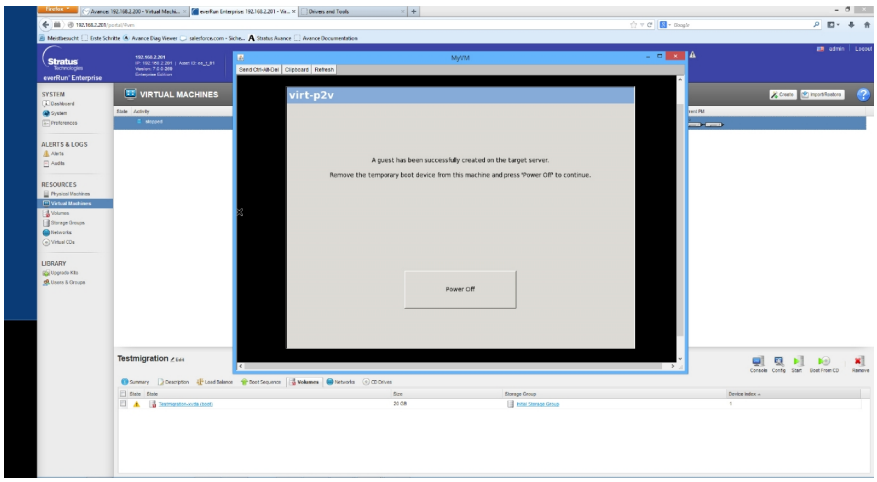
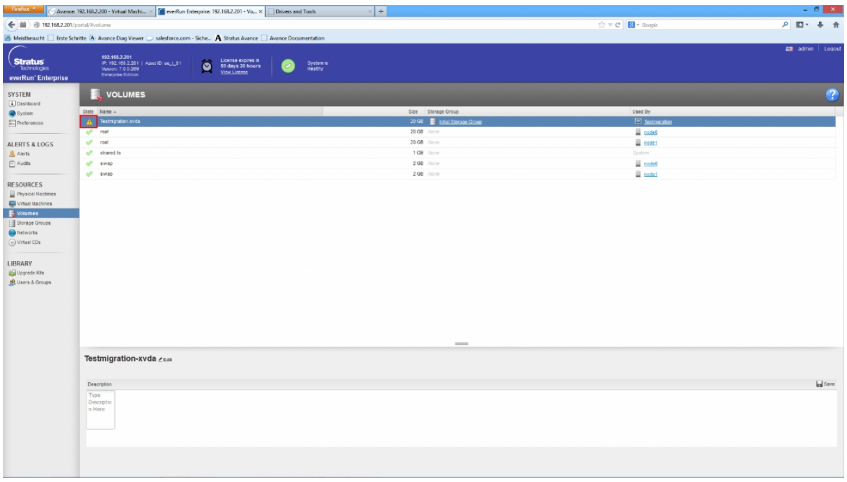


everRun Enterprise P2V Client for Virtual of Physical Machine Migration

AUDIT LOGS

Time	Username	Originating Host	Action
2014-03-06 09:05:47	root	::1	create virtual machine "Testmigration"
2014-03-06 08:51:24	root	::1	create volume "Testmigration-xvda"
2014-03-06 08:51:24	root	::1	Set volume Testmigration-xvda origMirrorCopySrc to node node0

everRun Enterprise P2V Client for Virtual of Physical Machine Migration



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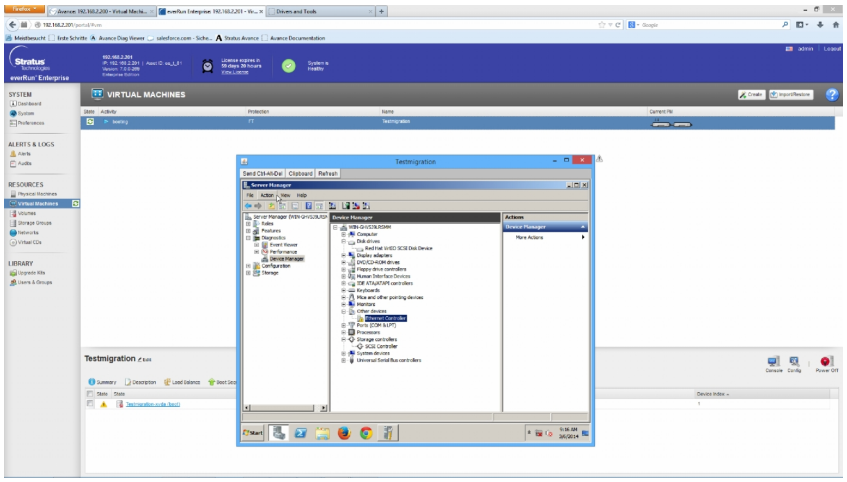

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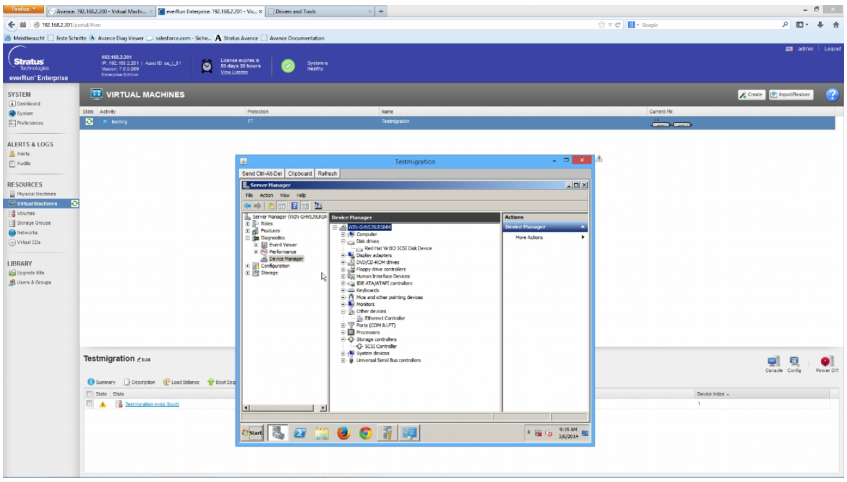

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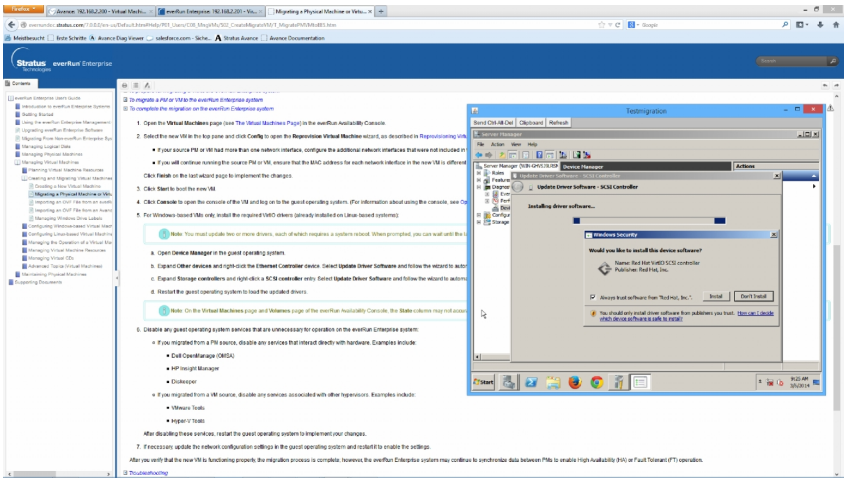

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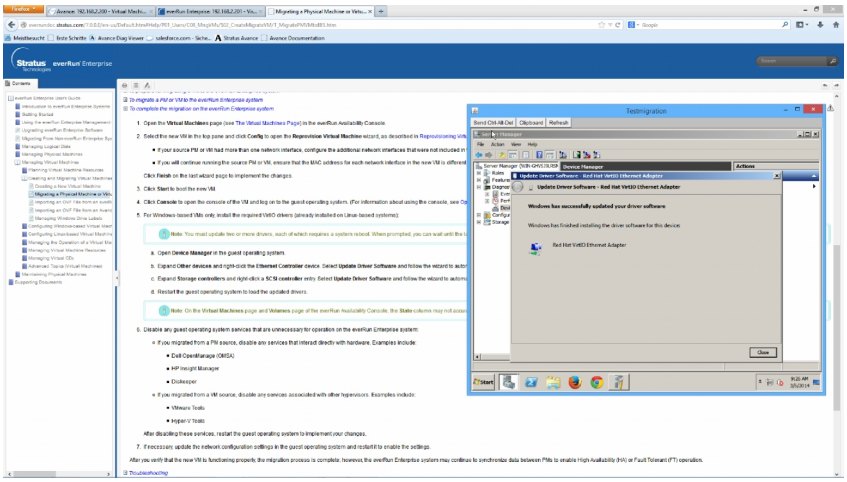

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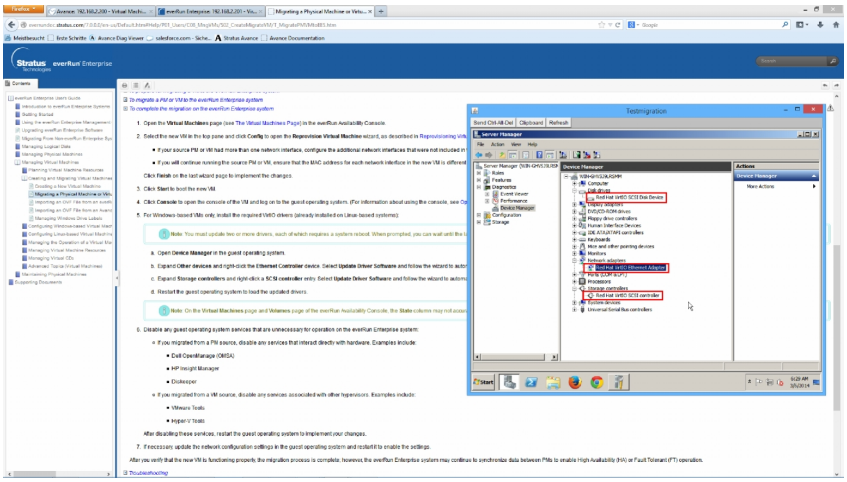

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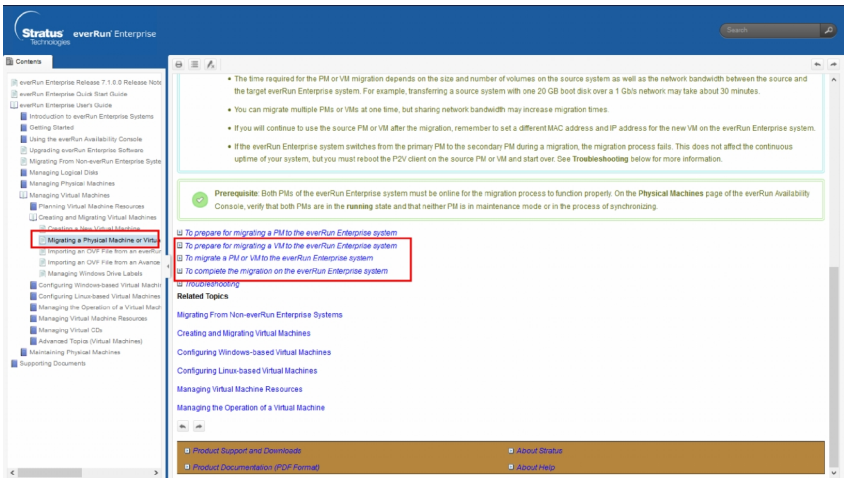


Importing an OVF File from an everRun MX System to the everRun Enterprise System

Importing an OVF File from an Avance System to the everRun Enterprise System

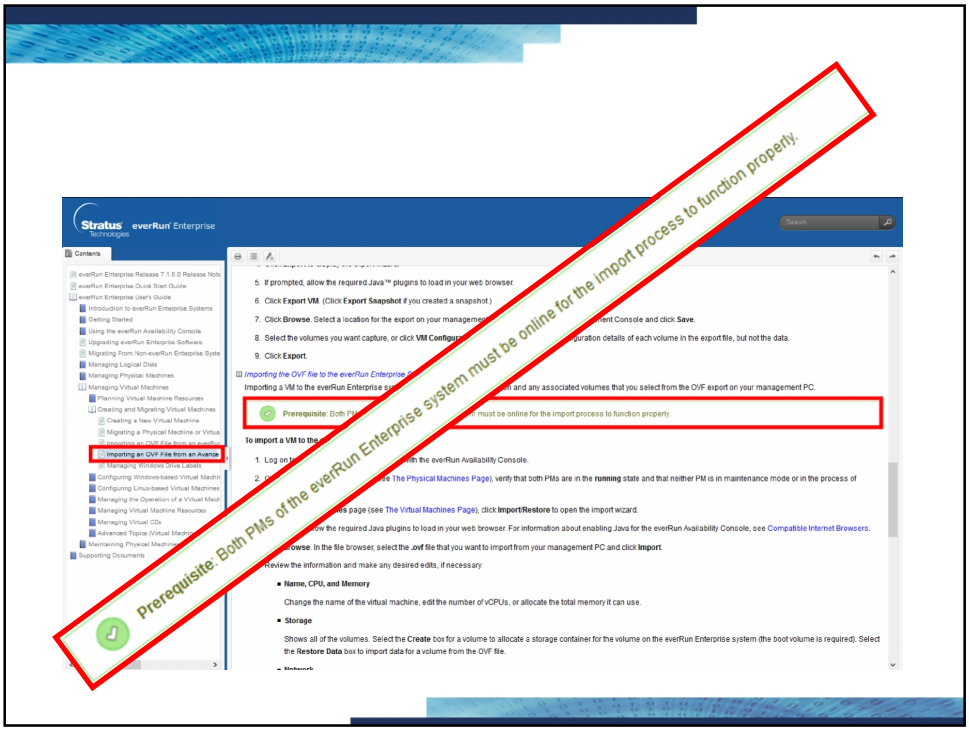
Import an Open Virtualization Format (OVF) file from an Avance unit if you want to transfer the file to the everRun Enterprise system for deployment. (To migrate a physical machine (PM) or virtual machine (VM) to the everRun Enterprise system without using an OVF file, see Migrating a Physical Machine or Virtual Machine to the everRun Enterprise System.)

To import an OVF file from an Avance unit, first use Avance Management Console to export the OVF file to a management PC, and then use the everRun Availability Console to import the OVF file from the management PC to the everRun Enterprise system.

Caution: Consider backing up your source VM before preparing it for export from the Avance unit.

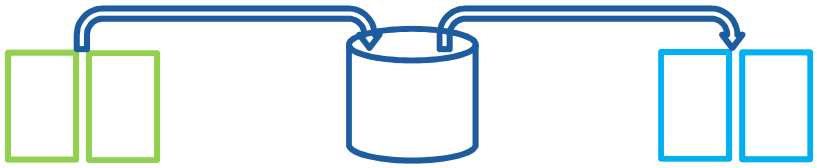
Notes:

- You can import only VMs running CentOS/RHEL 6, Windows 7, Windows Server 2008, or Ubuntu 12.04 or later from Avance units.
- For Windows-based VMs, you must install VirtIO drivers in the guest operating system **before** exporting the VM from the Avance unit, as described in this topic. If you do not install the VirtIO drivers, the imported VM crashes while booting on the everRun Enterprise system.
- For Linux-based VMs, before the exporting the VM from the Avance unit, consider editing the `/etc/fstab` file to comment out entries for data volumes and allow only the boot volume to mount. Because Linux-based VMs use different device names on the everRun Enterprise system, your new VM may boot into single-user mode if it cannot mount



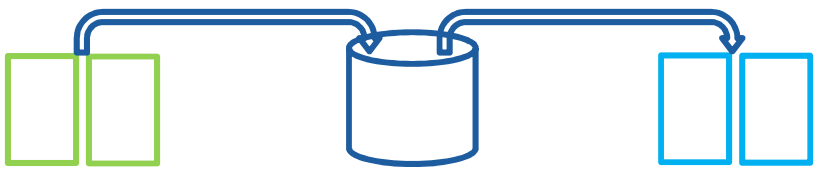
Avance – everRun Enterprise

Rolling Upgrade (7.2)



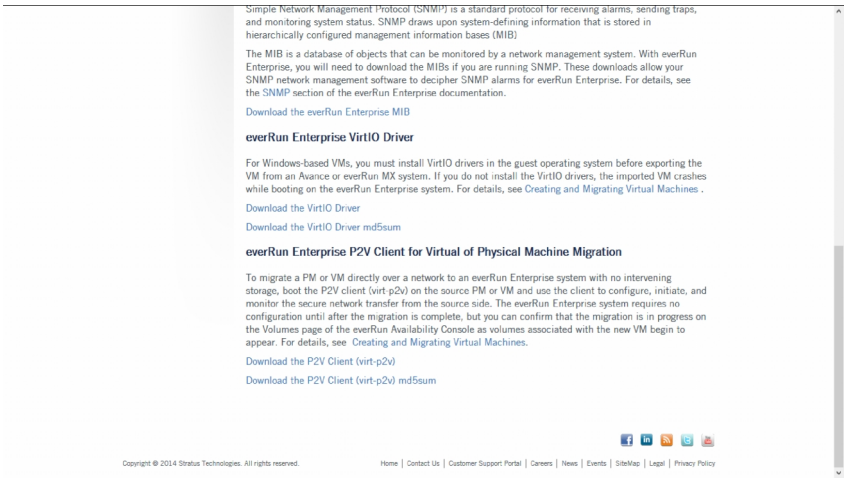
Forklift Upgrade

Avance – everRun Enterprise, not recommended



Forklift Upgrade with existing hardware

Importing an OVF File from an everRun MX System to the everRun Enterprise System



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The MIB is a database of objects that can be monitored by a network management system. With everRun Enterprise, you will need to download the MIBs if you are running SNMP. These downloads allow your SNMP network management software to decipher SNMP alarms for everRun Enterprise. For details, see the SNMP section of the everRun Enterprise documentation.

Download the everRun Enterprise MIB

everRun Enterprise VirtIO Driver

For Windows-based VMs, you must install VirtIO drivers in the guest operating system before exporting the VM from an Avance or everRun MX system. If you do not install the VirtIO drivers, the imported VM crashes while booting on the everRun Enterprise system. For details, see Creating and Migrating Virtual Machines .

Download the VirtIO Driver

Download the VirtIO Driver md5sum

everRun Enterprise P2V Client for Virtual of Physical Machine Migration

To migrate a PM or VM directly over a network to an everRun Enterprise system with no intervening storage, boot the P2V client (virt-p2v) on the source PM or VM and use the client to configure, initiate, and monitor the secure network transfer from the source side. The everRun Enterprise system requires no configuration until after the migration is complete, but you can confirm that the migration is in progress on the Volumes page of the everRun Availability Console as volumes associated with the new VM begin to appear. For details, see Creating and Migrating Virtual Machines.

Download the P2V Client (virt-p2v)

Download the P2V Client (virt-p2v) md5sum

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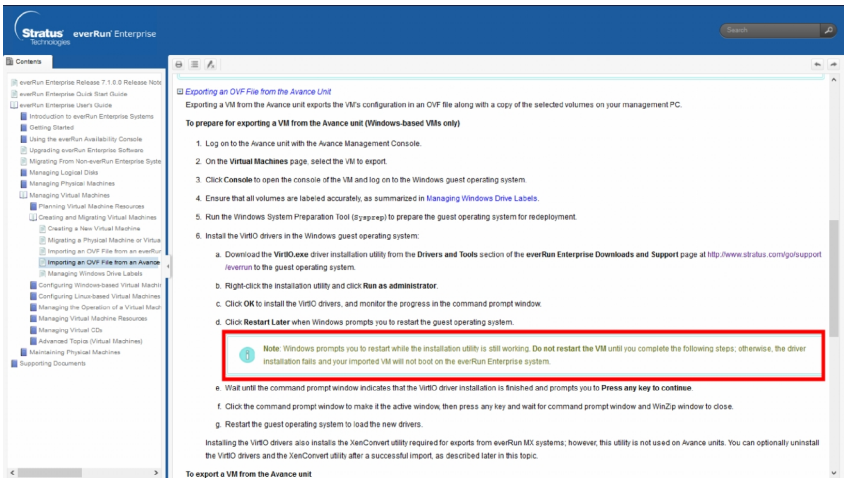
Importing an OVF File from an everRun MX System to the everRun Enterprise System



Stratus everRun Enterprise

Contents

Exporting an OVF File from the Avance Unit

Exporting a VM from the Avance unit exports the VM's configuration in an OVF file along with a copy of the selected volumes on your management PC.

To prepare for exporting a VM from the Avance unit (Windows-based VMs only)

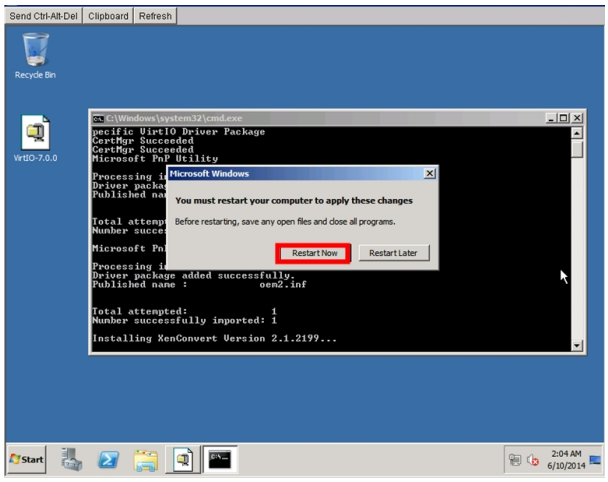
1. Log on to the Avance unit with the Avance Management Console.
2. On the **Virtual Machines** page, select the VM to export.
3. Click **Console** to open the console of the VM and log on to the Windows guest operating system.
4. Ensure that all volumes are labeled accurately, as summarized in Managing Windows Drive Labels.
5. Run the Windows System Preparation Tool (`sysprep`) to prepare the guest operating system for redeployment.
6. Install the VirtIO drivers in the Windows guest operating system:
   a. Download the **VirtIO.exe** driver installation utility from the **Drivers and Tools** section of the **everRun Enterprise Downloads and Support** page at http://www.stratus.com/go/support/everrun to the guest operating system.
   b. Right-click the installation utility and click **Run as administrator**.
   c. Click **OK** to install the VirtIO drivers, and monitor the progress in the command prompt window.
   d. Click **Restart Later** when Windows prompts you to restart the guest operating system.

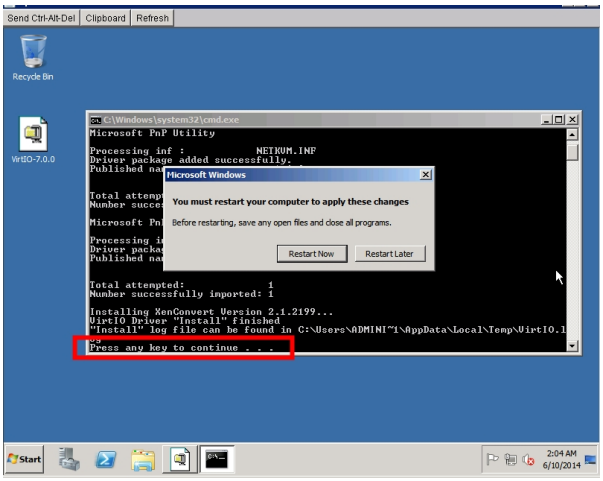
   Note: Windows prompts you to restart while the installation utility is still working. **Do not restart the VM** until you complete the following steps; otherwise, the driver installation fails and your imported VM will not boot on the everRun Enterprise system.

   e. Wait until the command prompt window indicates that the VirtIO driver installation is finished and prompts you to **Press any key to continue**.
   f. Click the command prompt window to make it the active window, then press any key and wait for command prompt window and WinZip window to close.
   g. Restart the guest operating system to load the new drivers.

Installing the VirtIO drivers also installs the XenConvert utility required for exports from everRun MX systems; however, this utility is not used on Avance units. You can optionally uninstall the VirtIO drivers and the XenConvert utility after a successful import, as described later in this topic.

To export a VM from the Avance unit


Send Ctrl-Alt-Del
Clipboard
Refresh
Recycle Bin
VirtIO-7.0.0
C:\Windows\system32\cmd.exe
pecific VirtIO Driver Package
CertMgr Succeeded
CertMgr Succeeded
Microsoft PnP Utility
Microsoft Windows
You must restart your computer to apply these changes
Before restarting, save any open files and close all programs.
Restart Now
Restart Later
Driver package added successfully.
Published name : oem2.inf
Total attempted: 1
Number successfully imported: 1
Installing XenConvert Version 2.1.2199...
Start
2:04 AM
6/10/2014


Send Ctrl-Alt-Del
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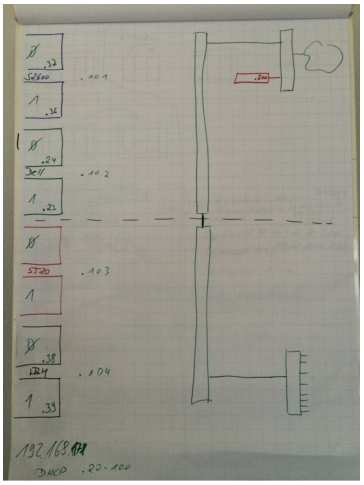
VirtIO-7.0.0
C:\Windows\system32\cmd.exe
Microsoft PnP Utility
Processing inf : NETKVM.INF
Driver package added successfully.
Microsoft Windows
You must restart your computer to apply these changes
Before restarting, save any open files and close all programs.
Restart Now
Restart Later
Total attempted: 1
Number successfully imported: 1
Installing XenConvert Version 2.1.2199...
VirtIO Driver "Install" Finished
"Install" log file can be found in C:\Users\ADMINI~1\AppData\Local\Temp\VirtIO.l
Press any key to continue . . .
Start
2:04 AM
6/10/2014



Generall considerations

- **After migration, un-install Xen PV drivers on target**
- **When virtIO installed on source machine**
  - After migration, un-install Xen PV drivers on target
  - After migration, un-install XenConvert on target
  - After migration, un-install virtIO on source
- **Allow reboot when requested**
- **Consider export from snapshot, no downtime during export, feasable when application allows, restore delta of data (start of snapshot on source until import as target)**
- **Consider to diasble „Auto Start“ after import**
- **eE has a 20% memory overhead, consider re-configuration the VMs memory**
  - Each VM consumes its requested amount of memory plus an additional 20% memory for overhead.

Good to know

- Use your own tools (backup-restore-bare metal restore)
- Have your own tools as backup for the „official“ methods (virt-p2v, through OVF)
- Use XenConvert installed with virtIO, no downtime during export, feasable when application allows, restore delta of data (start of XenConvert on source until import as target)
- Install virtIO drivers on all Avance VMs, allows to restore on everRun Enterprise at any time

Performance

- Simplify network setup as possible, use simple 1Gb switch to avoid „switch caused“ problems
- Virt-p2v: 85 GB/h, can do multiple at a time
- Export:
  - I7 Laptop with USB 3.0 disk: up to 800 Mb/s = 360 GB/h
  - Average: 300 Mb/s = 135 GB/h
    - But import is also required (100 GB/h)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