

White Paper

Native Installation of Microsoft® Windows Server 2008/2012 with PRIMERGY OEM Drivers

This White Paper describes how to include PRIMERGY OEM drivers into the Windows Server 2008/2012 Operating System during a native Microsoft installation process by using the Fujitsu ServerView Driver Extraction Tool.



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Scope of this White Paper

This White Paper addresses all customers who want or need to install a Microsoft Windows Server 2008 or 2012 Operating System¹⁾ without using dedicated Fujitsu installation tools like ServerView Installation Manager. It describes how PRIMERGY OEM drivers are included during the standard Microsoft installation process by using the Fujitsu ServerView Driver Extraction Tool.

Basics about controllers and PRIMERGY OEM drivers

Some controllers integrated into your Fujitsu PRIMERGY server - especially those for RAID and network - are not or only insufficiently supported by the generic Microsoft Windows drivers. In this context it is irrelevant whether you use a Fujitsu OEM version of Windows Server 2008/2012 or an original Microsoft version bought from a distributor. Therefore, it is necessary (or at least recommend) that you install all needed and released PRIMERGY OEM drivers before using your PRIMERGY server productively.



If you need to get more detailed information about device driver installation please refer to the relevant information at Microsoft MSDN at <http://msdn.microsoft.com/en-us/library/ff541165%28v=VS.85%29.aspx>

Installing drivers to Microsoft Windows Server 2008 or 2012 / 2012 R2

There are several ways to integrate adequate drivers into these Windows Server versions, which differ in the availability and format of the driver packages.

The easiest way is practicable in case the generic Windows driver does already perform some basic support of the device so that it can be used during the Microsoft operating system installation process. After completion of the installation you have the option either to use the automatic online update mechanism of Windows, or alternatively download the latest driver directly from the Fujitsu download page and install it via the device manager. For a most comfortable driver update we suggest to make use of the ServerView Update Manager after installing ServerView Suite.

It is a bit more complex in case you need to use a controller during the Microsoft installation process which is unknown to any generic Windows driver. For example, mass storage device controller (RAID) need to be accessible for the operating system (OS) setup which means that such drivers must be added beforehand.

The Microsoft installer supports two options to include drivers during the installation process:

1. Adding mass controller drivers manually during selection of installation partition.
The drivers are expected to be provided on any removable media.
2. Automatic integration of any (signed) driver during the OS setup by providing them in a directory:
Drivers can be integrated by providing them in a directory named "\$WinPEDriver\$" in the root directory of either a FDD, CD/DVD or USB device. They are automatically detected by the setup process.

Even though Microsoft Windows offers the possibility to add any driver during its installation process, it is not as easy and sometimes quite difficult to obtain the latest release of all needed drivers.

¹⁾ The Driver Extraction Tool supports all versions of Windows Server 2008 starting with Windows Server 2008 (SP1) as well as all editions of Windows Server 2012 and Windows Server 2012 R2 (Standard, Datacenter, Foundation and Storage Server)

Driver Extraction Tool - Basic Tool Usage

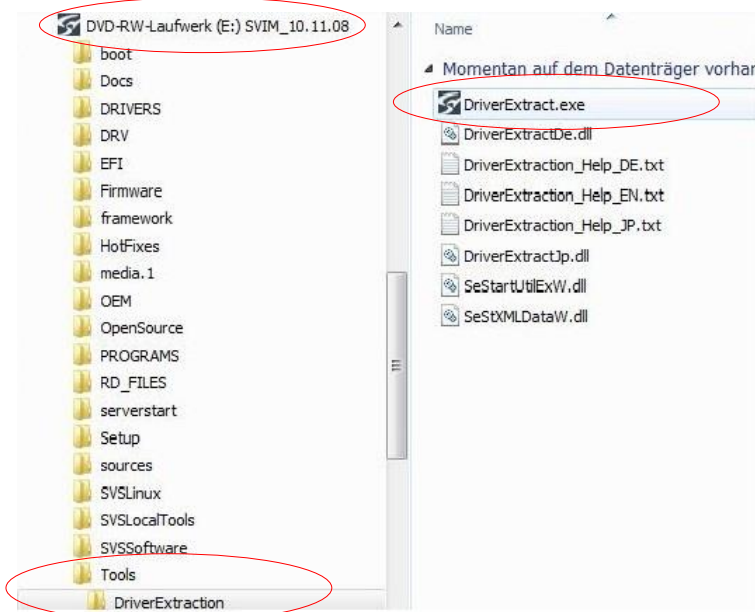
The Fujitsu ServerView Suite offers a Driver Extraction Tool to easily extract all OEM drivers out of the ServerView DVD's driver repository – specific to your operation system as well as specific to your PRIMERGY server model. The output automatically generates the required directory structure for the selected driver groups.

Where to find and how to start

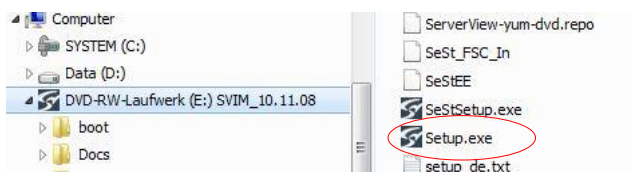
The Driver Extraction Tool is a standalone executable file provided on the ServerView Suite DVD since version 10.11.08 (for Windows Server 2012 drivers at least V11.12.10 is needed; for Windows Server 2012 R2 drivers V11.13.10 or newer is required). It may be executed by a Windows Server 2008, Vista or Windows 7 operating system or a higher version.

1. It can either be found and directly executed from the **ServerView DVD** at

<DVD-Drive>:\Tools\DriverExtraction\DriverExtract.exe

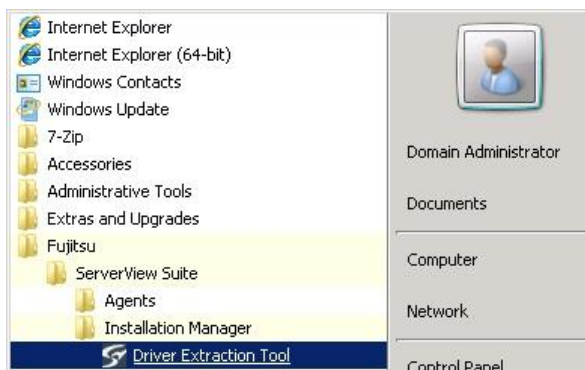


or can be called via the DVD Setup function which is available at the DVD root directory as Setup.exe.



2. If the Installation Manager is **installed on a Central Management Station (CMS)** you may use the Windows Start Menu

[Fujitsu – ServerView Suite – Installation Manager – Driver Extraction Tool](#)

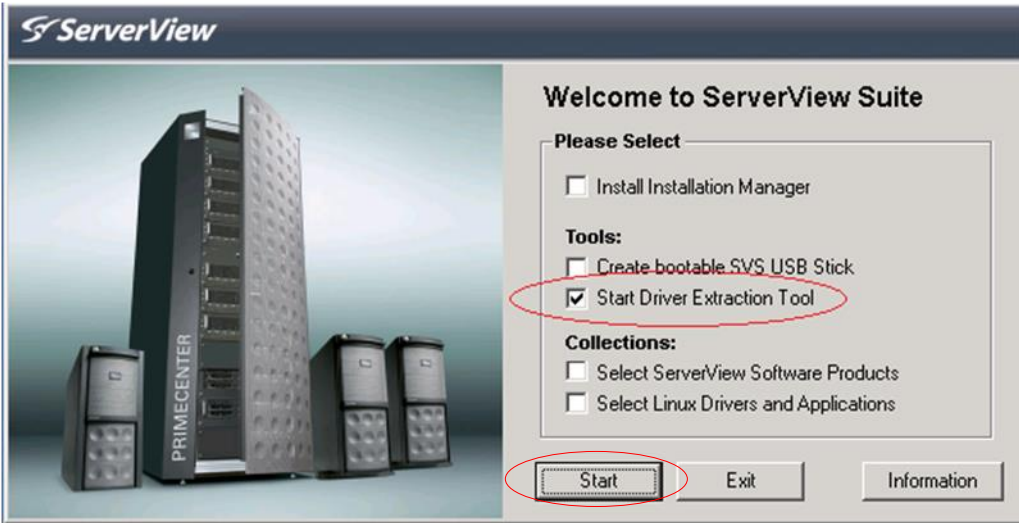


or alternatively may start it directly at:

%ProgramFiles(x86)%\Fujitsu\ServerView Suite\Installation Manager\Content\<SVIM version>\Tools\DriverExtraction\DriverExtract.exe
e.g.: C:\Program Files (x86)\Fujitsu\ServerView Suite\Installation Manager\Content\V10.11.08.05\Tools\DriverExtraction\DriverExtract.exe

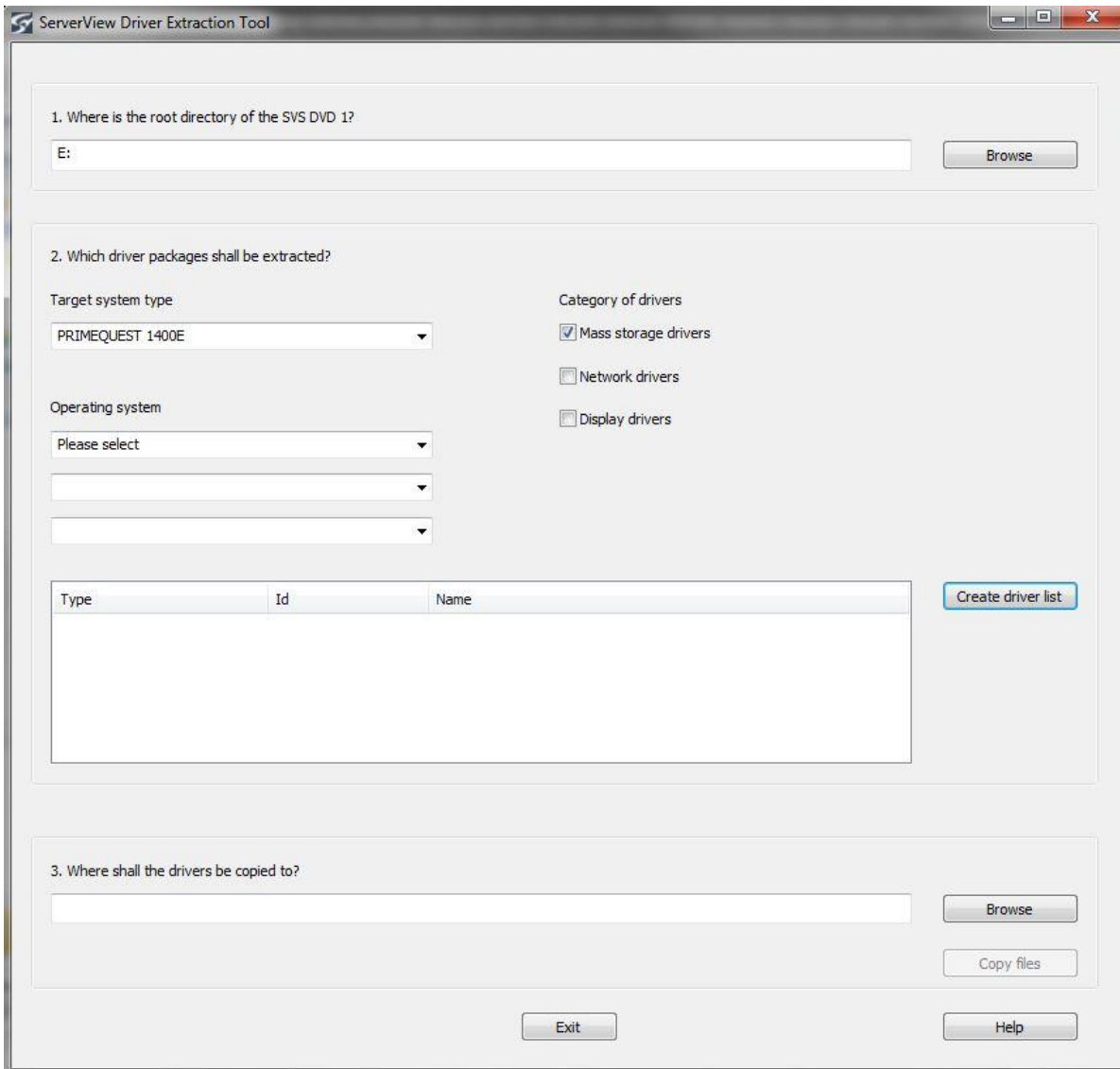
Using ServerView DVD's setup functionality

If you use the DVD's Setup function you just have to select the "Start Driver Extraction Tool" and press the start button:



Using the Graphical User Interface (GUI)

After starting the tool the following GUI is presented where all necessary selections can be done:



The GUI is divided into three logical selection areas according to the sequence of the operating procedure.

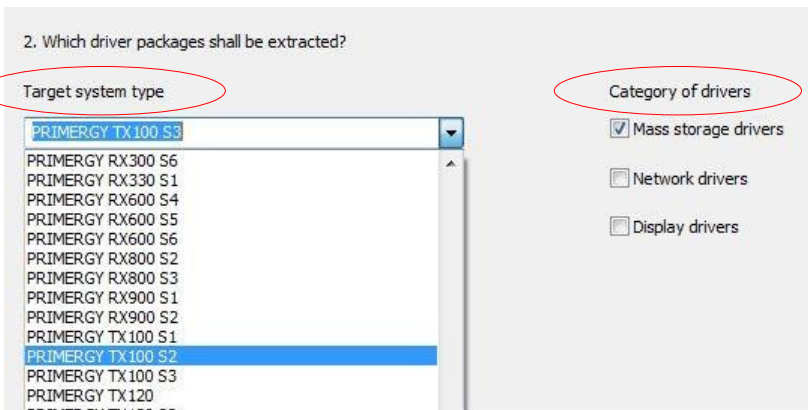
Field 1: Select the root path of the ServerView DVD

- If you have started the Driver Extraction directly from the DVD the path is pre-set correctly with the current DVD drive name. If you need to change the path please press the thereafter shown button “Populate boxes” to actualize the data shown in field 2.



Field 2: Determine the driver selection parameters

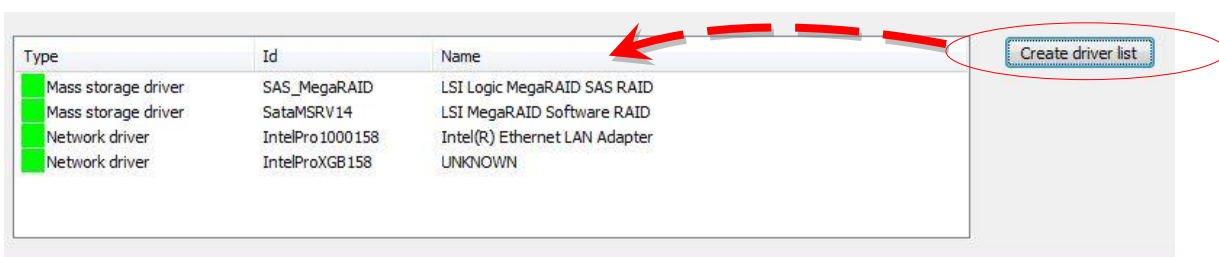
- Select the target system type for which the drivers are needed out of the drop down box and select the driver categories which have to be considered. Only systems will be available which are supported by the used ServerView DVD (i.e. by the included Installation Manager).



- Select the Operating System¹⁾ on which the drivers shall be included out of the three lower selection boxes.



- Press the “Create driver list” button to generate the list of all drivers which meet your above selection. After a view seconds the list is displayed in the driver list field beside.



¹⁾ The Driver Extraction Tool supports all versions of Windows Server 2008 starting with Windows Server 2008 (SP1) as well as all editions of Windows Server 2012 and Windows Server 2012 R2 (Standard, Datacenter, Foundation and Storage Server)

You may now deselect drivers which aren't needed by clicking the green colored area (the color disappears to show this status change). Further clicks toggles between these states. It is recommended to integrate all drivers listed into the OS installation process.

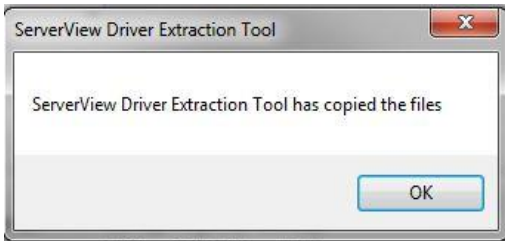
Type	Id	Name
<input checked="" type="checkbox"/> Mass storage driver	SAS_MegaRAID	LSI Logic MegaRAID SAS RAID
<input checked="" type="checkbox"/> Mass storage driver	SataMSRV14	LSI MegaRAID Software RAID
<input checked="" type="checkbox"/> Network driver	IntelPro1000158	Intel(R) Ethernet LAN Adapter
<input checked="" type="checkbox"/> Network driver	IntelProXGB158	UNKNOWN

Field 3: Select the output path

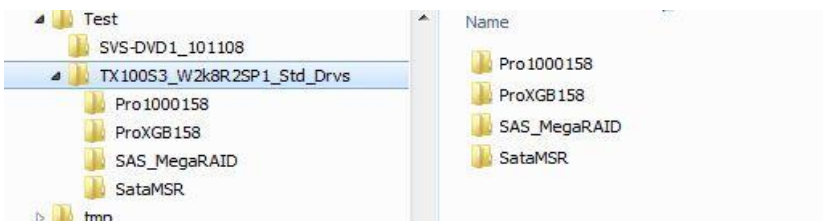
- Finally you have to define where the extracted drivers should be stored. Using the "Browse" button you may select every known device currently connected to your computer (USB stick is recommended). You may create a new directory if needed (having in mind that a \$WinPEDriver\$ directory on an USB stick's root will be automatically detected by the Windows 2008/2012 installer during setup).



If all selections are done click at the "Copy files" button whereon the selected files will be extracted and will be copied to the defined path. If the Driver Extraction Tool has finished its action the following success message has to be acknowledged:



Navigating to the selected directory you will now find the driver packages:



Additional required PRIMERGY drivers and system update

To be sure that all needed drivers and updates in its most current versions are installed it is strongly recommended to run the ServerView Update Manager Express (UME) directly after the Windows installation. In some cases it is not enough to integrate the drivers derived from ServerView Driver Extraction Tool because this tool just supports drivers for mass storage, network and video components!

Furthermore an UME session updates the firmware of the controllers too, thus it is recommended to be run in any case but notably if either an outdated ServerView DVD is used as base for driver extraction or if the Windows HW Manager shows unknown System Devices.

You may initiate an UME session from the installed Windows as described below:

1. Using the Driver Extraction Tool from a ServerView DVD ≤ V10.12.07:

This is a legacy method which is only recommended for older systems or if no internet access is possible! It is recommended to use wherever possible the newest Update DVD (described below).

- Insert the DVD into the drive as the OS is running
- Start Setup.exe from the Disk's root directory



- Select Update Manager Express and Press Start button
- Follow the program's instructions and update the whole system

2. Using the Driver Extraction Tool from a ServerView DVD since V10.12.10:

This is the recommended method because only with the latest Update DVD the access to the newest drivers and firmware is granted!

- Download the latest version of ServerView Update DVD (UPDATE_DVD_<version-number>.iso from <ftp://ftp.ts.fujitsu.com/images/serverview>
- Burn the ISO image to a DVD-DL (DVD-9) and insert the DVD into the DVD drive of the Windows server to be updated
- or -
mount the ISO image to the Windows server.
- Ensure that Java Runtime Environment (JRE) is installed
- Start UpdateMgrExpress.bat from the root directory (DVD or Image)
- Choose the UME Quick Mode or Normal Mode and start the Updates.

Please note that the Update Manager Express might not show all available updates at a time thus several runs might be needed to achieve a totally updated system. The update procedure is not totally finished before the UME GUI does not offer any additional updates.

Best Practices

This chapter describes the recommended usage scenarios for the Fujitsu ServerView Driver Extraction Tool.

As some special user scenarios might necessitate to use just the native Microsoft installation process, Fujitsu offers a Driver Extraction Tool to obtain the OEM drivers needed for all your PRIMERGY system's components. Nevertheless, Fujitsu recommends using the ServerView Installation Manager for a quick and easy configuration and installation.

Scenario 1:

Prepare an USB stick on your desktop PC

You need to have the ServerView Suite DVD and an USB stick (and Windows 7, 8 or Vista running on your desktop PC).

Procedure:

1. Connect the USB stick to your computer
2. Insert the ServerView DVD into your optical disc drive.
If the Windows autorun feature is active → continue with step 4.
3. Open a browser window, select the root directory of the DVD therein and start the ServerView Setup by double clicking on Setup.exe.
4. Click on the "Start Driver Extraction Tool" radio box and then press Start
5. In the next window select the target PRIMERGY server you want to install (i.e. for which the drivers are to extract)
6. Select the driver categories
The Driver Extraction Tool offers the differentiation of driver types for mass storage, network and display drivers.
It is possible to select just one (mass storage is preselected) but also to activate all selection boxes at once.
7. Specify the Windows Server operating system¹⁾ for which the drivers should be determined by selecting the relevant entries in the "Operating system" selection boxes.
8. Press the "Create driver list" button to generate the list of PRIMERGY OEM drivers which matches to your selection.
To extract all PRIMERGY OEM drivers for your system (even those for controllers currently not installed) → continue with step 10.
9. Deselect a discretionary number of drivers you do not need (e. g. for controllers which are currently not built in into the server)
10. Select the USB stick as output device and create the output directory \$WinPEDriver\$ in its root (path e. g. F:\\$WinPEDriver\$).
11. Click to the "Copy files" button and therewith start the action.
After the Driver Extraction Tool has finished its action acknowledge the success message → press "OK"
12. Close the Driver Extraction Tool by pressing the "Exit" button.
13. Disconnect the USB stick using the Windows Safely Remove Hardware feature and remove the stick.
14. Update the system / install all still missing drivers by using ServerView Update Manager Express (described in chapter "Additional Required PRIMERGY Drivers and System Update").

Scenario 2:

Prepare an USB stick on the Central Management Station (CMS)

You need to have installed the ServerView Installation Manager (contained in the ServerView Suite DVD) on your CMS running a Windows Server 2008 or higher and an USB stick.

Procedure:

1. Connect the USB stick to the CMS
2. Start the Driver Extraction Tool at Start Programs – Fujitsu – ServerView Suite – Installation Manager.
3. Follow the → scenario 1 instructions starting at step 5.

Usage of the prepared USB stick with the extracted drivers

Please assure yourself that the PRIMERGY OEM drivers are available at the USB stick's root in the \$WinPEDriver\$ directory.

Connect the USB stick to one of the PRIMERGY's USB slots and insert the Windows¹⁾ Installation DVD to its optical drive.

Provoke the system to boot from DVD (you may possibly need to change the Boot parameters within the BIOS settings before).

This will start the Microsoft Windows operating system installer. Follow the installer's instructions and make your settings as usual.

The PRIMERGY OEM drivers will be automatically found and integrated during this installation.

¹⁾ The Driver Extraction Tool supports all versions of Windows Server 2008 starting with Windows Server 2008 (SP1) as well as all editions of Windows Server 2012 and Windows Server 2012 R2 (Standard, Datacenter, Foundation and Storage Server)

Scenario 3:

Generate your special Windows installation DVD with included PRIMERGY OEM drivers using the Microsoft WAIK tools

Attention: This scenario is addressed to experienced administrators in a highly customized environment.

If you do not possess about this skills Fujitsu recommends using scenario 1 and 2 only.

Procedure:

1. Extract the needed PRIMERGY OEM drivers by using the above describes extraction scenarios 1 or 2.
2. Copy the Windows Server DVD you want to individualize to a Windows directory at the hard disk.
3. Download the Windows AIK tools as ISO image from the Microsoft web site
for Windows Server 2008 R2: <http://go.microsoft.com/fwlink?LinkId=136976>;
for Windows Server 2012: <http://www.microsoft.com/en-us/download/details.aspx?id=30652>;
for Windows Server 2012 R2: <http://www.microsoft.com/en-us/download/details.aspx?id=39982>
and install it on a PC running Windows 7 or Windows Server 2008 R2, resp. Windows 8 / 8.1 or Windows Server 2012 /2012 R2.
4. Use the Deployment Image Servicing and Management tool (DISM) to apply the extracted PRIMERGY OEM drivers into the Windows image.
 - a. Call DISM.exe from the command line.
 - b. Mount the image using the /Mount-Wim command.
 - c. Add the extracted PRIMERGY OEM drivers one by one using the /add-driver command.
 - d. Check whether all drivers are installed using the /get-drivers command.
Details about this tool can be found at the Microsoft description pages
[http://technet.microsoft.com/en-us/library/dd744256\(W.S.10\).aspx](http://technet.microsoft.com/en-us/library/dd744256(W.S.10).aspx), resp.
[http://technet.microsoft.com/en-us/library/dd799309\(W.S.10\).aspx](http://technet.microsoft.com/en-us/library/dd799309(W.S.10).aspx).
A video tutorial may be found at <http://technet.microsoft.com/en-us/windows/dd320284>.
5. Generate an ISO image from the modified Windows directory of your hard disk.
6. Burn a DVD containing your Windows Server operating system and all PRIMERGY OEM drivers
7. After OS installation by using this Windows DVD run the ServerView Update Manager Express to get all needed drivers and any other system updates in the latest version.

Conclusion

Prior to the productive operation of your PRIMERGY server all required OEM drivers need to be installed. In specific scenarios it might be necessary to use the native Microsoft installation process instead of a quick and easy installation with ServerView Installation Manager. In such cases the generic Microsoft Windows Server 2008/2012 drivers are being installed which do not or only insufficiently support certain controllers integrated in your PRIMERGY server.

To easily obtain the latest version of all required PRIMERGY OEM drivers, Fujitsu offers the Driver Extraction Tool. It extracts all released drivers specific to your operation system¹⁾ as well as specific to your PRIMERGY server model directly out of the ServerView DVD's driver repository and stores them on an USB stick. During a native Microsoft installation process these extracted PRIMERGY OEM drivers on the USB stick are then automatically found and integrated.

Appendix

Fujitsu ServerView Driver Extraction Tool is a standalone executable file provided on the ServerView Suite DVD since V10.11.08 (for Windows Server 2012 drivers at least V11.12.10 is needed; for Windows Server 2012 R2 drivers V11.13.10 or newer is required). The ServerView Suite DVD set is delivered gratuitously with each PRIMERGY server.

- An update delivery of the amended version can be ordered at any time via order code U15000-C289.
- Additionally, an annual subscription can be ordered using order code U15000-C176.
- Read more: www.fujitsu.com/fts/serveview
- User Manuals: http://manuals.ts.fujitsu.com/files/html/primergy/svs-sitemap/sitemap_emea_en



¹⁾ The Driver Extraction Tool supports all versions of Windows Server 2008 starting with Windows Server 2008 (SP1) as well as all editions of Windows Server 2012 and Windows Server 2012 R2 (Standard, Datacenter, Foundation and Storage Server)

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