Deploying DeployCenter images from the Symantec Ghost Console

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This document includes the following topics:

- Overview of deploying DeployCenter images using the Ghost Console
- About deploying DeployCenter images using the Ghost Console
- Creating the Virtual Boot Environment Package
- Client configuration changes
- About determining success or failure

Overview of deploying DeployCenter images using the Ghost Console

You can use the Symantec Ghost Console to deploy the customized Virtual Boot Environment packages that you created with Symantec DeployCenter Library. You can then use Symantec DeployCenter Library or the Ghost Console to transfer image files to client computers and restore the clients with the image files.

This guide shows you the following:

- How to create Virtual Boot Environment Packages
  A Virtual Boot Environment Package is a self-contained executable that can be executed in Windows. This self-extracting file constructs a Virtual Boot Environment on a client computer into which the computer can be started to

run non-Windows programs. It contains the drivers required to perform the deployment of image files.

- How to use the Ghost Console to transfer packages and execute them on client computers

- Important information for using DeployCenter servers to restore image files on clients

This guide does not show you the following:

- How to create image files

- How to use DeployCenter servers

For more information, see the following documents:

- *Symantec DeployCenter User Guide*

- *Symantec Deploy Toolkit Manual*

- *Symantec Ghost Implementation Guide*

About deploying DeployCenter images using the Ghost Console

The steps involved in deploying DeployCenter images from the Ghost Console are as follows:

- Create a self-extracting Virtual Boot Environment Package.

- Deploy the package to the client computer and execute the package using a file-transfer and command-execution task in the Symantec Ghost Console.

Once the package is on the client computer, you can initiate a DeployCenter session to transfer an image file to the client computer and restore the computer.

The DeployAnywhere feature has some limitations that you need to be aware of:

- You cannot deploy an image that was created from a member of a domain. This is because the domain user account is not saved in the sysprep answer file.
  To work around this limitation, you need to run a configuration step in the Console task to join the domain.

- If you created an image from a member of a workgroup, the name of the workgroup is not saved in the sysprep answer file. The default name "workgroup" is used instead.
  To work around this limitation when you deploy the image, you need to run a configuration step in the Console task to join the appropriate workgroup.

■ When you deploy an image, it does not generate a unique computer name on each computer to which the image is deployed.

You need to include a configuration step in the Console task, to ensure that a unique computer name can be applied on each cloned machine.

Creating the Virtual Boot Environment Package

Before you create the package, you must have the following Symantec DeployCenter components installed:

DeployCenter Boot Disk Builder	To build the VFD file.
VF Editor (also known as WinImage)	To add any additional files or to modify the parameters in an existing Virtual Boot Environment configuration file. This is especially important when adding a restart step.

The process for creating a self-extracting Virtual Boot Environment executable is as follows:

Create the Virtual Floppy Disk (VFD) file.	The VFD file is created using the Boot Disk Builder. This file is a raw sector-by-sector image of a floppy disk, which will be used to boot the computer. It contains all of the files and settings that are required for the imaging task.
Add a restart step to the VFD file.	Edit the VFD file to add Reboot.com, and add the Reboot command to Autoexec.bat by using VF Editor (WinImage). Once a computer has been started in the Virtual Boot Environment, it has to be restarted to get back into Windows. For tasks that involve the creation of images, the Boot Disk Builder does not provide any way to specify this restart operation, and the cloning agent ImageCenter does not automatically restart the computer. Adding Reboot.com automatically restarts the client.
Build a self-extracting executable package from the VFD file.	After the VFD file has been patched in the previous step, the Boot Disk Builder is used to build a Win32 executable package from the VFD file.

This guide details the procedures for creating four types of Virtual Boot Environment Packages:

PowerCast Client	A PowerCast Client package lets you deploy image files to multiple clients simultaneously using the PowerCast Server.

UniCast Client	Use the UniCast Client package to backup or restore single computers.
Mapped network drive	The mapped network drive package lets you restore a computer with an image file that is stored on a mapped network drive.
Standalone (local cloning)	Using a standalone VFD file, you can restore a client with an image file that is stored on the local computer.

Creating a PowerCast VFD file

A PowerCast VFD file is created using the Boot Disk Builder in Symantec DeployCenter Library.

Note: You can only deploy images to clients using the PowerCasting feature. You cannot create images of client computers.

To create a PowerCast VFD file

1   In the Boot Disk Builder, click **PowerCast Boot Disks**.

2   Click **Next**.

3   Ensure that the PowerCast startup mode is set to Client.

4   In the Client Settings pane, in the Connect to session box, type a unique PowerCast session name.

5   Set the hard disk number to the number of the drive that you want to restore on the client computer.

     For example, if you want to restore the first hard drive on the client, then set it to 1.

6   In the Additional command line parameters box, type any additional parameters.

     For example, type **/nmd** to suppress the display of messages.

7   Click **Next**.

8   In the list of network adapters, select the network drivers for the client computer.

     You can select multiple drivers if you have client computers with different types of network adapters.

9   If the required driver template is not available, click **Add** to add a new template.

For more information, see the *Symantec DeployCenter User Guide*.

10   Click **Next**.

11   In the Specify client network properties window, select one of the following:

Obtain an IP address from a DHCP server	To obtain a DHCP server allocated IP address.
Specify an IP address	To use a static IP address. If you use a static IP address, you must type an IP address in the IP Address box.

12   Click **Next**.

13   In the PowerCast Boot Disks window, click **Virtual Boot Disk file**, and then type the location where the VFD file is to be saved.

14   Click **Finish**.

Creating a UniCast VFD file

A UniCast VFD file is created using the Boot Disk Builder in Symantec DeployCenter Library.

Microsoft Client files must be installed on the Boot Disk Builder computer before creating a UniCast boot disk. To install Microsoft Client files, you must be logged onto the computer as an Administrator and connected to the Internet. You can run the batch file Getmslan.bat to automatically download the Microsoft Client files and install them on your computer. Getmslan.bat is installed in the installation location of the Boot Disk Builder.

To create a UniCast VFD file

1   In Boot Disk Builder, click **UniCast Boot Disks**.

2   Click **Next**.

3   To specify the UniCast Image server, do one of the following:

To specify the server by name:	Click **By Name** and type a server name.
To specify the server by an IP address:	Click **By IP Address** and type an IP address.

4 Click **Next**.

5 In the Specify Network Adaptor Type window, click **Microsoft TCP/IP**.

6 Click **Next**.

7 In the list of network adapters, select the network drivers for the client computer.

You can select multiple drivers, if you have client computers with different types of network adapters.

8 If the required driver template is not available, click **Add** to add a new template.

For more information, see the *Symantec DeployCenter User Guide*.

9 Click **Next**.

10 In the Run ImageCenter from pane, ensure that Boot Disk is selected.

11 If you want to automate the backup operation, in the Command line parameters box, type additional parameters.

For example:

/cmd=store_all	Creates an image.
/img=\\.\imgsrv\ 10.150.45.155\c:\ imagefilelocation\ imagefile.pqi	Specifies the image file, where 10.150.45.155 is the IP address of the server and c:\imagefilelocation\ imagefile.pqi
	is the full path of the image file. You can also use fully qualified DNS names of the server in place of the IP address.
/nmd	Suppresses message box display on the client side.

12 Click **Next**.

13 In the Specify client network properties window, do one of the following::

To obtain a DHCP server allocated IP address:	Click **Obtain an IP address from a DHCP server**.
To use a static IP address:	Click **Specify an IP address** and type an IP address in the IP Address box.

14 Click **Next**.

15 In the Unicast Boot Disks window, click **Virtual Boot Disk file**, and then type the location where the virtual floppy disk (.VFD) file is to be saved.

16 Click **Finish**.

Creating a VFD file with mapped network drive support

Using the Boot Disk Builder in Symantec DeployCenter Library, you can create a VFD file that enables a client computer to map a drive to a network share in DOS, allowing ImageCenter to read from or write to images on the share.

To create a VFD file with mapped network drive support

1 In Boot Disk Builder, click **Microsoft TCP/IP Boot Disks**.

2 Click **Next**.

3 In the TCP/IP settings page, in the User name box, type a user name for connecting to the network share.

4 Check **Login Automatically**.

5 In the Password box, type the password for the user.

6 In the Confirm password box, type the password for the user again.

7 In the Workgroup/Domain pane, do one of the following:

To logon to a workgroup:	Click **Login to Workgroup** and type a workgroup name.
To logon to a domain:	Click **Login to Domain** and type a domain name.

8 In the Drive letter box, select the drive letter that you want to assign to the network share.

9 In the UNC path box, type the path for the network share.

10 Click **Next**.

11 In the Run ImageCenter from pane, ensure that Boot Disk is selected.

12 If you want to automate the clone operation, in the Command line parameters box, type additional parameters.

For example, any of the following:

/dsk=1	Specifies the disk.
/cmd=store_all	Image creation. A script file can also be passed here.
/cmd=restore_all	Image restoration. A script file can also be passed here.
/img=Z:\NET.PQI	Where Z: is the mapped network drive letter.
/cmp=high	High compression.
/log=Z:\LOG.TXT	Where Z: is the mapped network driver letter.
/nmd	Suppressing message box display.

For more information, see the *Symantec DeployCenter User Guide*.

13 Click **Next**.

14 In the list of network adapters, select the network drivers for the client computer.

You can select multiple drivers, if you have client computers with different types of network adapters.

15 If the required driver template is not available, click **Add** to add a new template.

For more information, see the *Symantec DeployCenter User Guide*.

16 Click **Next**.

17 In the Specify the client network properties window, do one of the following:

To use a DHCP server allocated IP address:	Click **Obtain an IP address from a DHCP server**.
To use a static IP address:	Click **Specify an IP address** and type an IP address.

18 Click **Next**.

19 In the Microsoft TCP/IP Boot Disks window, click **Virtual Boot Disk file**, and then type the location where the virtual floppy disk (.VFD) file is to be saved.

20 Click **Finish**.

Using standalone (local) restore

If you are performing a standalone restore on the client computer, the image file must be transferred to the client. The image is transferred from the Ghost Console using a file transfer task with a Virtual Boot Environment package that performs the local restore operation with that image.

However, if you are unsure of the hard-drive setup on the client, then you must remotely create a temporary partition on the client, and then transfer the image file to that partition before initiating the local cloning. The steps for this are as follows:

- Create a Virtual Boot Environment package that formats a temporary partition on the client computer(s).

- Create a Virtual Boot Environment package that restores the image on the temporary partition back to the target hard drive on the client(s).

- Deploy the first Virtual Boot Environment package from the Ghost Console to create the temporary partition on the client(s), and execute the package.

- Wait until the client has connected back to the Ghost Console.

- Deploy the second package and the image file from the Ghost console to the Ghost client(s) and execute the package.

- Allow the second Virtual Boot Environment package to manage the rest of the operation and then restart into the new operating system.

This is a two-stage operation, the first stage being necessary only if you do not know the hard-drive setup on each individual Ghost client computer.

If all the client computers in your network have a consistent hard-drive setup with known drive letters or volume labels, it is unnecessary to prepare the client with a temporary partition. For example, the image can be deployed to a partition on the second hard drive of the client and then restored to the first hard drive.

Creating a Standalone VFD file

A Standalone VFD file is created using the Boot Disk Builder in Symantec DeployCenter Library.

You must create two Standalone VFD files for a local operation, Prepare.vfd and Clone.vfd, if a suitable partition for storing the image file does not exist. If a suitable partition does exist, then you need only create Clone.vfd.

To create a Standalone VFD file

1   In Boot Disk Builder, click **Standalone Boot Disks**.

2   Click **Next**.

3 In the Command-line parameters box, type the following parameters:

/cmd=script.txt /nmd

This instructs ImageCenter to use script.txt for scripting the operations and represses any messages for automated operation.

4 Click **Next**.

5 In the Standalone Boot Disks window, click **Virtual Boot Disk file**, and then type the full path and name for the VFD file.

6 Click **Finish**.

Creating the script file for Prepare.vfd

You must now create Script.txt for creating a temporary partition on the Ghost client. The following is an example of the script that you can create:

```
Select Disk 1
Select Partition INT(GetTotalPartitions())
Set Var NewSize := INT(GetSelectedPartitionSize() - 2000)
Set Var NewSize := ABS(%NewSize%)
Resize Partition %NewSize%
Select Freespace LAST
Create /FS=FAT32 /LABEL="TMPVOL"
Reboot
```

This script reduces the size of the last partition on the first hard-drive of the client computer by 2GB and creates a FAT32 partition with volume label TMPVOL in the free space allocated for it. This allows for an image file that is less than 2GB in size. After creating the temporary partition, the computer is restarted back into the operating system. At this stage, no restore operation is included.

Creating the script file for Clone.vfd

You must now create Script.txt for restoring the image located on the temporary partition to the rest of the drive. The following is an example of the script that you can create:

```
IF Not Exists ":TMPVOL:\disk1.pqi" goto TheEnd
Set Image Filename ":TMPVOL:\disk1.pqi"
Select Disk 1:
DeleteFirst
If GetTotalPartitions() <= 1 GOTO RestoreAll
Select Partition 1
Delete
```

```
GOTO DeleteFirst
:RestoreAll
Select FreeSpace First
Select Image All
Restore
:DeleteTmpVol
Select Disk 1
Select Partition "TMPVOL"
Delete
:ResizePartToFit
Select Disk 1
Select Partition INT(GetTotalPartitions())
Resize Partition MAX
:TheEnd
Reboot
```

This script first checks that the image file exists in the temporary partition. If it does not, then it exits immediately. Otherwise, it selects the first disk and deletes all the partitions leading up to, but not including, the temporary partition in order to make free space available at the beginning of the disk. Then, the newly created free space is selected and restored from the image on the temporary partition.

Adding the script file to the VFD file

Prepare.txt and Clone.txt can be customized according to the requirements of the network environment. If the client hard-drive setup is consistent across all computers, you may be able to eliminate the use of the first VFD file and instead customize the second script accordingly.

For more information on writing ImageCenter scripts, see the *Symantec DeployCenter User Guide.*

Each script must be added to the appropriate VFD file.

To add a script to a VFD file

1   In VF Editor, on the File menu, click **Open**.

2   Open the appropriate VFD file.

3   On the Image menu, click **Inject** and browse to the appropriate Script.txt to be added to this file.

4 Click **OK**.

5 On the File menu, click **Save**.

Once you have added the scripts to the VFD files, you must create two self-extracting executable packages, Prepare.exe and Clone.exe.

See "Building a self-extracting executable package from the VFD file" on page 15.

Adding a restart step to the VFD file

Once you have created a VFD file, you must patch Autoexec.bat with a reboot command using Virtual Floppy Editor (also known as WinImage). Reboot.com must also be added to the VFD file.

Note: If you are using ImageCenter's scripting functionality, the Reboot command can be added to the end of the script to initiate a restart, instead of adding Reboot.com to the package and Autoexec.bat.

To add a restart step to the VFD file

1 In VF Editor, on the File menu, click **Open**.

2 Open the VFD file that you have created.

3 Right-click Autoexec.bat, and then click **Extract**.

4 In the Path box, type the name of a temporary folder to which you want to extract the file.

5 In a text editor, for example, Notepad, open Autoexec.bat.

6 At the end of the file, type **REBOOT**

7 Save Autoexec.bat.

8 In VF Editor, on the Image menu, click **Inject**.

9 Select the modified Autoexec.bat.

10 Confirm the overwriting of the original Autoexec.bat.

11 On the Image menu, click **Inject**.

12 Add Reboot.com to the VFD file.

Reboot.com is available in the DeployCenter installation location in the DeployCenter Vfdsetup sub-folder.

13 On the File menu, click **Save**.

Building a self-extracting executable package from the VFD file

Once you have created the VFD file, you can generate the self-extracting Virtual Boot Environment executable package.

To create self-extracting Virtual Boot Environment executable packages

1   In Boot Disk Builder, on the Tools menu, click **Build a QuickBoot Executable**.

2   In the Build a QuickBoot Executable dialog box, in the Virtual Boot Disk file box, type the path of the VFD file.

3   In the QuickBoot executable to build box, type the path and name of the executable package to be created.

4   In the QuickBoot description box, type any required comments.

5   Ensure that Prompt the user before rebooting is not selected.

6   Click **OK** to build the package.

Deploying the Virtual Boot Environment Package from the Symantec Ghost Console

Once you have created a self-extracting Virtual Boot Environment package, you can deploy it to client computers from the Symantec Ghost Console.

Note: Client computers must already be installed with the Console client.

To create a task

1   In the Symantec Ghost Console, in the left pane, expand the **Tasks** folder.

2   Expand the folder in which to store the new task.

3   In the Tasks pane, on the File menu, click **New > Task**.

4   In the Properties For New Task window, on the General tab, in the Name box, type the name for the new task.

     The name can be anything you want, up to a maximum of 50 characters, but it must not be the same as another task in the same folder.

5   Under Task Steps, check **Transfer Files**.

6   Under Target Machine Group/Machine, click **Browse**, then select the computer, machine group, or dynamic machine group to which you want to apply the task, then click **OK**.

To set up the transfer task

1   In the Properties for <Task name> window, click the Transfer Files tab.

   The list of files to transfer shows the full path and file name of each file and its destination path on the client computer.

2   Click **Add**.

3   In the browser, go to the folder containing the self-extracting Virtual Boot Environment package, select the package, then click **Open**.

4   Click **Next**.

5   In the Destination window, click **Specified Path**.

6   Click **Edit**.

7   In the Path on Client Machines window, under Volume Identifier, select one of the following:

   Drive letter   Type the drive letter.

   Volume label   Type the volume label.

8   In the Path box, type the destination path for the selected file.

9   Click **Finish**.

10 Select the package.

11 On the Transfer Files tab, click **Execute**.

12 On the Execute Command tab, click **OK**.

   The command is added to the Command List.

Restoring the client computer

Once you have created the Ghost Console task, you can execute the task and restore the client computer. Depending upon the type of package, you may need to set up a service before executing the task.

Restoring with PowerCast

A PowerCast session must be started before the Ghost task is executed. The PowerCast session name must be the same as was specified in the VFD file.

See "Creating a PowerCast VFD file" on page 6.

The image file to be deployed must be available to the PowerCast server.

Once the PowerCast session is started, you can execute the Ghost task.

Installing and starting with UniCast

The UniCast service must be installed as a service before executing the Ghost task. It is not installed by default when installing DeployCenter Library.

To install and start the UniCast service

1   On the Windows taskbar, click **Start > Programs > Accessories > Command Prompt**.

2   Change the directory to the location of UcService.exe.

    This is in the DeployCenter installation folder.

3   At the command prompt, type **UcService /service /startup auto**

4   On the Windows taskbar, click **Start > Settings > Control Panel**.

5   Double-click **Administrative Tools**.

6   Double-click **Services**.

7   Confirm that the Symantec Unicast Image Server is running.

You can now execute the Ghost task.

The UniCast service supports both the creation and restoration of DeployCenter image files and is useful for creating an image file or restoring it to one computer. However, because of the limitations of UniCasting, this method is not recommended for deploying an image file to multiple client computers simultaneously.

Restoring with mapped network drive support

If you are creating an image of a client computer, a writable network share must be created on the image file server. If restoring an image, then the network share must be readable. As there is no server managing this process, it is preferable to make the share writable for image restore operations so that the log file can be written to this drive during the restore.

When the Ghost Console task is executed, the package deployed to the client computer performs the restore using the image file on the mapped network drive.

Manually executing the Ghost task

A task can be executed manually or scheduled.

For more information on scheduling a task, see the *Symantec Ghost Implementation Guide*.

To manually execute a task

1   In the Symantec Ghost Console, in the left pane, expand the Tasks folder.

2   Expand the folder that contains the task that you want to execute.

3   In the Tasks pane, right-click the task, then click **Execute Task**.

4   In the confirmation dialog box, click **Yes**.

    If they are enabled in the Console, start task and end task confirmation messages are displayed. These are for your information only and do not control the task execution.

    The Active Task pane (the bottom pane of the Symantec Ghost Console) shows the progress of the task as it executes.

Client configuration changes

If you are restoring multiple computers with one image file, you must make configuration changes on each computer. These include SID changes and computer name changes so that no duplicate computers exist on the same network.

You can achieve this in any of the following ways:

Ghost Walker	Changes the computer name and the SID of specified volumes on the computer.
Symantec Ghost Console configuration task	Changes the computer name and other settings of the client file. This task is then executed separately after the image file has been deployed to the target computers.

For more information, see the *Symantec Ghost Console Implementation Guide*.

Using Ghost Walker with the Virtual Boot Environment package

The Ghost Walker tool, GhstWalk.exe, must be added to the Autoexec.bat in the Virtual Boot Environment package with command-line parameters using the same method as Reboot.com was added. The file GhstWalk.exe must be added to the package as well.

During creation of the VFD file, ensure that the /nrb switch is added when specifying the command-line parameters for the PowerCasting client or the ImageCenter cloning agent. This will prevent the cloning agent from restarting the computer after the image has been restored so that the client name change can be applied.

Autoexec.bat in the VFD file is modified to add the Ghost Walker command-line operation. For example,

```
ghstwalk.exe /CN="PC<RANDOM_ALPHA>" /BV=1:1 /BATCH
```

The /CN switch instructs Ghost Walker to change the computer name to a random alpha name, with the first two letters of that name being PC. The /BV switch specifies the volume to alter where 1:1 is disk 1, partition 1. /BATCH indicates that Ghost Walker will use defaults for all cases where user inputs would be required.

After modifying Autoexec.bat to include the Ghost Walker command, ensure that Ghstwalk.exe (available in the Ghost installation folder) is added to the VFD file using VF Editor. Since the total size of the .VFD file would exceed 1.44MB (standard floppy size), increase the total amount of space allocated for the Virtual Boot Environment package.

To increase the amount of space allocated for the Virtual Boot Environment package

1   In VF Editor, on the Image menu, click **Change Format**.

2   Click **2.88 Mb**.

3   Click **OK**.

About determining success or failure

Once the Ghost client has successfully executed the Virtual Boot Environment package, it will report successful completion of the task to the Ghost Console. However, the Ghost client does not manage the operation of the Virtual Boot Environment and so does not report the success or failure of the restore.

If after the restore operation, the operating system on the client computer still contains a Ghost client that connects to the current Ghost Console, then the client will reconnect to the Console once it has restarted. Therefore, you can estimate how many clients failed in the restore based on the number of disconnected clients in the Console.

When using a mapped network drive or the UniCast service, it is possible to specify log file outputs for the ImageCenter to determine if there was a failure at the client end. The PowerCast server displays the progress of a PowerCast operation and reports it to you if an error takes place.