

Installing and Configuring Citrix Provisioning Services 7.6 (Part 4) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioning-services-76-part4.html)

Introduction

Citrix Provisioning Services (PVS) has entered the Citrix portfolio with the acquisition of Ardence back in 2006. Citrix Provisioning Services is providing what can be called best OS Streaming. For those who are new to this topic I would recommend you read more about OS Streaming. Although the articles are from 2008 (http://www.virtualizationadmin.com/articlestutorials/general-virtualization-articles/introduction-os-virtualization-part1.html), it's still a good starting point to familiarize yourself with the basics. In this article series we will install and configure the whole product, so at the end of the article series we will have a fully functional OS streaming infrastructure.

The Citrix Provisioning Services infrastructure has three basic components. One or more PVS servers, which are taking care of all the intelligence, a PVS Console to configure and manage the PVS infrastructure and a so called Target Device. This is a machine which will stream the OS from one of the PVS servers. In this first part we will start with the installation of all those components. We will start with the PVS server, followed by the PVS console and finally the Target Device Software.



Installation PVS Server

The installation software is available as a separate download from the Citrix website. As PVS is not available anymore as a separate product, you need to have XenApp or XenDesktop licenses to fully use the program. When mounting the ISO the installation wizard will be started.

	nsole Installation	
	ver Installation	
I ar	get Device Installation	
	p and Support	
	rowse DVD	😡 Exit
Install the	Server and its dependencies.	

Figure 1: Citrix PVS installation wizard

All installation options are shown (console, server installation and target device installation), for now we select server installation. The server installation can be executed on Windows 2008, Windows 2008R2, Windows 2012 and Windows 2012R2. It also requires that .Net Framework 4.0 and PowerShell 2.0 are installed on the machine. The server installation has some supporting component requirements, but those are installed automatically during the installation wizard. Actually those are installed as a starting point as shown in Figure 2.

Citrix Provisioning Services x64 - InstallShield Wizard			
Citrix Provisioning Services x64 requires the following items to be installed on your computer. Click Install to begin installing these requirements.			
Status Requirement			
Pending SQL2012nclx64			
Pending Broker Snapin v2 x64			
Pending Host PowerShell SnapIn v2 x64			
Pending DelegatedAdmin PowerShell SnapIn x64			
Pending ConfigLogging_PowerShellSnapInx64			
Pending Configuration_PowerShellSnapInx64			
Install Cancel			

Figure 2: Citrix PVS required supporting software

Hereby is the SQL 2012 Client which is optional, but Citrix advises to install the SQL client when possible/allowed.

Citrix Provisioning Services x64 - InstallShield Wizard
Citrix Provisioning Services x64 optionally uses SQL2012nclx64. Would you like to install it now?
Yes No
igure 3: Would you like to install the SQL 2012 client

After the supporting software installation the PVS installation wizard continues with an informational window.

岁 C	itrix Provisioning Services x64
CİTRİX .	Welcome to the Installation Wizard for Citrix Provisioning Services x64 The InstallShield(R) Wizard will install the Citrix Provisioning Services x64 on your computer. It is recommended that you disable any AntiVirus software before continuing. To continue, click Next.
	WARNING: This program is protected by copyright law and international treaties.

Figure 4: Welcome to the installation wizard for Citrix Provisioning Services

The following step is to read the license agreement and to accept these terms to continue with the installation wizard.

Citrix Provisioning Services x64
License Agreement
You must view the entire license agreement in order to continue.
CITRIX LICENSE AGREEMENT
This is a legal agreement ("AGREEMENT") between the end-user customer ("you"), and the providing Citrix entity (the applicable providing entity is hereinafter referred to as "CITRIX"). Your location of receipt of Citrix product (hereinafter "PRODUCT") and software maintenance (hereinafter "MAINTENANCE") determines the providing entity hereunder. Citrix Systems, Inc., a Delaware corporation, licenses the PRODUCT and provides MAINTENANCE in the Americas. Citrix Systems International GmbH, a Swiss company wholly owned by Citrix Systems, Inc., licenses the PRODUCT and provides MAINTENANCE in Europe, the Middle East, and Africa. Citrix Systems Asia Pacific Pty Ltd. licenses the PRODUCT and provides MAINTENANCE in Asia
I accept the terms in the license agreement Print
○ I do not accept the terms in the license agreement
InstallShield
< Back Next > Cancel

Figure 5: License Agreement

After the license agreement you need to provide the Customer Information and decide if the shortcuts are created in your own profile or in the "All Users" profile.

	CİTRIX'
	CITRIX
his computer (all users) wws User)	
< Back Next	t > Cancel
	this computer (all users) wws User) ————————————————————————————————————

Figure 6: License Agreement

The next step is to select the Destination Folder where the actual PVS files are installed on the machine.

Destina	tion Folder			CITRIX
Click N	ext to install to this fol	der, or click Change to in:	stall to a different folde	r. GIININ
P	Install Citrix Provisi	oning Services x64 to:		
0	C:\Program Files\C	trix\Provisioning Services	1	Change
stallShield				

Figure 7: Selecting the Destination Folder

After selecting the destination folder, the actual installation can be started by using the Install button in the upcoming screen.

國	Citrix Provisioning S	ervices x64	x
Ready to In	stall the Program	-1-	
The wizard i	is ready to begin installation.	CIT	RÎX.
Click Install	to begin the installation.		
If you want exit the wiz	to review or change any of your installat ard.	tion settings, click Back. Click Cance	l to
Instalishield		Tacatall Const	
	< Back		.8

Figure 8: Ready to Install

At that moment the actual installation is executed. When this part is finished the last installation wizard will be shown stating that the installation wizard is completed.

战 C	itrix Provisioning Services x64	X
CITRIX	Installation Wizard Completed	
	The Installation Wizard has successfully installed Citrix Provisioning Services x64. Click Finish to exit the wizard.	
	< Back Finish Cance	1

Figure 9: Installation Wizard Completed

The installation will also show a message window that PVS Console is not detected. You can install the PVS console on any machine, so it's not required to install the console on the PVS

server. Logically it can be done and can be useful, but that's up to you.



Figure 10: Console installation not detected

After this information message, the Provisioning Services Configuration Wizard is automatically started. This wizard can also be started later; it's available as an application shortcut.

Provisioning Services Configuration Wizard		
CİTR İX'	The Configuration Wizard provides an easy way to setup a "basic" Server configuration.	
	For advanced configurations, see the Installation and Configuration Guide.	
	You can always run the Configuration Wizard again later from the Start Menu.	
	< Back Next > Car	ncel

Figure 11: Provisioning Service Configuration wizard is started automatically

As you can see Citrix separated the installation and configuration of the product. As Target Devices have a continuous connection to the PVS server you would need to have at least two PVS servers for fault tolerant purposes. So for both servers the actual installation steps are identical. In this article series I have two PVS servers to show the fault tolerant and load balancing capabilities, so I executed the installation wizard on two systems.

Console Installation

For now I will first continue with the installation steps by installing the PVS Console first. As mentioned before it can be installed on both the PVS server, on a local machine (Windows 7, Windows 8 or Windows 8.1) or an admin server (Windows Server 2008, Window Server 2008R2, Windows Server 2012 or Windows Server 2012R2). The PVS server should be reachable for the PVS console on port 54321 (but more about this topic later in this article series). Also MMC 3.0, Microsoft .Net Framework 4.0 and PowerShell 2.0 are required for the console functionality.

As shown in Figure 1 the PVS console installation is available from the auto run.

😥 Citrix Provisioning	g Services Console x64 - InstallShield Wizard 🛛 💌
CITRIX	Welcome to the InstallShield Wizard for Citrix Provisioning Services Console x64
	The InstallShield(R) Wizard will install Citrix Provisioning Services Console x64 on your computer. To continue, click Next.
	WARNING: This program is protected by copyright law and international treaties.
	< Back Next > Cancel

Figure 12: PVS Console Installation Wizard

The installation wizards starts (again) with the license agreement, followed by the user information and selecting the destination folder of the actual files, just like the PVS server

installation

The mast ways the other knows approved in order to contract. CITELX	Continuer Information Press price our information	CITRIX.	Consistent and the Construction of the Constru
CODE LODGE ADDRESSY. " These as Registering of ADDRESSY ("Instrument for end users passioned ("parts"), the set of the s	jan konov john var hrv. Spenster John var hrv. R sovers exact the compare (all and) C for the collocation (and)		Park/down-housensy (owen bank with Chargen RecOmbinising Geroes General Chargen RecOmbinising Geroes General
inathel	Prostinged (1998) Not	New Centre	Institut Insta Court

Figure 13: PVS Console installation wizard screens

After these standard wizard windows, you have the possibility to do a full installation or a custom installation.



When choosing Complete everything is installed, when choosing Custom you can decide if you want to install the Console only and don't install the Boot Device Manager (BDM Creation Tool). I will go into more detail about BDM later in this series.

😥 Citrix Provisioning Services Console x64	+ - InstallShield Wizard
Custom Setup Select the program features you want installed.	CITRIX.
Click on an icon in the list below to change how a feature is in	stalled. Feature Description
	This feature requires 33MB on your hard drive.
Install to: C:\Program Files\Citrix\Provisioning Services Console\ InstallShield	Change
Help Space < Back	Next > Cancel

Figure 15: Custom Installation options

After the possibility to decide which items should be installed the actual installation can be started.



Figure 16: Custom Installation options

When the installation is finished the installation wizard will show that the installation is done.

Citrix Provisioning	Services Console x64 - InstallShield Wizard
CITRIX'	InstallShield Wizard Completed
	The InstallShield Wizard has successfully installed Citrix Provisioning Services Console x64. Click Finish to exit the wizard.
	< Back Finish Cancel

Figure 17: Custom Installation options

Target Device Installation

With Provisioning Services you need to have a base machine where the vDisk is created from. It's actual a kind of imaging technique that's being used. On this base machine the client software (Target Device software) needs to be installed. So you install this machine traditionally (hopefully using a software deployment system) including all the applications that are required than start the Target Device installation.

The Target Device software can be installed on Windows 7 SP1 32 bit and 64 bit (Enterprise, Professional, Windows 8/8.1 32bit and 64 bit (All Editions), Windows XP Professional SP3 32 bit, Windows XP Professional SP2 64 bit, Windows Server 2008 R2 SP1 (all editions), Windows Server 2012 (all editions) and Windows Server 2012 R2 (all editions).

0	Target Device Inst	allation		
	🚺 Install Upgrade Wi	zard		
				I
				I
				I
	😌 Back		😡 Exit	1
Ins	tall the Target Device.			

The target device installation wizard is very similar to the console and PVS server installation wizard. The wizard starts with a welcome window, followed by the license agreement, the user information and the location where the software will actually be installed. Just as the other installers finally the Install button is shown which starts the actual installation.



Figure 19: Target Device Installation Installation Wizard steps

When the installation is finished a new window will appear. Within this window by default the option Launch Image Wizard is selected, which will logically start the wizard for creating the vDisk image for the PVS OS streaming. This wizard will be discussed later in this article series, as it's a requirement that the back-end is fully configured. This wizard can also be started later via a shortcut in the Start Menu.

🙀 Citrix Provisioning Servic	es Target Device x64 🛛 🗙
CITRIX.	Installation Wizard Completed
	The Installation Wizard has successfully installed Citrix Provisioning Services Target Device x64. Click Finish to exit the wizard.
	Launch Imaging Wizard

Figure 20: Target Device Installation Wizard Complete

Summary

In this article series we will go through the installation and configuration of Citrix Provisioning Services 7.6, so at the end of the series you will have a functional PVS infrastructure including OS streaming to the Target Devices. In this first part we went through the installation steps of the PVS Server, the PVS console and the PVS Target Device. In the upcoming article we will continue with the configuration of the PVS Server.

If you would like to read the other parts in this article series please go to:

- Installing and Configuring Citrix Provisioning Services 7.6 (Part 2) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioningservices-76-part2.html)
- Installing and Configuring Citrix Provisioning Services 7.6 (Part 3) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioning-services-76-part3.html)
- Installing and Configuring Citrix Provisioning Services 7.6 (Part 4) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioning-services-76-part4.html)

See Also

Installing and Configuring Citrix Provisioning Services 7.6 (Part 2) (http://www.virtualizationadmin.com/articlestutorials/citrix-articles/installing-and-configuring-citrixprovisioning-services-76-part2.html)

Installing and Configuring Citrix Provisioning Services 7.6 (Part 3) (http://www.virtualizationadmin.com/articlestutorials/citrix-articles/installing-and-configuring-citrixprovisioning-services-76-part3.html)

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Whitepaper: HP Reference Architecture for XenDekstop on VMware vSphere 5 (http://www.virtualizationadmin.com/blogs/conger/news/w

hitepaper-hp-reference-architecture-for-xendekstop-onvmware-vsphere-5-716.html)

Xen 4.0 Roadmap Taking Shape (http://www.virtualizationadmin.com/blogs/conger/news/x en-40-roadmap-taking-shape-368.html)

Free Tool: XenDesktop VDI Calculator (http://www.virtualizationadmin.com/blogs/conger/news/fr ee-tool-xendesktop-vdi-calculator-633.html)

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The Author — Wilco van Bragt



After working for a couple of consulting firms as a senior technical consultant and technical project leader Wilco started his own freelance company VanBragt.Net Consultancy in April 2008. Wilco is certified n Citrix (CCIA, CCEE/CCEA, CCA), Microsoft (MCITP, MCTS, MSCE, MSCA) and Prince2 (Foundation). Wilco is also a

RSVP (RES Software Valued Professional), Citrix CTP (Citrix Technology Professional) and a Microsoft MVP (Most Valuable Professional) on RDS.

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Introduction

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Advertisement

Configuration 1st PVS Server

At the end of the installation the Provisioning Service Configuration Wizard is automatically started, but can be started out of the Start Menu shortcut. The wizard starts with an informational screen.

#	Provisio	ning Services Configuration Wizard	x
ci	TRIX	The Configuration Wizard provides an easy way to setup a "basic" Server configuration. For advanced configurations, see the Installation and Configuration Guide. You can always run the Configuration Wizard again later from the Start Menu.	
		< Back Next > Canc	el

PVS Target Devices normally use a DHCP IP address as the OS Streaming is based on an image. The first question in the configuration wizard is about the location of the DHCP services. In most cases the DCHP service will run on a separate computer (not on the PVS server), so that answer will be most used. If you don't have a DCHP server the PVS software includes a very small basic DHCP service.

#	Provisioning Services Configuration Wizard	x
	DHCP Services Specify the service that will provide IP address assignments to Provisioning Services target devices.	
	 The service that runs on this computer Microsoft DHCP Provisioning Services BOOTP service Other BOOTP or DHCP service The service that runs on another computer 	
	< Back Next >	Cancel

Figure 2: Provisioning Services Configuration WizardDHCP Services

Secondly the wizard would like to know which PXE services you would like to use. If you would like to use PXE (you can use an alternate method called BDM, see my article To PXE or not to PXE (http://virtualization.vanbragt.net/index.php/articles/how-to-articles/citrix-provisioning-services-to-pxe-or-not-to-pxe) for more details). If you are using PXE, I recommend using the PXE service of PVS to keep your set-up simple and understandable. However you should be sure that no other PXE services are running in the same VLAN.

Provisioning Services Configuration Wizard				
PXE Services Specify which service will deliver this information to target devices.				
During the PXE boot process the bootstrap file name and FQDN/IP address of the TFTP server hosting the bootstrap are delivered via a PXE service or DHCP options 66/67.				
The service that runs on this computer				
Provisioning Services PXE service				
\bigcirc The service that runs on another computer				
< Back Next > Cancel				
Figure 3: Provisioning Services Configuration WizardPXF Services				

As this is our first PVS server we should create a new environment. An environment is called a farm within PVS, so we needed to choose Create Farm.

#	Provisioning Services Configuration Wizard	
Farm C	Configuration Create a new Farm or join an existing Farm. Can be skipped if already onfigured.	
(● Create farm ⊃ Join existing farm	
	< Back Next > Cancel	

Figure 4: Provisioning Services Configuration WizardCreate Farm

PVS is using a SQL database to store the information. PVS 7.x supports SQL 2008 or higher. SQL express is also supported, but logically that's not recommended. In the next screen you specify the SQL server details. What's really nice about PVS is the full support of database mirroring including automatic failover if you specify the failover partner in the database configuration part.

#	Provisio	oning Services Configuration Wizard	x
Da	tabase Server Enter the Server and Ir	nstance names.	
	Server name: Instance name:	VBN-SRV001 Browse	
	Optional TCP port:	irror failover partner	
	Server name: Instance name: Optional TCP port:	Browse	
		< Back Next > Cancel	
Figure 5	: Provisioning Service	s Configuration WizardDatabase	

After specify the SQL server information the database name should be provided including the name for the three levels within the PVS infrastructure (farm, site and collection). These names are only visible/used in the console and can be changed to something different without consequences after the initial configuration. Lastly we need to specify which AD group contains the accounts, which will become the PVS administrators.

#	Provisio	oning Services Configuration Wizard
New	v Farm Enter the new Databas	se and Farm names.
	Database name: Farm name:	PVS76VanBragt
	Site name:	VanBragtSite
	Use Active Director Use Windows group	y groups for security is for security
	Farm Administrator gro VANBRAGT.LOCAL/Bu	up: iltin/Administrators v
		< Back Next > Cancel

Figure 6: Provisioning Services Configuration WizardNew Farm

The next step is specifying the store name and store location. At the Store location the vDisk(s) will be stored. You can use a UNC path, shared LUN of local storage. Many types of local storage are being used to avoid that the data is travelling on the network twice (from the store to the PVS server and from the PVS server to the Target Devices). However using local storage implies that you need to arrange a sync between the PVS servers, while PVS does not have a sync mechanism in place (often DFS-R is user for this specific task).

ы Р	ovisioning Services Configuration Wizard	×
New Store Enter a new St	ore and default path.	
Store name:	Store	
Default path:	D:\Store Browse	
	< Back Next > Ca	ancel

Just like other Citrix products PVS is using the Citrix License Server. In most circumstances this will be the same server used for XenApp or XenDesktop.

#	Provisioning Services Configuration Wizard
Lic	Enter the license server hostname and port.
	License server name: VBN-SRV001
	License server port: 27000
	Validate license server version and communication
	< Back Next > Cancel

Figure 8: Provisioning Services Configuration WizardLicense Server

Optionally a user account can be provided. This user account is required when using a shared LUN or UNC path to access the vDisk on this storage location. When using local storage the network service account can be used. Citrix advises the user Network service account when possible. Take into consideration that the account provided here will also be used to contact the database. If your database administrator does not allow computer accounts as an SQL account, you should also specify a user account here.

#	Provisioning Services Configuration Wizard	×
U	Jser account The Stream and Soap Services will run under a user account. Please select what user account you will use.	
	Network service account Specified user account	
	User name:	
	Domain:	
	Password:	
	Confirm password:	
	Note: The database will be configured for access from this account.	
	< Back Next > C	ancel

Figure 9: Provisioning Services Configuration WizardUser Account

Just like user accounts, computer objects in AD have their own password, which is changed on a regular basis. PVS has a functionality built in to arrange that this process is still functioning although the same vDisk (image) is used by multiple devices. During the initial wizard you can specify the time frame this password needs to change. There is also a group policy setting that sets the change password time frame. This policy and the configuration in PVS should match.

Provisioning Services Configuration Wizard	×
Active Directory Computer Account Password Automate computer account password updates?	
✓ Automate computer account password updates	
Days between password updates: 7 V	
< Back Next > Canc	el

Figure 10: Provisioning Services Configuration WizardActive Directory Computer Account Password

PVS is based on demand streaming. In the Network Communications window we need to specify which network card (or actually IP address) is used for streaming the OS to the Target Devices and on which IP address management tasks are executed. The IP addresses are stored into the configuration, change the IP address later should be followed by a reconfiguration of the PVS configuration. The streaming IP address can be re-configured within the console, while the management IP address requires a re-run of the Configuration Wizard again. If required also the communication ports can be changed here.

Network Communications Specify network settings.
Streaming network cards:
I 192.168.21.215 Management network card:
Enter the base port that will be used for network communications. A total of 20 ports are required. You must also select a port for console communications.
Note: All servers must have the same port configurations.
First communications port: 6890
Console port: 54321
< Back Next > Cancel

In many cases the TFTP service is used to load the bootstrap file. If you are using TFTP you need to check this option. The default file location provided is correct and does by default require no changes.

**	Provisioning Services Configuration Wizard			
TF	TFTP Option and Bootstrap Location Typically only one TFTP server is deployed as part of Provisioning Services.			
	Use the Provisioning Services TFTP service			
	C:\ProgramData\Citrix\Provisioning Services\Tftpboot\ARDBP32.BIN Browse			
	< Back Next > Cancel			

Figure 12: Provisioning Services Configuration WizardTFTP and Bootstrap

Within the configuration you need to specify which PVS server(s) can be used for starting the Target Devices. You can specify between 1 and 4 servers. As every PVS server can fulfill this role it's recommended to add as many PVS servers as possible (four as a maximum). Besides the boot process these IP address are also contacted in case a booted Target Device loses connection with his PVS server to re-connect to the PVS infrastructure.

Contract Provision	ning Services Configuration Wizard
Stream Servers Boot List Specify at least 1 and at	t most 4 boot servers.
The bootstrap file specifi boot process.	ies what servers target devices may contact to complete the
Server IP Address	Server Port Device Subnet Mask Device Gateway
192.168.21.215	6910
	Network Settings
Add Ed	Server 192 . 168 . 21 . 216 IP address: 192 . 6910 Port: 6910
	Device
	Subnet mask: 0 . 0 . 0 . 0
	Gateway: 0 . 0 . 0 . 0
	OK Cancel
Figure 13: Provisioning Service	es Configuration WizardStream Servers Boot List

With this last configuration step the configuration wizard has all the information required. A summary of the configuration is shown. By pressing Finish the database will be created, the services will be configured and by default started automatically.

Provisioning Services Configuration Wizard	x
Finish Confirm configuration settings.	
DHCP - The service that runs on another computer PXE - Install Service Database Server = VBN-SRV001\ Farm = PVS7SVanBragtUxanBragtFarm Site and Collection = VanBragtSite, VanBragtCollection AD Group = VANBRAGT.LOCAL/Bulltn/Administrators Store and Default Path = Store, C:\Store License Server:Port = VBN-SRV001:27000 User Account = Network Service Account Computer account password changes every 7 days Communications - First Port = 6890, Last Port = 6909 Console - Soap Port = 54321 NIC - Selected IP = 192.168.21.215 Management NIC - Selected IP = 192.168.21.215	×
✓ Automatically Start Services	
Sack Finish Ca	ncel

When you are using a Windows Firewall you need to open the necessary ports manually. Unfortunately the installation wizard does not take over that. PVS is using several port ranges, so be sure you have all ports added to the Windows Firewall. During the wizard you will get a message reminding you to about this fact, when an active Windows Firewall is detected.



At the end of the wizard and everything went fine, we will get to see all green checkmarks at the activities executed during the configuration wizard and the first PVS is up and running.

Provisioning Services Configuration Wizard	x
Finish Confirm configuration settings.	8
 Stopping Network Services Stopping Software Stream Service Configuring Services Starting Software Stream Services Starting Network Services 	
< Back Done Cancel	

Configuration following PVS Server(s)

On the second (and following) PVS server you will start the same wizard. Normally you will answer the same questions as for the first PVS server. Starting from Figure 2 DHCP will run on another machine and in Figure 3 PXE Service will run on this machine. Next you will logically choose another option than the first server. The following servers will join an existing farm (created at the first PVS server).

#	Provisioning Services Configuration Wizard	×
Fai	rm Configuration Create a new Farm or join an existing Farm. Can be skipped if already configured.	
	O Create farm	
	 Join existing farm 	
	< Back Next >	Cancel
igure 1	7: Provisioning Services Configuration Join existing farm	

Next we need to provide the SQL server name as shown in Figure 5. As we are joining a farm, we need to select the farm. When more PVS databases are available on the same SQL server, you can choose which farm you would like to join.

🛱 Pro	ovisioning Services Configuration Wizard	x
Existing Farm Select the Farm.		22
Farm name:	PVS76VanBragt:VanBragtFarm	~
	< Back Next >	Cancel

Figure 18: Provisioning Services Configuration Choose Existing Farm

The next decision is if the PVS server will join an existing site or a new site is to be created. Each site needs at least one site, while two are recommended for fault tolerance. I will use an existing site, so I can show the load balancing and fault tolerant options later in this article. You can also move a PVS server to a different site using the management console.

#	Provisio	ning Services Configuration Wizard	x
Site	s Select a Site or enter a r	new Site and Collection.	
	• Existing site		
	Site name:	VanBragtSite	~
	○ New site		
	Site name;	Site	
	Collection name:	Collection	
		< Back Next >	Cancel

Figure 19: Provisioning Services Configuration Choose Site

The same applies to the Store. Also here you can use the existing store or create a new one. It depends on your Store set-up which option you will choose, mostly you will use the existing store.

🗱 Provi	sioning Services Configuration Wizard	x	
Select a Store or enter a new Store and default path.			
• Existing store			
Store name:	Store	~	
○ New store			
Store name;			
Default path:			
	< Back Next >	Cancel	

Figure 20: Provisioning Services Configuration Choose Store

Next we need to choose if we use the network service account or a specific account as shown in Figure 9. The same reasons apply for the selection as at the first PVS server. From this point the wizard is exactly the same as the first PVS server, so you follow the steps from Figure 9 also for the following PVS servers. After the wizard has fully run, the PVS server has joined the farm and we are ready to do some additional configuration, which I will describe later on in this article series.

Summarv

In this article part I described the initial configuration wizard of the first and following PVS server. Now both servers have executed this initial wizard we are ready to do the preparations for creating the vDisk, which will be described in the upcoming part.

If you would like to read the other parts in this article series please go to:

- Installing and Configuring Citrix Provisioning Services 7.6 (Part 1) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioningservices-76-part1.html)
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Whitepaper: HP Reference Architecture for XenDekstop on VMware vSphere 5

(http://www.virtualizationadmin.com/blogs/conger/news/w hitepaper-hp-reference-architecture-for-xendekstop-onvmware-vsphere-5-716.html)

Free Tool: XenDesktop VDI Calculator (http://www.virtualizationadmin.com/blogs/conger/news/fr ee-tool-xendesktop-vdi-calculator-633.html)

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The Author — Wilco van Bragt



After working for a couple of consulting firms as a senior technical consultant and technical project leader Wilco started his own freelance company VanBragt.Net Consultancy in April 2008. Wilco is certified n Citrix (CCIA, CCEE/CCEA, CCA), Microsoft (MCITP, MCTS, MSCE, MSCA) and Prince2 (Foundation). Wilco is also a

RSVP (RES Software Valued Professional), Citrix CTP (Citrix Technology Professional) and a Microsoft MVP (Most Valuable Professional) on RDS.

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Installing and Configuring Citrix Provisioning Services 7.6 (Part 3)

by Wilco van Bragt [Published on 13 Aug. 2015 / Last Updated on 13 Aug. 2015]

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In this second part I described the initial configuration wizard of the first and following PVS server. Now both servers have executed this initial wizard we are ready to do the preparations for creating the vDisk, which we will do in this part including using the vDisk by other Target Devices.

If you would like to read the other parts in this article series please go to:

- Installing and Configuring Citrix Provisioning Services 7.6 (Part 1) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioningservices-76-part1.html)
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Creating the vDisk

After the initial configuration in part two the PVS infrastructure is now ready for use. To show the complete workflow I will now continue with the steps on the Master Target Device to create a vDisk.

We already installed the Target Device software in part one. For creating the vDisk we need to start the Image Wizard (which can be started directly after the installation or out of the Start Menu). The Image Wizard starts with a welcome screen.



Figure 1: Welcome to the Imaging Wizard

The first information we need to provide is the name or IP address of one of the PVS server to contact the PVS infrastructure. If you are logged in with limited credentials you also provide other credentials with PVS administrator rights.

Server info	mation	1
Server.	VBN-SRV015	
Port	54321 🚔	
L		
Credentials		1
G Use n	y Windows credentials	
C Use t	nese credentials	
User	name:	
Pass	word:	
Dom	in:	

Figure 2: Welcome to the Imaging Wizard

It's possible to create the vDisk in advance using the PVS management console, but this can also be done via the Image Wizard. If you already have a vDisk available you can select it here, otherwise you choose Create new vDisk.

X Provisioning Services Im-	ging Wizard	×
Select New or Existing vi Choose whether you wan	isk to create a new vDisk or use an existing one.	
c	Create new vDisk Use existing vDisk vDisk name:	×
		3ack Next Cancel

Figure 3: Select New or Existing vDisk

The new vDisk requires a unique name. When you have more stores available you also need to select the store where the vDisk should be created. At last you need to select whether to use a fixed or dynamic disk. Nowadays I recommend using a dynamic disk as test results show that there is no performance difference (anymore) between the two types and dynamic requires less disk space. When choosing Dynamic you also need to provide the block size the vDisk grows, I always choose 16 MB.

vDisk name:	VBNDiskv001	
Store:	Store - 32312 MB Free	-
	Accessible by server: VBN-SRV015	
vDisk type:	Dynamic	<u>•</u>
vDisk block size:	[16 MB	

Figure 4: Create a New Disk

The next question is about Microsoft Volume licensing. I recommend checking the excellent article Enabling KMS Licensing on a vDisk (http://www.ingmarverheij.com/citrix-pvs-enabling-kms-licensing-on-a-vdisk/) by Ingmar Verheij when you are using KMS. Choose which system you are using in your organization.

Provisioning Services Imaging Wizard				
Microsoft Volume Licensing Choose if the vDisk is to be configured for	Microsoft KMS or MAK volume lice	nse manager	ment.	
r	None			
c	Key Management Service (KMS)			
C	Multiple Activation Key (MAK)			
		< Back	Next >	Cancel

Figure 5: Microsoft Volume Licensing

In the following screen you need to specify which disk you want to have in the vDisk. It's possible to select multiple partions if that's required (for example when you install all applications on a separate partition). Logically the drive with the operating system installed should always be selected. You can also tweak the size of the vDisk within this part of the wizard.

Source Volume	Used Space	<u> </u>	Capacity	File System
(System Reserved) System	29 MB	29 %	100 MB	NTFS
C. Boot	10733 MB	71 %	15258 MB	NTFS
None				
None				
		en en en en en en en en en en en en en e		
Destination Volume	Used Space		Capacity]	File System
System Reserved) System	29 MB	29 %	100 🛨 🥥	NTFS
2 Boot	10733 MB	71 %	15258 🛨 🥥	NTFS
vDisk		_	Capacity	
(MARKEN AND)		1	15360 MB	

Figure 6: Configure Image Volumes

Logically the machine should be part of the PVS infrastructure. Therefore the machine should be provided with a Target Device Name. It's important to provide a different name than the actual computer name (in Active Directory). I normally just add MTD, but you can use any name. Also the network card should be selected and a Device Collection where the machine will be added to. I recommend creating a separate Device Collection for machines used as Master Target Device.

Target device name:	VBN-SRV008MTD
	Note: The target device name cannot be the same Active Directory name of this machine.
MAC:	Local Area Connection 2 00-15-50-52-51-05
Collection	ManBrandPollarition
Concentra	In the VanBragtSite site of server: VBN-SRV015

Figure 7: Add Target Device

The wizard is almost finished now. A summary is shown of the provided settings. Within this display there is a button called Optimize for Provisioning Services. Within this button several settings are available for tweaking the imaging. Be careful about accepting all values by default. Check the organization security requirements for example. A good one is Windows Search. If you are running Outlook, Windows Search is used for searching e-mails within Outlook. You understand it would not be smart to disable the Windows Search in the image.

🔀 Provisioning Services Device Optimization Too	I X
🔽 Disable Offline Files	Disable Windows Autoupdate
Disable Defrag BootOptimizeFunction	Disable Background Layout Service
Disable Last Access Timestamp	🔽 Disable Hibernate
Reduce DedicatedDumpFile DumpFileSize to 2MB	Disable Indexing Service
Disable Move to Recycle Bin	Reduce Event Log Size to 64k
🔽 Reduce IE Temp File	🔽 Disable Clear Page File at Shutdown
Disable Machine Account Password Changes	🔽 Disable Windows SuperFetch
Disable Windows Defender	🔲 Disable Windows Search
Disable ScheduledDefrag	Disable ProgramDataUpdater
🔽 Run NGen ExecuteQueuedItems (new window)	
	OK Exit

Figure 8: Provisioning Services Device Optimization Tool

After the optimization phase we can end the wizard using the Finish button.

The Wizard has enough information to create a new vDisk and add it to the farm. Please review the information below and click Finish to create the vDisk. Name: VBNDickv001 Store: Store Type: Dynamic Size: 15380 VHD Block Size: 16 MB Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: C., 10733 MB used, 15258 MB capacity, NTFS system Add this machine to the farm Device name: VBN-SRV008MTD Microsoft VolumeSRV008MTD Miccol-155-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services			nmary of Farm Changes This page summarizes the changes to the farm.
Please review the information below and click Finish to create the vDisk. Name: VENDiskv001 Size: TS380 VHD Block Size: 16 MB Microsoft Volume: Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: (C, 10733 MB used, 15258 MB capacity, NTFS system) Add this machine to the farm Optimize for Provisioning Services Optimize for Provisioning Services		d it to the farm.	e Wizard has enough information to create a new
Name: VBNDiskv001 Store: Store Type: Dynamic Size: 15360 WHD Block Size: 16 MB Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: (C): 10733 MB used, 15258 MB capacity, NTFS system P Add this machine to the fam Device name: VBN-SRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection		/Disk.	ease review the information below and click Finish
Store: Store Type: Dynamic Size: 15380 VHD Block Size: 16 MB Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: C., 10733 MB used, 15258 MB capacity, NTFS system Outrie: C., 10733 MB used, 15258 MB capacity, NTFS system Outrie: C., 00735 05-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services	1		Name: VBNDiskv001
Type: Dynamic Size: 15360 VHD Block Size: 16 MB Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: Cy, 10733 MB used, 15258 MB capacity, NTFS system Add this machine to the fam Device name: V9N-SRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services			Store: Store
Size: 13500 VHD Block Size: 16 MB Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: (C, 10733 MB used, 15258 MB capacity, NTFS system Add this machine to the farm Device name: VPN-SRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services			Type: Dynamic
Microsoft Volume Licensing: None Volume: (System Reserved), 23 MB used, 100 MB capacity, NTFS system Volume: C, 10733 MB used, 15258 MB capacity, NTFS system Origon C, 10733 MB used, 15258 MB capacity, NTFS system Origon C, 10733 MB used, 15258 MB capacity, NTFS system Origon C, 10733 MB used, 15258 MB capacity, NTFS system Optimize for Provisioning Services			VHD Block Size: 16 MB
Volume: (System Reserved) .29 MB used, 100 MB capacity, NTFS system Volume: C., 10733 MB used, 15258 MB capacity, NTFS system Device name: VBN-SRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services			- Microsoft Volume Licensing: None
Volume: C., 10733 MB used, 15258 MB capacity, NTFS system Add this machine to the farm Device name: VBN-SRV008MTD MdC: 00-15-50-5251-05 Collection: VanBragtCollection Optimize for Provisioning Services		citu, NTFS sustem	- Volume: (System Reserved), 29 MB used, 1
Add this machine to the farm Device name: VBNSRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services		ystem	Volume: C:, 10733 MB used, 15258 MB cap
Device name: VBN-SRV008MTD MAC: 00-15-50-52-51-05 Collection: VanBragtCollection Optimize for Provisioning Services		Sciolesco.	Add this machine to the farm
MAC: 00-15-50-52-51-05 Collection: VanBragCollection Optimize for Provisioning Services			- Device name: VBN-SRV008MTD
Collection: VanBragtCollection Optimize for Provisioning Services			- MAC: 00-15-50-52-51-05
Optimize for Provisioning Services			Collection: VanBragtCollection
Uptimize for Provisioning Services			
			Uptimize for Provisioning Services
	1		

Figure 9: Summary of Farm Changes

After pressing the Finish button the actions are executed like creating the vDisk and creating the device within the PVS infrastructure. When that part is finished it's time to restart the machine to start the actual imaging process. Remember that at this phase the machine should connect to the PVS infrastructure using the PXE or BDM option.

Provision	ing Services Imaging Wizard	\times
?	The Wizard has successfully created the vDisk. To continue the imaging process, you must reboot, configuring the BIOS/VM settings for PXE/network boot. Reboot now?	
	Yes No	
Figure 10:	Restart the Master Target Device	

Afterwards the machine is connected to the PVS infrastructure using PXE or BDM and is fully booted again. We can logon again and the image wizard will be started automatically, showing the progress bar.

ing Services Ima	iging 7.6	×
		citrix.
Source	(System Reserved) , C:	
Destination	Provisioning Services vDisk	
Status	Copying C:	
Progress		
		Cancel
	ing Services Ima Source Destination Status Progress	ing Services Imaging 7.6 Source (System Reserved) , C: Destination Provisioning Services vDisk Status Copying C: Progress

Figure 11: Imaging Progress Bar

When the imaging process is done a screen is shown that the conversion is completed.

Provisioning Services Ima	ging 7.6	×
		CITRIX
-	(Curbern Deserved) C	
Destination	Provisioning Services vDisk	
Status	Conversion was successful!	
Progress		
	Log	Finish

Figure 12: Imaging Process Finished

The machine will show its normal interface, you will also see an additional disk connected to the system. But logically that's not necessary. The next step is to shut down the machine, so the disk image is not in use anymore.

The next step is executed in the console. It's time to change the vDisk from the private (so it can be written) to shared mode (so the vDisk can be used by multiple Target Devices). This is done by selecting properties of the just created vDisk at the vDisk pool within the site. Here you need to change the access mode from private to standard and select the location where you would like to store the Write Cache. It's a step to far to explain the different options with their characteristics. Please check my articles series about Designing PVS on my personal website. More settings can be changed, but for simplicity I only show the required changes for now.

11		Provision	ning Services Cons	ole	
🗱 File Action View Window Help					
Provisioning Services Console Main StragtFarm (LOCALHOST) Main Construction	Name	Store Store	Connections 0	Size 15.360 MB	Mode Private
 ✓ Sites ✓ WanBragtSite ✓ Voisk Pool ▷ Voisk Update Manageme ✓ Disk Update Collections ✓ VanBragtCollection ✓ Views ▷ Views ▷ Stores 	General Identificati Ste: Va Store: Sto Filename: VB Size: 115 Access mode Access mode. Cache type: [Maxmum RAM BIOS boot men. W Enable Actr	vDi on Microsoft Volu nBragtSte ore INDiskv001 .360 MB Standard Image (m Cache in device R/ size (MBs): [4096] u text (optional): ve Directory machin	sk Properties me Licensing Auto Upd VHD block size: 16. ubt-device, read-only acc AM with overflow on hard	tate 384 KB ress) 3 disk	× ×
	Enable print Enable stream	ter management aming of this vDisk			
			ок с	Cancel	Help

Figure 13: Changing vDisk properties

When the vDisk is reconfigured we can start machines using the vDisk for OS streaming. Therefore the machine needs to be known within the PVS infrastructure. This is done within a Device Collection by selecting New Device.

You need to provide a name (this will be the name of the computer when booted) and the MAC address. For now configure Type: Production and Boot From: vDisk. I will discuss the Type later in this article series. Also you need to assign the vDisk to the device within the vDisk tab.

	Target Device Properties
General VDieks Name: Description. Type: Boot from: MAC: Port: Class: Disable th	Authentication Personality Logging VBN-SRV010 Production VDisk 00 · 15 - 50 - 52 - 51 - 11 §501 is device
	Name: Description: Type: Boot from: MAC: Port: Class: Disable th

Figure 14: Creating Target Device

When the Target Device is created, we need to do one more step and that is creating the machine account in AD (so the machine is able to use the domain). Select the Target Device, right click the mouse button and select the option Active Directory – Create Machine Account.

UBN-SRV	Properties Disable Set Device as Template Move Auto-Add Wizard Audit Trail Copy Device Properties	vDisk	Store\VBNDiskv001	Down
	Boot Active Directory	Create	Machine Account	
	Copy Select All Delete Refresh Help	Delete Reset N	Machine Account 1achine Account Password	

Figure 15: Create Machine Account

In the next screen you can specify in which OU the account should be placed and the machine account will actually be created. This is executed under the account which is logged into the console, so be sure that the account has the required privileges to create machine accounts.

#	Create Machine Accounts in Active Directory	x
Domain:	VANBRAGT.LOCAL	~
Organization unit:	VanBragt.Net/Servers/XenAppSH	~
Devices:		
Target Device	Status	
VBN-SRV010	Success	
	Create Account Stop Close Help	

Figure 16: Create Machine Account

Now we are ready to start the machine, connect to the PVS infrastructure (via PXE or BDM) and the operating system is streamed to the device. The boot process will look like a normal machine and you can log in with a domain account. The machine will show in the properties the name provided within the PVS console joined in the domain. Now we have a machine running on the vDisk provided by the PVS infrastructure. From now you can add more target devices and boot those from the same vDisk.

Control Panel Home	View basic information abo	ut your computer	
Device Manager	Windows edition		
Remote settings	Windows Server 2008 R2 Standard		
Advanced system settings	Copyright © 2009 Microsoft	: Corporation. All rights reserved.	
	System		
	Processor:	Intel(R) Core(TM) IS-2450M CPU @ 2.50GH2 2.49 GH:	
	triatglied memory (icard):	3,02.00	
	System type:	64-bit Operating System	
	System type: Pen and Touch:	64-bit Operating System No Pen or Touch Input is available for this Display	
	System type: Pen and Touch: Computer name, domain, and w	64-bit Operating System No Pen or Touch Input is available for this Display orkgroup settings	
	System type: Pen and Touch: Computer name, domain, and w Computer name:	64-bit Operating System No Pen or Touch Input is available for this Display orkgroup settings vbn-srv010	Change settings
	System type: Pen and Touch: Computer name, domain, and w Computer name: Full computer name:	64-bit Operating System No Pen or Touch Input is available for this Display orkgroup settings vbn-srv010 vbn-srv010. VANBRAGT.LOCAL	Change settings
	System type: Pen and Touch: Computer name, domain, and w Computer name: Fuil computer name: Computer description:	64-bit Operating System No Pen or Touch Input is available for this Display orkgroup settings vbn-srv010 vbn-srv010.VANBRAGT.LOCAL	¹⁹ Change settings



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Summary

In this article we created a vDisk using a Master Target Device. After creating the vDisk we configured the disk in the standard mode. Next we created a Target Device and added that one to the Active Directory. As the last step we booted the Target Device and streamed the OS to this machine. In the upcoming and last article I will discuss some advanced configurations and the vDisk update possibilities.

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The Author — Wilco van Bragt



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Introduction

In the previous articles I described the installation and configuration of the Citrix Provisioning Services back-end servers. After that we created a vDisk via the Master Target Device. After the creation we added a Target Device, which got his operating system via OS streaming by Citrix Provisioning Services. In this article I will go one step further to discuss some advanced configuration options including the update possibilities of the vDisk.



Advanced Load Balancing

As described in one of the earlier articles, Citrix Provisioning Services (PVS) has built-in load balancing. By default PVS load balances the Target Devices between all available PVS servers within the PVS Site. So step one of advanced load balancing is to set-up several sites and add specific PVS servers per site. However the same result can be achieved configuring the standard Load Balancing with some additional configuration. When selecting the Load Balancing option within the right mouse button menu on a vDisk you can configure some the load balancing algorithm.

vDisk Load Balancing
A load balancing algorithm may be used to provide the vDisk to the target devices or a single server may be used.
Subnet Affinity None 🗸
Rebalance Enablese Effort
 Use this server to provide the vDisk
Server: VBN-SRV015 V
OK Cancel Help
Figure 1: Load Balancing algorithm

Within the load balancing algorithm there is a subnet affinity option. By default this is configured with the option "None". With this setting all PVS servers within the site can offer the streaming service to the Target Devices. Besides "None" there are two other settings available: Best Effort and Fixed. When Best Effort is chosen, the load balancing first checks the IP subnet of the Target Device and determines if one or more PVS servers are available within the same IP subnet. If that is the case the Target Devices are redirected to a server within the same IP range with the least load. If no server is available within the same subnet an arbitrarily available PVS server is chosen (with the least load). Logically you need to have a set-up where both the PVS Target Devices are well as the PVS Servers (which should be the primary contact point for that VLAN) should be located in the same IP range (VLAN). The second

option is Fixed, which almost works the same as Best Effort for the first phase. With Fixed the load balancing first checks the IP subnet of the Target Device and determines if one or more PVS servers are available within the same IP subnet. If that is the case the Target Devices is redirected to a server within the same IP range with the least load. If no server is available, the Target Device will not connect to the PVS infrastructure. This is similar to using several PVS sites.

Rebalance

At the same configuration part as the Load Balancing you can also configure (per vDisk) automatic rebalance. With rebalance enabled the PVS infrastructure checks every five minutes if the Target Devices are proportionally divided between the available PVS servers.

v	Disk Load Balancing	, ×					
A load balancing al target devices or a Use the load ba	A load balancing algorithm may be used to provide the vDisk to the target devices or a single server may be used.						
Subnet Affinity	Subnet Affinity None V						
✓ Rebalance I	Enabled Trigger Percent	t 25					
 Use this server 	to provide the vDisk						
Server: VB	N-SRV015	~					
	OK Cancel	Help					

Figure 2: Rebalance Enabled

If the spread is higher than the percentage configured the PVS infrastructure a rebalance will be triggered to distribute the load equally again.

Using the automated rebalance has both advantages and disadvantages. Advantage is that the system administrator don't have to take care of the load balancing at all. However there are situations that is probably not a good idea that a server with almost no load will service target devices again. Probably the server has issues and it's not a good idea that the server will serve target devices again.

Delegation of Control

Within PVS, delegation of control can be configured. Separation in the available rights can be configured at farm, site and device collection level. At Device Collection there are two roles available: Device Operator and Device Administrator. Configuring the delegation of control is a bit different than in other products. First you need to add the persons and/or groups within the product via the Groups tab within the Farm properties.

	Farm Properties	x				
General Security Groups Lice	censing Options vDisk Version Status					
All the Security Groups that can be assigned access rights:						
VANBRAGT.LOCAL/Builtin/ VANBRAGT.LOCAL/Users/	/Administrators /PVS Other Security Group					
	Add Remove					
	OK Cancel Help					

Figure 3: Adding groups to PVS for adding delegation of control.

The persons/group added there can be selected at the Security tabs at the different levels.

Site Properties	x
General Security MAK Options vDisk Update	
Groups with 'Ste Administrator' access:	Add Security Groups
	Domains/groups to add:
	Domain/Group Name VANBRAGT LOCAL/Builtn/Administrators VANBRAGT LOCAL/Users/PVS Other Security Group
Add Remove	OK

Figure 4: Configure Delegation of Control

Auditing

One other strong point of PVS is the auditing feature. With the auditing feature enabled (configurable via the Farm properties). The real strong point of this auditing option is that the changes are shown at each level within the console. For example when choosing the auditing of one PVS server only the changes of that specific server are shown. However PVS goes one step further, by choosing the button changes, you can exactly see which settings are changed including the previous and current value.

# Audit Trail	
Filter Results User: <ai> Domain: <ai></ai></ai>	
Skart date: dinadag 3 februari 2015 🗊+ Action (All >	,
Pro dese ansolg i u restuan 2015 Type Name User Domain Path 1 2015/02:10.13.44.04.510 Set Server VBN-SRV015 Administrator VANBRAGT VanBragtSte	Search
Changes - C	
O. New	
8 13 Changes	Help
	Audrit Trail Rer Reuks User: CAl > Sart date: dinodag 3 februan 2015

Auto Add

One other nice feature within PVS is the Auto Add feature. With this auto add feature new devices are automatically added to the PVS infrastructure when the device connects to one of the PVS servers. Based on the Device Collection properties the target device is automatically created and configuration is copied from a template target device.

Device Collection Properties	x
General Security Auto-Add	
If the auto-add feature is enabled (in the farm properties), and this device collection is selected in the site properties, a template must be set.	
Template target device:	
VBN-SRV010 V Properties	
Device Name (Maximum length is 15 characters)	
Sample: VBN-SRV011	
Prefix: Number: Suffix:	
VBN-SRV Length: 3 🗘 Zero fill	
Last incremental number: Reset	
OK Cancel Help	

Figure 6: Auto Add configuration at Device Collection level

Remember that the configuration for auto add is available on three levels. On Farm level you enable Auto add and configure which site should be used, on site level you specific which device collection should be used and lastly on the device collection level you specify the template and naming convention.

Also be careful with enabling the auto-add feature especially when using PXE. Every device that connects via PXE with the PVS server is automatically added and I can imagine that is not desirable.

vDisk update

Last but not definitely least is the vDisk update options. In previous version (before version 6.x) the update mechanism was pretty complicated, rebuilding a new vDisk and then configuring the vDisk exactly the same. Updating via a new vDisk is still one of the possibilities however within PVS there is now a version functionality available. Within the vDisk, right-mouse menu there is an option called version.

Within this option you can create a new version. This version is automatically set in in maintenance mode. Within this mode you can make changes to the vDisk for example adding a new installation, installing security updates, remove an application or installing application updates.

Boot prod	uction devices from ven	sion:	Newest release	d v		
Version	Created 2015-02-10 14:27	Released	Devices 0	Access Maintenance	Type Manual	New
00	2014-12-11 11:16		0		Base	Promote
						Revet,
						Merge
						Delete
						A Replication
						Usage
						Properties

Figure 7: vDisk versions

This is accomplished by starting one of the target devices connected to this maintenance vDisk version. Therefore the Target Device should be set as Type Maintenance. The target device with type maintenance will have a boot menu where the maintenance version can be chosen. When the Target Device is booted, the changes can be made and the Target Device can be shut down (remember that some of the preparations should be done again, like creating unique registry keys for supporting applications).

Target Device Properties							
General	vDisks	Authentication Personality Status Logging					
Nan Des	ne: cription:	VBN-SRV021					
Тур	e:	Production V					
Boot from:		Maintenance Test					
MAC:		Production 10 - 15 - 50 - 52 - 51 - 05					
Port	:	6901					
Class:							
Disable this device							
		OK Cancel Help					

Figure 8: Type Target Device

After the shutdown the vDisk version can be changed to test. In this state the vDisk is again read only (after a reboot changes made are gone). Next step is to configure a Target Device as type Test and start this Target Device from the test version. On the target device you can confirm/test that all changes made in the maintenance version are available and working correctly.

If no issues were found in the test phase, we can promote the version to the state production. You can specify that this change is effective immediately or at the configured date. Luckily the active devices are not rebooted directly, but when they are restarted they will use the new version. In this way you can easily make changes to the production. Also one advantage is that in the case something is wrong in this version, you can easily roll-back. In that case we will revert the version to a previous state (test or maintenance) and the old version is active/production again. However active Target Devices using the version that is reverted will be shut down. This can cause down time and should be considered thoroughly including communication to the active users.

Those steps can be automated using vDisk Update Management. First your Target Devices need to be virtual machine running on Citrix XenServer, VMware ESX or Hyper-V, secondly for configuring the updates you need to have WSUS, SCCM or self-written scripts. When this is set-up, task will autorun using the versions. However the default time is pretty short (30 minutes) and you cannot test it accurately in advance. Therefore I don't see this option really used in production environment. To be fully in control use the manual version steps (which can be automated using PVS PowerShell cmdlets as well).



Figure 9: vDisk Update Management

Conclusion

In this fourth and last part of the article series about Citrix Provisioning Services I discussed some advanced configuration options like Load Balancing, delegation of control, auto add, rebalance and auditing. Last topic was describing the basic steps of updating the vDisk using the versions functionality.

If you would like to read the other parts in this article series please go to:

- Installing and Configuring Citrix Provisioning Services 7.6 (Part 1) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioningservices-76-part1.html)
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- Installing and Configuring Citrix Provisioning Services 7.6 (Part 3) (http://www.virtualizationadmin.com/articles-tutorials/citrix-articles/installing-and-configuring-citrix-provisioning-services-76-part3.html)

See Also

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