

# Recovering a Dell<sup>™</sup> DL Backup and Recovery Appliance using Rapid Appliance Self Recovery (RASR)

Dell DL Series Technical Marketing Team March 2016

## Revisions

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### **Executive summary**

The Dell DL Backup and Recovery Appliance (DL Appliance) is a turnkey backup and recovery appliance powered by award-winning AppAssure backup and recovery software. The DL Appliance protects both physical and virtual servers, nearly eliminates backup windows, recovers applications within minutes, and guarantees recoverability.

In addition to backup and recovery, the DL Appliance delivers disaster recovery and enterprise capabilities such as remote replication, encryption, compression, deduplication and support for standby virtual machines to be used for near instantaneous server recovery. The DL Appliance is turnkey, purpose-built, and designed to be deployed within minutes and is easy to manage.

The DL Appliance includes a unique feature called Rapid Appliance Self Recovery (RASR) that allows one to quickly and easily restore the appliance to its factory default image or its latest Windows backup. RASR is an industry-leading offering that allows customers to protect their physical appliance very easily without the need to purchase or deploy any additional hardware, software or SKU's. Currently, no other vendor in the industry offers this type of innate protection for their customers. This paper describes and outlines the different RASR options that can be used to recover the DL Appliance.

**Note:** The DL Appliance system build version and screenshots used for this paper may vary slightly, depending on the version of the DL Series system used.



## 1 What is RASR and why is it important?

Rapid Appliance Self Recovery (RASR) is used to quickly and easily recover a DL Appliance to an operating state. RASR offers two recovery options:

- 1. Recover the DL Appliance to a state very close to when the DL Appliance system failed. The DL Appliance operating system, configurations and settings are recovered.
- 2. Reset the DL Appliance to its original factory state a state it was in as it left the factory.

All necessary software and logic to recover a DL appliance is provided by RASR. RASR is used to recover a DL Appliance operating system, configurations, and settings. It is not designed to recover the data within its repositories. Protecting the data within a DL Appliance is achieved by replication.

Because RASR is self-contained within the DL Appliance, it does not require the downloading of operating systems, plugins or AppAssure software. Recovery of a DL Appliance takes 30 minutes or less.

Most data protection solutions do an excellent job protecting and restoring physical and virtual machines but neglect the ability to protect itself, especially data protection appliances. This lack of design is unacceptable, as a non-functioning data protection solution immediately elevates anyone's risk to data loss. Every piece of data that has been created, modified, or deleted from the point of backup solution failure is exposed to potential loss. When data is required to be retrieved, a non-functioning data protection solution is no help. This is not a place where any IT administrator wants to be. Welcome to RASR. RASR is designed to self-protect and recover the DL appliance itself. In the event of a DL appliance corruption or failure, RASR significantly minimizes a computing environments risk to data loss by effortlessly and rapidly restoring the DL appliance so that it can continue to protect production assets again.

## 2 RASR Protection and Recovery Options

Two main steps are taken when recovering a DL appliance using RASR. The first step is to launch the DL appliance in to RASR followed by choosing a recovery method.

The DL Appliance can launch RASR from a number of media types or locations. These include:

- 1. USB Key
- 2. RASR Virtual Disk
- 3. Internal Dual SD Module (IDSDM)
- 4. Recovery Partition

No matter how RASR is launched, RASR offers the same recovery features and capabilities – quick and easy appliance recovery.

Depending on the DL appliance model, the following RASR launch options are available:

		RASR		
		Virtual		Recovery
	USB	Disk	IDSDM	Partition
DL1x00	$\checkmark$			<ul> <li>✓</li> </ul>
DL4300	$\checkmark$	✓	<ul> <li>✓</li> </ul>	✓
DL4000	$\checkmark$	$\checkmark$		<b>~</b>

The DL appliance offers three recovery methods. These options are:

- 1. **System Recovery** The DL appliance is restored to a point in time from an available Windows backup image residing on a DL appliance local disk
- 2. Windows Recovery Wizard Launches the Microsoft <sup>®</sup> Windows Backup Utility to perform recovery operations not supported by a System Recovery or Factory Reset
- 3. Factory Reset The DL appliance is restored to the original Dell factory image

Depending on the DL appliance model, the following recovery options are available:

		Windows	
	System	Recovery	Factory
	Recovery	Wizard	Reset
DL1000		$\checkmark$	$\checkmark$
DL4300	$\checkmark$	$\checkmark$	$\checkmark$
DL4000	<b>~</b>	>	$\checkmark$

NOTE: All backup and recovery steps are performed from the DL Appliance.

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## 3 Launching RASR

RASR can be launched from four different media types or locations. No matter what RASR launch method is chosen, RASR recovers the DL Appliance to an operational state by restoring the appliance operating system, applications, configurations and settings.

### 3.1 IDSDM

The Dell DL4300 appliance offers a unique option to launch the RASR process - IDSDM. A bootable Internal Dual SD Module (IDSDM) provides all logic to restore the DL4300 appliance in the event of critical operating system disk hardware or software failure. (Dell DL1x00 and DL4000 appliances do not offer an IDSDM option).

1. Restart the DL Appliance and select Boot Manager (F11)



2. Within the **DL Appliance Boot Manager** utility, select **One-shot BIOS Boot Menu**.





3. Select to launch RASR from the ISDSM option.

Boot Manager	
Boot Manager	
Boot Menu	
Select Legacy Boot Option	
* [Hard drive] Integrated RAID Controller 1: PERC H730P Mini(bus 03 dev 00)	
* [Hard drive] Internal SD: IDSDM	
* Integrated NIC 1 Port 1 Partition 1: BRCM MBA Slot 0100 v17.0.1	
* Disk connected to back USB 1: vmDisk	
* Optical Drive connected to back USB 1: vmDisk-CD	

4. Select your keyboard layout.

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#### 5. Click **Troubleshoot**.

Cho	ose an option
$\rightarrow$	Continue Exit and continue to Windows Server 2012 R2
Ĩ	Troubleshoot Refresh or reset your PC, or use advanced tools
ڻ ا	Turn off your PC
*	

6. Click Rapid Appliance Self Recovery (RASR).

© Trou	bleshoot
÷	Refresh your PC If your PC isn't running well, you can refresh it without losing your files
<u>0</u>	Reset your PC If you want to remove all of your files, you can reset your PC completely
R	Rapid Appliance Self Recovery Rapid Appliance Self Recovery



7. Click Windows Server 2012 R2.



8. RASR is now launched.

DL4300 Rapid Applian	ce Self Recovery	v3.0.240
Steps ► Welcome	Welcome to Dell Rapid Appliance Self Recovery (RASR	)
Prerequisites Recovery Mode Storage Configuration	This wizard will attempt to recover your operating system. Click Next to proceed.	
OS Recovery Finish		
	< <back< td=""><td>Cancel</td></back<>	Cancel



### 3.2 RASR USB Key

A RASR USB key is used to launch the RASR process. Like the IDSDM option to launch RASR, the RASR USB key provides all logic to restore the DL appliance in the event of OS and/or repository storage system issues.

**NOTE**: Creation of a RASR USB key is described in Appendix-A.

**NOTE**: The DL1000 appliance consists of a mirrored pair of disk drives containing the operating system, appliance applications, and data. In the event of a critical disk failure, RASR can only be launched from a USB disk device. Thus, immediate creation of a RASR USB key is very important for the DL1000 appliance.

1. Boot the DL Appliance with the RASR USB key attached and select Boot Manager (F11).



2. The following message can be ignored during the RASR recovery of the DL Appliance.

UEFI0122: The secondary SD card is missing, not responding, or in write-protected mode. Do one of the following: 1) Install a SD card media in the secondary SD card slot. 2) Reseat or replace the SD card media. 3) If the secondary SD card is intentionally not installed or write-protected mode is expected, then no response action is required.

3. Within the DL Appliance Boot Manager utility, select One-shot BIOS Boot Menu.

Boot Manager	
Boot Manager	
Boot Manager Main Men	u
Continue Normal Boot	
One-shot BIOS Boot Menu	>
Launch System Setup	
Launch Lifecycle Controller	
System Utilities	

4. Select the attached USB drive within the Boot Manager Boot Menu



5. Continue with step #4 within section 3.1 IDSDM (page 8).



#### 3.3 RASR Virtual Disk

The RASR virtual disk resides on the local DL Appliance non-OS disks and is used to launch RASR.

1. Boot the DL Appliance and enter the PowerEdge Expandable RAID Controller BIOS Utility by pressing Ctrl+R when its message is displayed.



2. Select the RASR virtual disk within the PERC Configuration Utility. Note the virtual disk ID and capacity. In this example, the RASR virtual disk ID is 2 and its capacity is 14.99GB,





3. Press Ctrl+N to advance to the Ctrl Mgmt page within the PERC Configuration Utility. Select the RASR virtual disk as the boot device.



4. Using the keyboard TAB key, advance to **APPLY**. Press Return to apply this boot device change.

PERC H730P Mini BIOS Conf	'iguration Utility 5.0	)3-0010
- VD Mgmt - PD Mgmt - Ctrl Mgmt - Properti	es	
Control	er Settings	
	<ul> <li>Battery Information</li> </ul>	·
[X] Enable controller BIOS	Туре :	BBU
[ ] Enable BIOS Stop on Error	State :	Optimal
[ ] Enable Auto Import	Temperature :	49C-Normal
	FullCharge Capacity:	531 mAh
	Remaining Capacity :	510 mAh (97%)
Select boot device: Personality	Mode:	
VD 2 14.99 GB RAID-Mode	(current)	
Factory Default	PLY	CANCEL
F1-Help F5-Refresh Ctrl-N-Next Page C1	rl-P-Prev Page F12-Ct	lr



5. Press the keyboard Esc key several times until the PERC Configuration Utility exits then select the option to reboot the DL Appliance.

**NOTE**: RASR will automatically set the PERC boot device to the OS boot virtual disk if restoration is successful.

6. Continue with step #4 within section 3.1 IDSDM (page 8).

#### 3.4 Recovery Partition

A bootable Recovery Partition is located on the DL Appliance operating system disks. If the appliance operating system physical disks supporting the Recovery Partition are healthy, the Recovery Partition can be used to launch RASR.

1. Open up the DL Appliance PowerShell or command window and type the command:

#### reagentc /boottore



- 2. Reboot the DL Appliance.
- 3. Continue with step #4 within section 3.1 IDSDM (page 8).

## 4 RASR Recovery Options

Once RASR is launched, three RASR appliance recovery options are presented; System Recovery, Windows Recovery Wizard, and Factory Reset.

#### 4.1 System Recovery

During the initial configuration of the DL4300 and DL1300 Appliance, a Windows Backup Virtual Disk can optionally be created that is designated to hold DL appliance Windows backup images. When choosing the RASR System Recovery option, Windows backups that are stored within the Windows Backup Virtual Disk are presented as options for recovery.

The System Recovery option offers DL appliance recovery advantages. Because a windows backup is used for recovery, the restoration process takes only one step to recover all DL functional software that might have been implemented or edited after initial configuration. Other functional software includes RUU, AppAssure, operating system, appliance updates, SQL if installed on the operating system drives, and all settings that were initially configured through the AppAssure Appliance Configuration Wizard (Network, SNMP, active directory, etc.).

**NOTE**: The DL1000 does not include an automatically created Windows Backup virtual disk. However, the System Recovery option can be used on any DL appliance provided Windows Backup has been configured to backup the Operating System and Recovery Volumes, System State and Bare Metal Recovery. The backup location must be a directly attached physical device which can include a USB disk drive.



#### 1. Once RASR starts, select System Recovery.



2. Select the Windows backup that you wish to restore the DL Appliance to.

DL4300 Rapid Applia	nce Self Recovery	<b>∖</b> v3.0.240
Steps Velcome Prerequisites	Windows Backup Selection	
<ul> <li>Recovery Mode Storage Configuration OS Recovery</li> <li>Finish</li> </ul>	G=DL4300 = 11/3/2015 11:08 AM = 11/3/2015 10:09 AM = 11/3/2015 10:05 AM	
	Display only backups containing the Windows Backup 'Bare Metal Recovery' item Details: Expand hostname and select a backup which will be used to recover the operatin disk.	ng system

#### 4.1.1 Recovery Type

Within the System Recovery option, there are two System Recovery options.

Repair OS System Disk – This option overwrites the current DL operating system and recovery
partition with files contained in the backup image selected. This option is best suited when there are
missing or corrupt files that cause the DL Appliance to malfunction. In order to use the Repair OS
System Disk option, ensure the Display only backups containing the Windows Backup 'bare Metal
Recovery' item is checked.

Repair OS System Disk will fail if the Windows backup image selected is from a different system or volumes other than the presently running OS and Recovery volumes. If the Repair OS System Disk fails to restore the system, restart RASR and try the Recreate OS Volumes option.



i. Select Repair OS System Disk and click Next.

		0
me		
lisites		
ry Mode	Existing Operating System D	)isk Partitions
Configuration		273 961
very	RECOVERY	11.605
	Recovery Type	
	Recovery Type ৫ Repair OS System	Disk
	⊂ Recovery Type	Disk
	Recovery Type	Disk

ii. Click **Yes** to start the recovery process.



iii. The DL Appliance Recovery process is finished.



2. Recreate OS Volumes – This option re-creates the DL OS virtual disk if necessary (as in the case of a replaced hard disk), and restores the DL operating system and recovery partitions with the content from the backup image selected. This option is best suited when storage hardware issues are encountered such as a failed OS volume. After replacing faulty hardware, launch RASR and select this option.

os Nelcome Prerequisites	Sele	ct Recovery Ty	be	
Recovery Mode	Existi	ng Operating System	Disk Partitions	
Storage Configuration	Volur	ne Label	Volume Size in MB	
)S Recovery	05		273,961	
	2	<ul> <li>Recreate OS Volu</li> <li>Details: This operation will r</li> </ul>	ecreate the operating system disk partiti	ons and
			u u o oonap.	

i. Select Recreate OS Volumes recovery type and click Next.



ii. Select the volumes to recover. You must first select to delete existing volumes if you plan to recover them.

Select Volume Re	store Options	
e vites Volumes Available in Bac	kup	
Volume Label	Volume Size in MB	Restore
ONIIguration	273,961	
RECOVERY	11,602	V
Select volumes to be restore Existing Operating Syste Volume Label	ed m Disk Partitions Volume Size in MB	Delete
Select volumes to be restore Existing Operating Syste Volume Label OS	m Disk Partitions Volume Size in MB 273,961	Delete
Select volumes to be restore Existing Operating Syste Volume Label OS RECOVERY	m Disk Partitions Volume Size in MB 273,961 11,605	Delete ज्रि

iii. Click Yes to start the recovery process.







### 4.2 Windows Recovery Wizard

This RASR recovery option can be used to restore a DL Appliance from a Windows backup located within the appliance (Windows Backup virtual disk), a directly attached disk, or an externally attached disk such as a network share containing the backup image. The Windows Recovery Wizard uses Microsoft Windows Server Backup for recovery. For more information on using Windows Server Backup for DL appliance recoveries, please refer to Appendix C and the following documents: <u>https://technet.microsoft.com/en-us/library/cc770757.aspx</u> and <u>https://technet.microsoft.com/en-us/library/cc755163.aspx</u>.

**NOTE**: RASR for the DL1000 does not offer the System Recovery option. Instead, the Windows Recovery Wizard can be used to restore a DL appliance, configurations settings and any updates from a Windows backup stored on a shared network drive. Details for the RASR Windows Recovery Wizard can be found at Appendix C.

DL4300 Rapid Appliance	e Self Recovery	v3.0.240
Steps Velcome Prerequisites Recovery Mode Storage Configuration OS Recovery	C System Recovery ← System Recovery ← Windows Recovery Wizard ← Factory Reset	
Finish	<b>Details:</b> This operation will launch the Microsoft Windows recovery wizard. Use this option if the OS backup is on a network share.	
	< <back new<="" td=""><td>t&gt;&gt; Cancel</td></back>	t>> Cancel



### 4.3 Factory Reset

The Factory Reset recovery option restores the DL Appliance to its original factory state – the state it was in as it left the factory.

If failed operating system drives are replaced, the Factory Reset option detects that the operating system virtual disk does not exist and will prepare a new virtual disk to restore the factory default operating system to it.

Because Factory Reset does not alter the non-operating system drives, restoration of the repository, appliance settings and configurations are possible as described in Section 5.

**NOTE**: The Factory Reset option does not restore any previously installed or configured items such as networking, SNMP and active directory settings. If Microsoft SQL Server is installed on the appliance operating system virtual disk, it will not be recovered as the Factory Reset option only restores the original Dell factory image.



1. Once RASR starts, select Factory Reset and click Next.



2. Select Yes to begin the recovery process.



3. This competes the Factory Reset recovery process. Click **Finish** to reboot the DL Appliance.

DL4300 Rapid Appliand	ce Self Recovery		v3.	0.240
Steps	RASR Completed			_
<ul> <li>✓ Protectussies</li> <li>✓ Recovery Mode</li> <li>✓ Storage Configuration</li> <li>✓ OS Recovery</li> <li>▶ Finish</li> </ul>	The system has been recovered successfully. Click Finish to exit.			
		< <back< td=""><td>Next&gt;&gt;</td><td>Finish</td></back<>	Next>>	Finish

4. After reboot, the **AppAssure Appliance Configuration Wizard** is automatically launched for initial appliance configuration. The **AppAssure Application Configuration Wizard** steps are outlined in <u>Appendix B</u>.



NOTE: Ensure that you provide the same information in the **AppAssure Appliance Configuration Wizard** that was provided during the initial deployment of the DL appliance. Failure to provide the exact same information can result in the inability to recover the Appliance configuration settings and/or AppAssure repository data.

5. After completing the **AppAssure Application Configuration Wizard** steps, refer to <u>Recovering</u> <u>Repositories, Recovery Points and Settings'</u> to recover the DL Appliance to a state very close to the time of failure.



## 5 Recovering Repositories, Recovery Points and Settings

After DL Appliance recovery, the appliance recovery points and settings can optionally be restored.

**NOTE**: The DL1000 will automatically attempt to recover DL repositories and restore the AppAssure Core settings.

1. Select the Appliance tab. Then select Tasks > Provisioning.

Home	Replication	Virtual Standby	Events	Tools 🔻	Configuration	Appliance	
							С.
	Appliance >	Health					
	Storage >	Status DI	. Subsystem	Hardware			
	Tasks	Provisioning	pliance Hard	ware			
		St	orage Hardwa	are			
		🥥 St	orage Provisio	oning			
		🔵 Ra	pid Appliance	e Self Recove	ry		
		e Vi	rtual Machine	Management			

2. Click Remount Volumes.

Home	Replication	n	Virt	ual	Standby	Events	Tools	•	Configuration 👻	Appliance			_	
			_			0. V					(A)			
		-	۱,	Pro	visionir	าย								Remount Volumes
Ģ	Appliance	>		_		-5		_						$\sim$
	Storage	>	ш		Status	Task Name						State		Action
	- Tasks	>		>		Provision P	ERC H730	IP M	ini(3,0) Full shelf 0, (	Create repository		Provisioned		
				Sho	wing 1-1 c	of 1								

3. Click Yes to continue.

Warning : System recovery
This will recover all the AppAssure Repositories.
IMPORTANT : Do not continue with this procedure unless AppAssure is having problems accessing the repositories. This procedure will remount all Repository volumes and Standby Virtual Machine Reserve volumes. It will also reset the AppAssure Core settings.
Do you want to continue?
Yes No

4. This completes the DL Appliance settings, configuration and repository restoration.



## Appendix A: Creating an USB RASR Key

- 1. Insert a 16GB or larger USB key into the DL Appliance.
- 2. Navigate to the **Appliance** tab.

6

AppAssure	撞 Protect 👻 🕞	Restore	e 😰	Export		
☆ ᡎ V 小 ⊁ - ☆ -	Home Replication	Virt	tual Stan	dby Events Tools - Configuration - Appliance		
S - Appliance		_		$\sim$		
Protected Machines	Appliance >		Health			
	Storage >		Status	DL Subsystem Hardware	Description	Links to Tools
	🛱 Tasks 🔸		۲	Appliance Hardware	ок	Server Administrator
			۲	Storage Hardware	ОК	Server Administrator
			٠	Storage Provisioning	ОК	Provisioning Status
			•	Rapid Appliance Self Recovery	Warning	Backup
			۲	Virtual Machine Management	ОК	VM Management

3. Click the **Backup** link.



4. Click Create USB RASR Key.



Déd

5. After a prerequisite check is performed, select the possible USB target path and click **Create**.



6. Click Yes to proceed.



7. After the RASR USB key has been created, safely eject the RASR key.



Open Devices and Printers
Eject Cruzer Glide
- RASR Recovery Tool (K:)



## 7 Appendix B: AppAssure Appliance Configuration Wizard

**NOTE**: The following is an example of the **AppAssure Application Configuration Wizard** for a DL4300. Depending on the DL model and/or build version, variances of these steps may vary.

1. The following message can be ignored during the RASR recovery of the DL Appliance.

UEFI0122: The secondary SD card is missing, not responding, or in write-protected mode. Do one of the following: 1) Install a SD card media in the secondary SD card slot. 2) Reseat or replace the SD card media. 3) If the secondary SD card is intentionally not installed or write-protected mode is expected, then no response action is required.

2. Accept the Microsoft software license terms.

. . . . . . . . . . . . . . . .

Please read the license terms.	
MICROSOFT SOFTWARE LICENSE TERMS	Congratulations on your new Dell purchase!
MICROSOFT WINDOWS SERVER 2012 R2 STANDARD	Your purchase and use of this product is subject to and governed by
These license terms are an agreement between you and:	agreement with Dell that specifically applies to your order, and Dell's End
<ul> <li>the server manufacturer that distributes the software with the server; or</li> </ul>	User License Agreement, which are each presented below in the following order:
the software installer that distributes the software with the	Commercial Terms of Sale
server.	Dell's End User License Agreement
Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft:	By the act of clicking "I accept," you agree (or re-affirm your agreement to) the foregoing terms and conditions. For the avoidance of doubt, to the extent that Dell is deemed under applicable law to have accepted an offer
updates.	by you: (a) Dell hereby objects to and rejects all additional or inconsistent
	documentation submitted by you in connection with your order; and (b)
· supplements,	Dell hereby conditions its acceptance on your assent that the foregoing
<ul> <li>Internet-based services, and</li> </ul>	terms and conditions shall exclusively control.
• support services	IF YOU DO NOT AGREE WITH THESE TERMS, DO NOT USE YOUR
for this software, unless other terms accompany those items, If so,	PRODUCT AND RETURN IT TO DELL IN ACCORDANCE WITH DELL'S RETURN POLICY LOCATED AT
those terms apply. If you obtain updates or supplements directly from	WWW.DELL.COM/RETURNSPOLICY.
Microsoft, Microsoft, and not the manufacturer or installer, licenses	Formation of antice and first have a new Damas Education and have a
those to you. Printed paper license terms, which may come with the	directly from Dell may be returned within 30 days from the date on the nacking
software, take the place of any on-screen license terms.	slip or invoice.
By using the software, you accept these terms. If you do not	
accept them, do not use the software. Instead, contact the	
refund or credit.	Commercial Terms of Sale
As described below, using some features also operates as your	1. Your Relationship with Dell.
consent to the transmission of certain standard computer	A Introduction. Dell's sale of Products Software and Services as well
information for Internet-based services.	as its performance of Services and your use of the Software are subject
	to the terms of this agreement between you ("you" or "Customer") and

- 3. Log into the DL Appliance.
- 4. Define a local password for the DL Appliance and click **Finish**.

X	¢	Settings
		Type a password for the built-in administrator account that you can use to sign in to this computer.
		User name Administrator
		Password
		Reenter password
	¢	Finish



5. Log into the DL Appliance using the credentials applied in the previous step.



6. Examine the notes and messages on the **AppAssure Appliance Configuration Wizard** welcome screen.

AppAssur	e Appliance Configuration Wizard
Collecting Information	Welcome
Network     Hostname & Domain     SNMP     RASR Configuring	Welcome to the AppAssure Appliance Configuration Wizard. This wizard will configure the following : <ul> <li>Network Configuration</li> <li>Hostname and Domain Configuration</li> <li>SNMP Settings</li> </ul> The AppAssure Console will automatically launch after the wizard completes successfully. For assistance, refer to the DL Appliance User's Guide (located at <a href="http://deil.com/support/manuals">http://deil.com/support/manuals</a> ).
	IMPORTANT: The appliance is configured with a 30-day temporary software license. Navigate to the Dell AppAssure License Portal at www.dell.com/DLActivation and use your provided license number to obtain a permanent key. License numbers are generally of the format X0xXXXXXXXX, and are emailed at the time of purchase. If you are having trouble finding your license key, please contact Dell Licensing. https://support.software.dell.com/licensing-assistance. Note: The "Windows Update" Service will be disabled temporarily and will be re-enabled when the wizard completes. Do not run Windows Update on this appliance until the wizard is complete.

7. Select one DL4300 NIC to begin the recovery of the DL4300 Appliance.

Collecting Information	Select the network interface(s) to configure
Network	
Hostname & Domain	The connected network interfaces are displayed below.
SNMP	Select the checkbox beside each network interface that you want to configure then click. Next to continue, the work of the configure and the click of the click that the click
RASR	Contracts in you would nike to comigure adultional network menaces, contract utern now and click are "Refresh bitto below."
Configuring	Refer to the Deployment Guide (located at <u>http://deil.com/support/manuals</u> ) for Advanced network configuration options
	Name
	Proadcom NetXtreme Gigabit Ethernet #7 - NIC3     Broadcom NetXtreme Gigabit Ethernet #8 - NIC4     Choose one NIC for the initial configuration.     Bond additional NICs and create other networks     as needed after the initial configuration of the DL     appliance.



8. Enter network settings for the selected NIC in the previous step.

Collecting Information	Configure selected netw	ork interface		
<ul> <li>Network</li> <li>Hostname &amp; Domain</li> </ul>	Broadcom NetXtreme	Gigabit Ethernet #	7 - NIC3	
SNMP     BASE	Choose the internet protocol for this in	iterface	● IPv4	O IPv6
Configuring	<ul> <li>Obtain an IPv4 address automatic</li> <li>Use the following IPv4 address:</li> </ul>	ally		
	IPv4 Address:	172.28.7.125		
	Subnet mask:	255.255.255.0		
	Default Gateway:	172.27.7.254		
	<ul> <li>Obtain DNS server address autom</li> <li>Use the following DNS server address</li> </ul>	natically ress:		
	Preferred DNS server:	172.28.7.103		
	Alternate DNS server:			

9. Configure the hostname and domain settings for the DL Appliance.

Collecting Information	Configure hostname and domain se	ttings
<ul> <li>Network</li> </ul>		
Hostname & Domain	Enter a new hostname for this appliance.	
SNMP	If the hostname is to be changed, it is recommended that backups. To change the hostname at a later point, refer	at the hostname be changed prior to starting to the DL Appliance User's Guide (located at
RASR	http://dell.com/support/manuals).	
Configuring	Current hostname:	DFJT9R52
	New hostname:	DL4300_A
	Do you want this appliance to join a domain?	
	bo you want this appliance to join a domain?	
	Domain name:	AA.com
	Domain user name:	administrator
	Domain user password:	••••••



10. Configure SNMP Settings.

Network   Hostname & Domain   SNMP   Configure SNMP on this appliance   RASR   SNMP master agent configuration:   Configure SNMP number (separate using commas):   Accept SNMP packets from these hosts (separate using commas, leave blank to accept all):   Configure SNMP Alerts:   Community name:   public   Trap destinations:   Configure SNMP addresses:   Community Name   Trap Destination   Remove	<ul> <li>Collecting Information</li> </ul>	Configure SNMP set	ings	
Hostname & Domain      The SNMP service provides network management over the TCP/IP protocol. This pane will configure SNMP trap settings for the S      SNMP     Configure SNMP on this appliance      RASR      Configure SNMP master agent configuration:     Communities (separate using commas):      Configure SNMP packets from these hosts (separate using commas, leave blank to accept all):      Configure SNMP Alerts:     Community name:     public     Trap destinations:         Add         Configured SNMP addresses:     Community Name     Trap Destination     Remove	Network			
SNMP     Configure SNMP on this appliance     RASR     SNMP master agent configuration:     Configuring     Configure SNMP master agent configuration:     Communities (separate using commas):     Accept SNMP packets from these hosts (separate using commas, leave blank to accept all):     Configure SNMP Alerts:     Community name:     public     Trap destinations:         Add     Configured SNMP addresses:     Community Name     Trap Destination     Remove	Hostname & Domain	The SNMP service provides net	work management over the TCP/IP protocol.	This pane will configure SNMP trap settings for the Server.
RASR SNMP master agent configuration: Configuing Configuing Accept SNMP packets from these hosts (separate using commas, leave blank to accept all): Configure SNMP Alerts: Community name: public Trap destinations: Configured SNMP addresses: Community Name Trap Destination Remove	▶ SNMP	Configure SNMP on this app	liance	
Configure SNMP Alerts: Community name: public Trap destinations: Configured SNMP addresses: Community Name Trap Destination Remove	RASR	SNMP master agent config	uration:	
Accept SNMP packets from these hosts (separate using commas, leave blank to accept all):  Configure SNMP Alerts: Community name: public Trap destinations: Add Configured SNMP addresses: Community Name Trap Destination Remove	Configuring	Communities (separate using co	ommas):	
Accept SNMP packets from these hosts (separate using commas, leave blank to accept all):  Configure SNMP Alerts: Community name: public Trap destinations: Configured SNMP addresses: Community Name Trap Destination Remove				
Community name:          public         Trap destinations:         Configured SNMP addresses:         Community Name         Trap Destination		Accept SNMP packets from thes Configure SNMP Alerts:	e hosts (separate using commas, leave blan	k to accept all):
public       Trap destinations:		Community name:		
Trap destinations: Add Configured SNMP addresses: Community Name Trap Destination Remove		public		
Add Configured SNMP addresses: Community Name Trap Destination Remove		Trap destinations:		
Configured SNMP addresses: Community Name Trap Destination Remove				Add
Community Name Trap Destination Remove		Configured SNMP addresses:		
		Community Name	Trap Destination	Remove

11. Optionally create Virtual Disks.

AppAssure Appliance Configuration Wizard					
Collecting Information	Create Windows and RASR virtual disk(s)				
<ul> <li>Network</li> <li>Hostname &amp; Domain</li> <li>SNMP</li> </ul>	The RASR (Rapid Appliance Self Recovery) pre-requisite checks have completed successfully. Select the virtual disk(s) to create and click "Next" to proceed.				
▶ RASR					
Configuring	Create ontional virtual disk(s):				
	Windows Backup virtual disk				
	Bootable RASR virtual disk				

**NOTE**: If Windows Server Backup is planned to be used for scheduled DL Appliance protection, the Windows Backup Virtual disk option must be chosen here.

**NOTE**: If the Windows Backup virtual disk or bootable RASR virtual disks already exist or have previously been configured, the following message appears *"No Windows Backup virtual disk or bootable RASR virtual disk can be created at this time."* 



12. Apply the provided DL configurations by clicking Next.

✓ Collecting Information	Thank You
Configuring	
Network	All the information required to configure the appliance has been collected.
<ul> <li>Software Licenses</li> </ul>	Click 'Next' to start the configuration process. This may take a few minutes.
Hostname & Domain	
SNMP	
• RASR	

13. Reboot the DL Appliance.



14. After reboot, the AppAssure Appliance configuration wizard starts and optionally creates the Windows Backup and/or RASR Virtual disks. When creation is finished, the following message appears. Click **Next**.





15. The restoration of the DL Appliance operating system is complete. Configure the remaining DL appliance NICs as needed.

AppAssu	AppAssure Appliance Configuration Wizard					
Collecting Information	Configuration Complete					
<ul> <li>✓ Network</li> <li>✓ Software Licenses</li> <li>✓ Hostname &amp; Domain</li> <li>✓ SNMP</li> <li>✓ RASR</li> </ul>	This portion of the AppAssure Appliance Configuration Wizard has successfully completed. Refer to the DL Appliance User's Guide (located at <a href="http://dell.com/support/manuals">http://dell.com/support/manuals</a> ) for any additional steps that are needed.         The "Windows Update" service has been re-enabled.         Click "Exit" to exit this wizard and launch the AppAssure Console. This console is the single point of administration for the appliance. Refer to the AppAssure documentation (located at <a href="http://docs.appassure.com">http://docs.appassure.com</a> ) for more information.					

16. The restoration of the DL Appliance operating system is complete. Configure the remaining DL appliance NICs as needed.



## 8 Appendix C: Windows Recovery Wizard – Network Backup Configuration

The RASR Windows Recovery Wizard recovery option offers a unique feature - to recover a DL appliance from a backup image that resides on a shared network drive.

#### 8.1 Configure a Scheduled Shared Network Drive Backup Policy

The DL appliance must create a recovery image on a network shared drive if it is to restore from it. To do so, Windows Server Backup is used.

NOTE: Windows Backup Server can preserve at most one backup on a network disk.



1. Map a network drive to be used as a backup target to the DL appliance.



1b.



2. Launch the DL appliance Windows Backup Server application.





3. Launch the Backup Schedule Wizard.

<b>5</b>		wba	dmin - [Windows Server Backup	(Local)\Local Backup]				o x
File Action View H	Help							
🗢 🔶 📶 🖬	1							
Windows Server Back	<sup>up (1</sup> Local Backup					Act	tions	
🐏 Local Backup	You can perfo	rm a single backup or	schedule a regular backup usi	ng this application.		Lo	cal Backup Backup Schedule	-
	A scheduled backu	up has not been configured fo	r this computer. Use the Backup Sched	ule Wizard to set up a regular, automa	ted backup to protect your da	100 100	Backup Once Recover	-
	Messages (Activity from la	ast week, double click on th	e message to see details)			[	Configure Performance Se	attings
	Time	Message	Description				View	•
	Status					L		
	Last Backup		Next Backup	All Backups				
	Status: -		Status: Not scheduled	Total backups:	9 copies			
	Time: - View details		Time: - View details	Latest copy: Oldest copy: View deta	3/2/2016 11:00 AM 2/29/2016 5:12 PM ails			

4. Select **Custom** to create a custom configuration.

Ło	Backup Schedule Wizard
Select Bac	kup Configuration
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Confirmation Summary	What type of configuration do you want to schedule? • Full server (recommended) I want to back up all my server data, applications and system state. Backup size: 9.55 TB • Custom I want to choose custom volumes, files for backup.
	< Previous Next > Finish Cancel



5. Add the following Items for backup. (Additionally add the item **Boot** if it exists).

10	Backup Schedule Wizard	x
Select Item	s for Backup	
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Confirmation Summary	Select the items that you want to back up. Selecting bare metal recovery will provide you with the most options if you need to perform a recovery. Bare metal recovery System state COVERY COVERY Add Items Remove Items Advanced Settings	2
	< Previous Next > Finish Cancel	

6. Select a backup schedule that fits your needs.

lo.	Backup Schedule Wizard				
Specify Backup Time					
Getting Started Select Backup Configurat Select Items for Backup	How often and when do you want to run backups? Once a day Select time of day: 12:00 AM				
Specify Backup Time	<ul> <li>More than once a day</li> </ul>				
Specify Destination Type Select Destination Disk Confirmation Summary	Click an available time and then click Add to add it to the backup schedule.         Available time:       Scheduled time:         12:00 AM       Add >         13:00 AM       Add >         2:30 AM       Add >         2:30 AM       Cancel				



7. Select Backup to a shared network folder.

ło	Backup Schedule Wizard
Specify De	stination Type
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation Summary	Where do you want to store the backups?         Back up to a hard disk that is dedicated for backups (recommended)         Choose this option for the safest way to store backups. The hard disk that you use will be formatted and then dedicated to only store backups.         Back up to a volume         Choose this option if you cannot dedicate an entire disk for backups. Note that the performance of the volume may be reduced by up to 200 percent while it is used to store backups. We recommend that you do not store other server data on the same volume. <ul> <li>Back up to a shared network folder</li> <li>Choose this option if you do not want to store backups locally on the server. Note that you will only have one backup at a time because when you create a new backup it overwrites the previous backup.</li> </ul> <ul> <li>Previous</li> <li>Next &gt;</li> <li>Finish</li> <li>Cancel</li> </ul>

8. Accept the message describing that only one backup will exist when using a shared network folder.





9. Enter the UNC name to the shared network folder to use as the backup target.

🐌 Backup Schedule Wizard				
Specify Remote Shared Folder				
Getting Started Location:				
Select Backup Configurat	(\1/2.28.7.10/\DL_Backup			
Select Items for Backup	Example: \\MyFileServer\SharedFolderName			
Specify Backup Time	This wizard creates a folder based on the name of the server being backed up, for example MvServer-BackupFiles.			
Specify Destination Type				
Specify Remote Shared F	Access Control			
Confirmation	O Do not inherit			
Summary This option makes the backup accessible only for the user whose crede provided in the next step.				
	<ul> <li>Inherit</li> </ul>			
	This option makes the backup accessible to everybody who has access to the specified remote shared folder.			
	(i) The backed up data cannot be securely protected for this destination. More Information			
	< Previous Next > Finish Cancel			

10. Enter credentials to be used to carry out the scheduled backup.

Windows Security X			
Register Backup Schedule Please provide the user name and password to use for scheduling backup. The user account should have write access to the network share and should be an administrator or a backup operator on the local machine.			
aa\administrator			
OK Cancel			



11. Confirm the backup policy settings and click **Finish**.

bo Backup Schedule Wizard 🗙					
Confirmatio	Confirmation				
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation Summary	You are about to create the following backup schedule.         Backup times:       12:00 AM         Files excluded:       None         Advanced option:       VSS Copy Backup         Backup destinations:       \\172.28.7.107\DL_Backup         Backup items       Image: Copy Backup         Name       Image: Copy Backup         Barchup items       Image: Copy Backup         Barchup items       Image: Copy Backup         Bare metal recovery       Image: Copy Backup         Image: Bare metal recovery       Image: Copy Backup<				

12. The configuration of Windows Backups stored on a network drive is complete.

Backup Schedule Wizard				
Summary				
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Specify Remote Shared F Confirmation Summary	Status: You have successfully created the backup schedule. Your first scheduled backup will happen at 3/3/2016 12:00 AM.			
	< Previous Next > Close Cancel			



### 8.2 RASR Recovery using a Shared Network Drive Backup

- 1. Launch RASR from any one of the supported methods supported by the DL appliance and select **Windows Recovery Wizard**. (See Section-3 Launching RASR)
- 2. Select Windows Recovery Wizard.

DL4300 Dell Rapid Appliance	Self Recovery (RASR)	v4.5.547
Steps Veloome Prerequisites Recovery Mode Storage Configuration OS Recovery Finish	Recovery Mode Selection     System Recovery     Windows Recovery Wizard     Factory Reset      Details:     This operation will launch the Microsoft Windows n wizard. Use this option if the OS backup is on a nee	ecovery Work share.
	<<8:	ack Next>> Cancel

3. Select Select a system image.

è	Re-imag	ge your co	mputer		×
	Sele	Select a system image backup This computer will be restored using the system image. Everything on this computer will be replaced with the information in the system image.			
R	This co Every1 inform				
and the second	Troubl http://	Troubleshooting information for BMR: http://go.microsoft.com/fwlink/p/?LinkId=225039			
Use the latest available system image(re				tem image(recom	mended)
	Locati	ion:	WinBacku	ips ({09F6B211-0	9A4-4E08-B4:
	Date	and time:	3/2/2016	9:00:05 AM (GM	Г-8:00)
	Comp	Computer: DL4300-A			
-	Select a system image				
			n d		Carrol
		<	Back	Next >	Cancel



4. Click Advanced....

è	F	e-image your computer		×		
	Select the location of the backup for the computer you want to restore If the system image is on an external device, attach the device to this computer, and then click Refresh.					
	If the system image is on a DVD, insert the last DVD from the system image backup. Click Advanced to add a network location or install a driver for a backup device if it does not show up in the list below. Current time zone: GMT-8:00					
	Location	Most recent system image	Computer			
	WinBackups ({09F6B2	3/2/2016 9:00:05 AM	DL4300-A			
	Advanced		Refres	h		
	< Back Next > Cancel					

5. Click Search for a system image on the network.

Re-image Your Computer	<b>×</b>
<ul> <li>Search for a system image on the network Connect to the network to find a system image that you want to restore.</li> </ul>	
Install a driver Locate and install a driver for a device that is attached to the computer b of available system images.	ut is not in the list
	Cancel



#### 6. Click Yes.

	Re-image Your Computer				
<u> </u>	Are you sure you want to connect to the network?				
	Make sure you are connecting to a trusted network. During this type of restore, your computer does not have security updates installed and might be vulnerable to malicious or potentially harmful software.				
	Yes No				

7. Enter the UNC name to the shared network folder that hosts the DL system image.

Re-image Your Com	puter 🗾
Specify the location of the system image.	
Network folder:	
\\172.28.7.107\DL_Backup	
Example: \\server\share	
	OK Cancel



8. Enter network credentials.

Windows Security
Enter network credentials Enter your credentials to connect to: 172.28.7.107
aa\administrator
Domain: aa
OK Cancel

9. Highlight the newly added network location and click **Next**.

è	Re-image your computer					
	Select the location of the backup for the computer you want to restore If the system image is on an external device, attach the device to this computer, and then dick Refresh.					
	If the system image is on a DVD, insert the last DVD from the system image backup. Click Advanced to add a network location or install a driver for a backup device if it does not show up in the list below.					
	Location	Most recent system image	Computer			
	\\172.28.7.107\DL_Ba	3/3/2016 10:00:06 PM	DL4300-A			
	WinBackups ({09F6B2	3/2/2016 9:00:05 AM	DL4300-A			
	Advanced Refresh					
	< Back Next > Cancel					



10. Highlight the system image that exists on the shared network drive. Click Next.

è	Re-i	image your computer	<b>×</b>	
s	Select the date and time of system image to restore If more than one system image is available and you're not sure which one to restore, choose the most recent one.			
Backups available for DL4300-A on \\172.28.7.107\DL_Backup\ Current time zone: GMT-8:00				
	Date and time	Drives in backup		
	3/3/2016 10:00:06 PM	C:, \\?bfbd0891-df27-11e5-80be-806	6e6f6e	
	4		>	
< Back Next > Cancel				

11. Click Next.





12. If the desired recovery image is correct, click Finish.



13. Click Yes to begin the DL recovery process.





14. The restoration process takes ~ XX minutes



15. Once restoration of the backup image is complete, the DL appliance will automatically restart. This completes the process for a RASR recovery using a shared network drive backup.



## 9 Appendix D Additional DL Appliance Resources

Component	Location	
DL4300 Manuals and Documents	DL4300 Product Support	
DL1000 Manuals and Documents	DL1000 Product Support	
AppAssure Appliance Configuration Wizard Demonstration	YouTube Video Demonstration	
DL4300 Specifications, Resources & Documents	DL4300 Appliance web page	
DL1000 Specifications, Resources & Documents	DL1000 Appliance web page	
AppAssure Specifications, Resources & Documents	AppAssure web page	
AppAssure product Support	AppAssure Product Support	

