



Dell AppAssure Universal Recovery™

The key to unlimited cross-platform restoration flexibility

Universal Recovery is a built-in Dell AppAssure tool for recovering whole physical machines, VMs, files or folders, as well as application objects, in minutes, not hours. With it you can recover to another physical or virtual machine located anywhere – locally, remotely or in the cloud – in about 15 minutes or less.

Universal Recovery Features

- **Bare metal recoveries** to dissimilar hardware without maintaining a journal of changes that you'd otherwise need to quickly build an exact copy
- **Cross-platform recoveries** from P2V, V2V, V2P, P2P for complete recovery flexibility across local, remote and cloud environments. With AppAssure, you can even move from hypervisor to hypervisor
- **Automated Virtual Standby** to VMware® ESX(i) and Microsoft® Hyper-V from any physical or virtual platform

Universal Recovery benefits

Universal Recovery automates critical steps that used to take hours to complete manually when working across platforms, so you can recover from one system to another in a fraction of the time. It's a key utility you'll use frequently to:

- **Improve business continuity**
 - No need to buy, inventory or administer identical spares
 - Increases recovery time granularity with a five-minute RPO (recovery point objective) Minimizes or eliminates the potential for data loss
 - Delivers a near-zero RTO (recovery time objective) to get you up and running quickly after a disaster
- **Accelerate virtualization initiatives**
 - Create virtual machines from a recovery point by leveraging existing virtual infrastructures
 - Move from a physical to a hypervisor platform in minutes, eliminating tedious and error-prone manual bare metal builds
 - Move effortlessly between virtual platforms or between virtual and physical environments
- **Simplify application testing**
 - Create a clone of a production machine in minutes, apply an application upgrade to it and test
 - When ready, recover the upgraded application back to your primary machine with just a few keystrokes
 - Doesn't interrupt user access to the application

All of this results in lower costs, faster service restoration, higher reliability and increased user confidence in the IT organization.

Eliminating the hard work of system migration

Universal Recovery eliminates the manual steps that are traditionally required to migrate from physical to virtual, virtual to virtual or even virtual to physical.

It works across leading virtual platforms: VMware® and Microsoft® Hyper-V.

It also **works across multiple locations:** your server room, disaster recovery center or in the cloud.

And because it's hardware-agnostic, Universal Recovery eliminates the need to acquire and maintain identical spare machines.

How Universal Recovery works

Universal Recovery is made possible by Dell AppAssure's ability to break the bond between the physical characteristics of the rotating media (disk drives) and the data content. Let's look at how this technology is used to improve bare metal recovery times.

Bare Metal Recovery (BMR)

When either a new or an existing virtual or physical machine is disabled, say by a corrupted partition or infected operating system, the AppAssure BMR feature is a fast-track step you can take to restore it to a healthy, working state. AppAssure takes the data present in an existing Recovery Point for the affected machine and restores it to another machine's disks, completely overwriting existing data and turning the machine into a clone of the AppAssure Recovery Point. The process takes advantage of AppAssure disk imaging technology to complete the process in a small fraction of the time required by a traditional BMR.

AppAssure allows administrators to easily perform a BMR to any target machine regardless of what hardware or virtual platform the source machine came from. For example, take a machine that resides on legacy hardware and easily migrate it to modern hardware or to a virtualization platform. Restoration to dissimilar hardware is as simple as acquiring the storage controller drivers for the target system and pushing a button to inject the new machine's storage controller drivers into the restored image, making it 100% bootable on dissimilar hardware. This process eliminates a time-consuming, hours-long rebuild involving the installation of a Windows operating system, patches and applications, and then restoring the data.

The process for performing a BMR is simple and only requires the AppAssure Core Server and a target machine.

Target Machine process for BMR Recovery

- The target machine must communicate with the Core Server to receive the recovery data. This is accomplished by booting the target machine with a CD image created by the AppAssure Core.
 - The CD image created by the Core is an .ISO file that may be used to burn physical CDs or mounted in the virtual CD drive of a VM.
 - The .ISO file is a standard Windows PE image commonly used for remote disk imaging.
 - To create the boot CD, access the Boot CD menu item in the Tools tab of AppAssure console. Figure 1, below, shows the Boot CD creation menu where the administrator supplies a file name and presses the Create Boot CD button to start the process.

Class	Name	Date	Version	Manufacturer
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Figure 1: Creating the ISO CD image

The BMR target waits to be contacted by AppAssure Core after it has been booted from the AppAssure Recovery CD as shown in Figure 2.

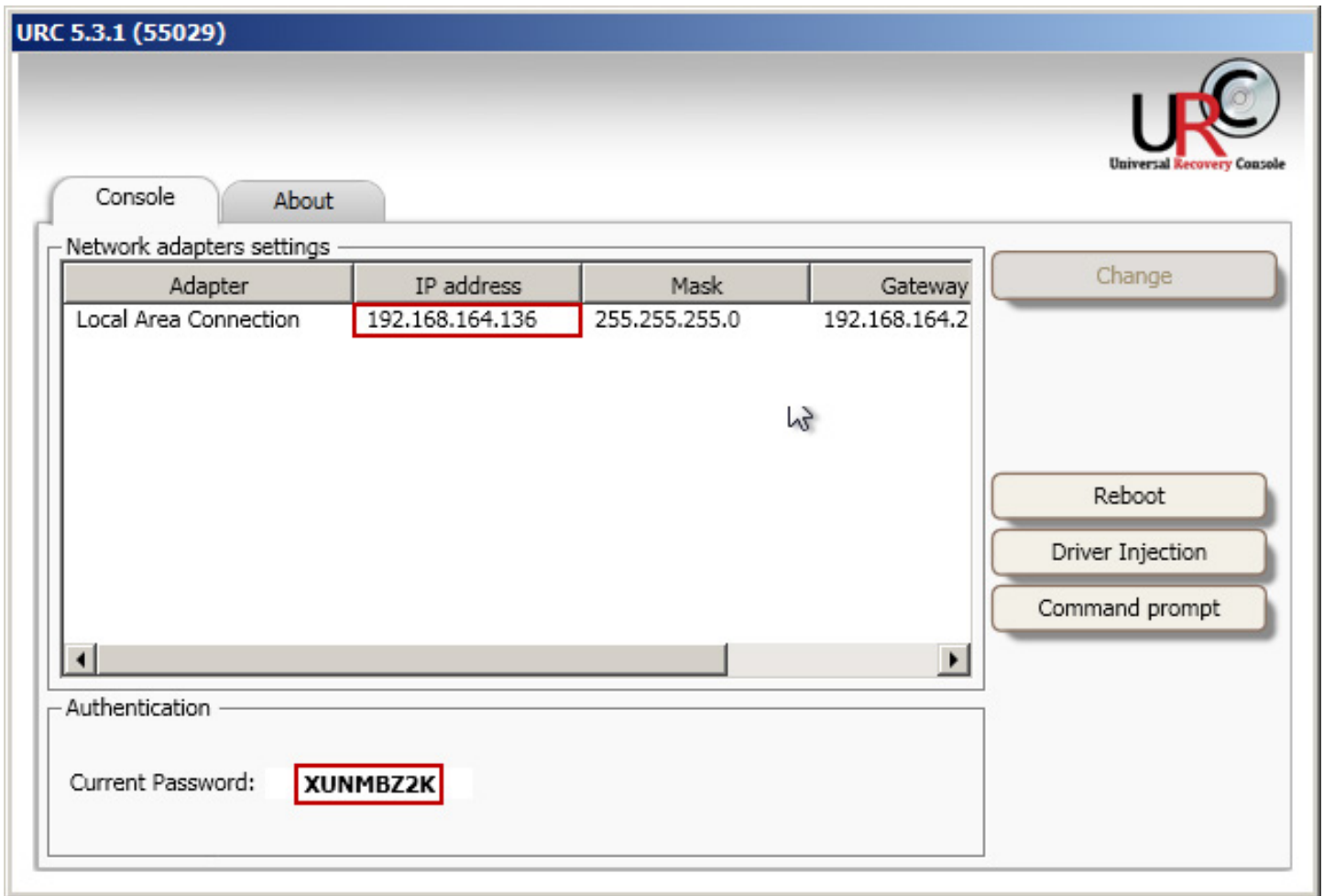


Figure 2: BMR Target waiting for data

- The Core then sends data blocks to be written to the local drives of the target server.

Dell AppAssure Core Operations for BMR Recovery

The user selects an AppAssure Recovery Point to be downloaded to the target by the Core. This operation restores the operating system, applications, data files and the state of server based on the Recovery Point you select.

The specific steps to start the BMR are:

1. Open the AppAssure 5 Core Console and navigate to the Summary page of the machine that is the source of the restore.
2. Click the Actions menu for the machine and then click Recovery Points menu item to view a list of all recovery points for that machine.
3. Expand the recovery point from which you want to restore and click Rollback.
4. In the Rollback dialog box, under Choose Destination, select Recovery Console Instance - this is the AppAssure Boot CD that the target machine has been booted to.

AppAssure AppAssure Core 0 > SharePoint-2010-001 > Recovery Points Contact AppAssure Support | docs | Version: 5.3.1.55029

Summary Recovery Points Events Tools Configuration

SharePoint-2010-001 Recovery Points

Summary

- Total Recovery Points: 20
- Passed Checks Count: 0
- Required Checks Count: 0
- Failed Checks Count: 0
- Total Protected Data: 23.64 GB
- Repository: Repository 1

Repository Status

Repository	Used (GB)	Free (GB)
Repository 1	17.4	70.8

Recovery Points Actions

Status	Encrypted	Contents	Type	Creation Date	Size
▼	🔒	C:\	Incremental	11/28/2012 7:10:40 AM	94.36 MB

Actions: Mount Export Rollback Delete Check

Contents

Status	Title	Size
>	C:\	94.36 MB

Figure 3: Recovery Points with Rollback selected

5. Selecting Rollback (Figure 4 below) causes a Pop-up box (below) to be displayed. In the Host and Password text boxes, enter the IP address and password for target machine.
6. Click Load Volumes to load the target volumes to the new machine.

Rollback - Choose Destination

Protected Machine

SharePoint-2010-001 (Source)

Recovery Console Instance

Host:

Password:

Load Volumes

Figure 4: Rollback Choose Destination Menu

You may monitor restoration progress by navigating to the Events tab on the AppAssure console. Once it's complete, reboot the target machine to verify the operation of the new server.

Congratulations. The machine has been restored with minimal effort.

Cross-platform recoveries

Similarly, cross-platform BMR enables the AppAssure Core to restore any Recovery Point from a protected machine to any target disk. This powerful function can be used for P2P (physical to physical), V2P (virtual to physical) and V2V (virtual to virtual) recoveries to target machines that already exist.

This is accomplished by using the Core console and navigating to the Recovery Points tab of the protected machine. The user selects a Recovery Point and then pulls down the Export menu. Use the menu to select the appropriate VM platform and dialog(s) will guide the process.

Exports – AppAssure-Created Virtual Machines (one-time VM export)

To speed your virtualization efforts, AppAssure supports Export recoveries. Exports create new virtual machines for a protected server. Exports are appropriate for any restoration where the target is to be a new VM.

An AppAssure-protected server may be easily replicated to a Virtual Machine using AppAssure Recovery Points. AppAssure can create VMware ESX(i), VMware Workstation and Microsoft Hyper-V VMs using a one-time VM export feature.

For example, selecting VMware Workstation from the Export menu causes a pop-up that requests the file location for the output VM and a new name for the VM. Pressing the Export button starts the creation of the VM. All protected disks of the machine are virtualized and the VM may now be started in VMware Workstation. It takes only few mouse clicks to convert your physical machine to a virtual machine! Creation of ESX(i) and Hyper-V VMs is just as easy.

Exports - AppAssure Automated Virtual Standby

The Export function also allows for the creation of a Continual Export, called a Virtual Standby. This option is enabled by a single checkbox in the Export dialog. This results in a VM that is continually updated and may be started any time the source machine fails. The machine can be back in service within minutes of the machine failure by just starting the VM. This frees you to complete a diagnosis of the failing machine without time pressures. This export is available for all three types of exports: ESX(i), VMware Workstation and Hyper-V. It enables an extremely fast recovery that is easily implemented.

Conclusion

Dell AppAssure removes complexity from the administrator's life by restoring service without the frustration normally associated with a recovery. For more information about Dell AppAssure Universal Recovery, or any other Dell AppAssure feature, please contact a sales rep. He or she will be glad to schedule a one-on-one demonstration of AppAssure backup and recovery software with an expert Dell AppAssure sales engineer. Or, if you're ready to try it yourself, why not download a full working copy for your own 14-day trial evaluation?