

# FEATURE GUIDE

Double-Take® Application Manager

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## Double-Take® Application Manager

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# Introduction

## Product Description

For application protection, Double-Take® includes a unified console where you can manage all of your application protection options for both data replication and application monitoring/failover. This overall suite of application-specific console capabilities is called Double-Take Application Manager.

Double-Take Application Manager is designed specifically for the configuration and management of Microsoft Exchange, SQL Server, and Windows File Services application protection. It automates the setup and configuration of real-time protection and application availability management for these business-critical applications and services. Features such as auto-discovery of servers and key application-related data files simplify the process down to just four steps and reduce the risk of human error.

Exclusive capabilities such as “pre-flight check” help ensure that all necessary settings within the environment are configured correctly for replication and failover. Any exceptions identified are listed along with suggestions for resolution. Double-Take Application Manager checks over 70 different configuration criteria and can automatically correct a majority of them on the administrator’s behalf. This helps achieve a seamless, error-proof deployment. Double-Take Application Manager also allows administrators to perform recovery and failback operations for Microsoft Exchange, SQL Server, and Windows File Services when the production server is available again with minimal downtime. By performing recovery tasks while users remain online, downtime is reduced to just the few moments that it takes for Double-Take to stop and start the necessary services and relegate processing back to the production server.

Since the Double-Take Application Manager is an integrated part of the Double-Take for Windows® product, administrators can also leverage the extensive set of features and functionality provided by Double-Take. Advanced features including patented real-time data replication, intelligent data compression and flexible bandwidth scheduling are all available for reliable, efficient replication of data. This feature guide describes the base functionality provided by the Double-Take Application Manager feature and highlights application-specific options for protection of Microsoft Exchange, SQL Server, and Windows File Services.

## Features

### Server Auto-Discovery

Double-Take Application Manager can automatically discover servers in the environment via either Active Directory or networking scanning techniques and populate the server selection drop-down controls for each of the respective application management console views. It will also automatically discover the Active Directory domain of the current logged-in user for the purpose of authentication when appropriate. Auto-discovery of servers allows you to configure replication and failover from the user interface with ease. Manual server selection of the source and target servers is also available if needed.

### Auto-Selection of Replicated Data

Depending on which application is being protected, Double-Take Application Manager will automatically discover data to be replicated as part of application protection. For Microsoft Exchange, the source server's stores will be added to the replication set. For SQL Server, the source server's SQL databases will be selected for replication by querying SQL for available system and user databases in the protected SQL instance. For file servers, any data exposed as a share is automatically protected.

### DNS Failover

DNS Failover is one of the two failover methods supported by Double-Take Application Manager and is the recommended method of failover for applications. DNS Failover provides the ability to failover by updating the DNS records associated with the source server (Figure 1). It modifies all source server A, CNAME, MX and PTR-type DNS resource records to point to the target server's IP address at failover time. A major benefit of this failover method is that it reduces the risk of duplicate server name and IP addresses on the network.

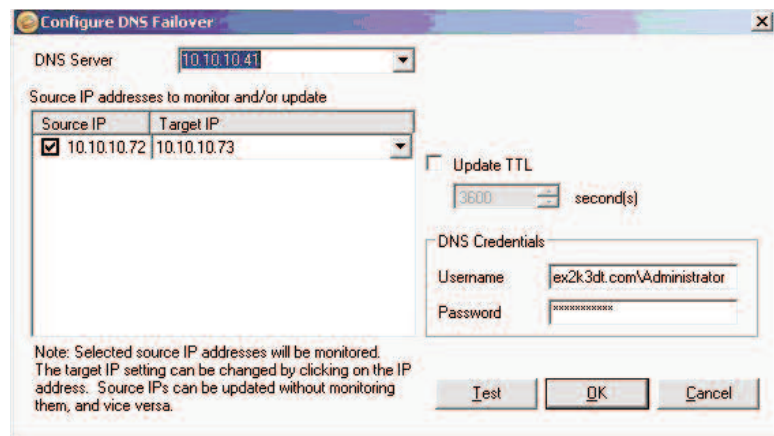


Figure 1: DNS Failover

### (New) Advanced Failover Options for DNS Failover

Double-Take Application Manager offers a new feature that provides IT administrators the ability to failover the source server's hostname and Active Directory SPNs (Service Principal Names) as part of DNS failover. Previously, there was no ability to failover these components of the source server's identity as part of DNS failover.

### Identity Failover

Identity Failover is the second failover method supported by Double-Take Application Manager. This failover method transfers the source server's IP address and NETBIOS name to the target server at failover time. When using identity failover, it is possible that a name and/or IP address conflict can occur either during failover or when the original source server comes back online. Though it isn't the preferred failover method for DTAM, it may be required when access to an Active Directory Domain Controller or DNS server is not available.

### Integrated Recovery

To ease recovery and minimize downtime, Double-Take Application Manager provides integrated restore and failback capabilities to seamlessly manage restoring the data and managing the failback process to the original production server (Figure 2). When using the DNS failover option, integrated restoration and failback reduce the overall downtime required for the recovery process by automatically creating a reverse replication set from the target back to the original source and then replicating the target data to rebuild the production server.

The target server remains online and available to users during the entire recovery process, allowing the production server to be rebuilt at any time without impacting users' productivity. Once the restore is complete, Double-Take will continue to replicate changes on the target back to

the original source until failback is performed. This ensures the servers remain synchronized. Failback can subsequently be initiated at any time with the assurance that all data will be current once the failback is complete. This process allows the recovery to run transparently during the day and remain in sync allowing the failback to be performed off hours - minimizing the impact to users. Failback is performed gracefully by stopping services and completing all in-process transactions. All final changes on the target will be replicated back to the production server before performing the actual failback to prevent any loss of data.

### Failback Options

For testing purposes, failback can be initiated without restoring the target data. Failback options include:

*Immediate* – initiate failback once data recovery is complete

*Prompt for failback* – allows failback to be initiated manually rather than automatically after data recovery is complete. Data will continue to be replicated until failback is initiated.

*Select compression settings for restore* – set at the level for source > target connection, but allows you to change the level for restore.

### (Updated) Enhanced Protection Statistics

Each application-specific console that is part of Double-Take Application Manager provides protection statistics during real-time protection of data to the target server and recovery of the data to the original source server. These statistics include data transferred (uncompressed), data transferred (compressed), duration time of connection, quantity of data in target queue, bytes remaining for mirroring, mirror status and replication status. In addition, these same statistics are now provided during the restoration process as well.

### Double-Take Management Console Integration

As an integral part of Double-Take for Windows®, Double-Take Application Manager is directly integrated into the standard Double-Take Management Console. Upon selecting an Exchange, SQL, or Windows File Server from the list of managed servers in the management console, the Application Manager can be launched in the appropriate context, ready for protection of the managed server.

### Validation Checks

Using our exclusive “pre-flight check”, Double-Take Application Manager includes many points of validation to reduce or even eliminate the potential for environmental and configuration errors. The pre-flight check eliminates the tedious task of manually debugging environmental barriers that prevent Double-Take from successfully protecting one of Double-Take Application Manager’s supported applications. Double-Take Application Manager provides problem descriptions and automates correcting the majority of these exceptions - helping guide administrators to a rapid resolution.

### Integrated Double-Take Controls

Adding to the simplicity and ease of which Double-Take SQL and Exchange protection are deployed and managed, Double-Take Application Manager integrates standard Double-Take controls into its management console to reduce and even eliminate the need to use the Double-Take Management Console to configure and manage application protection.

IP Route selection – Choose the appropriate network to transmit replication data

Compression – Select the level of compression for each SQL replication set

Configure failover monitoring – Enable failover and select the method; identity or DNS failover

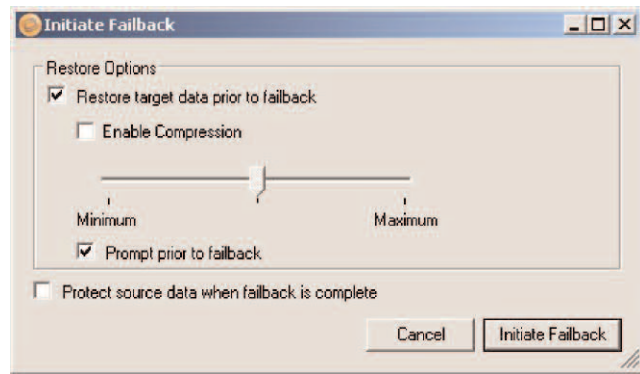


Figure 2: Integrated Recovery

## Multiple IP Address Monitoring

For enhanced failover monitoring and prevention of false failovers, Double-Take Application Manager allows you to specify and monitor multiple IP addresses to determine if failover is necessary. Failover can be configured to occur when either one or all of the monitored IP addresses fail.

By monitoring multiple IP addresses, Double-Take Application Manager can help prevent a false failover when connectivity of a single network connection fails. Double-Take will attempt to contact the source server on the alternate IP addresses and if successful will not initiate a failover. Specific IP addresses can also be left unmonitored if they are not critical to the operation of the application being protected.

## Comprehensive Management Console

Double-Take Application Manager features a robust monitoring screen with an easy-to-use control layout. This design allows you to quickly see statistics and simplifies the use and management of Double-Take Application Manager by grouping related features for more intuitive navigation (Figure 3).

## Protection Templates

To simplify the process of making changes to Double-Take Application Manager configurations, global-setting changes are automatically saved as the default values. In addition, after setting up and enabling protection for a particular connection, that connection's configuration information can be used as the default configuration for the next connection configured. The automated persistence of configuration settings saves time and effort to simplify protection management.

## SQL-Specific Features

### Configurable Data Protection

Double-Take Application Manager provides the flexibility to reduce backup server storage requirements and bandwidth utilization by providing the option to select the entire SQL server, individual named instances or individual databases for protection and failover (Figure 4).

In SQL instance protection mode, Double-Take Application Manager replicates all of the SQL program and data files (except the \bin directory) to the target SQL server. This allows clients to access production SQL Server data and functionality on the target in the event of a failure. SQL instance protection mode requires that the source and target servers both have the exact same version of SQL (major and minor versions) as well as similar logical drive structures. Individual user databases can be deselected from protection but the System databases (except for TEMPDB) are required.

In Database-only mode, Double-Take Application Manager will only replicate specific user database .MDF, .LDF and .NDF files to the target SQL server. The selected database will be attached to the target SQL server upon failover, providing access to the data.

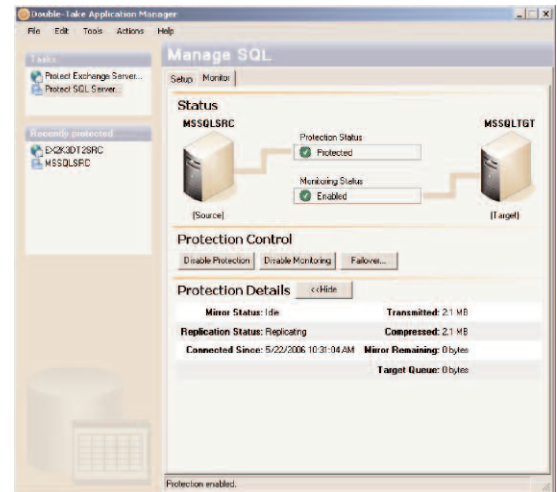


Figure 3: Comprehensive Management Console

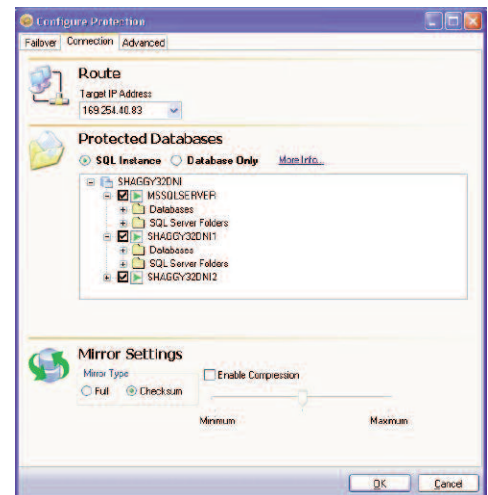


Figure 4: Configurable Data Protection

### (New) Workgroup Server Support

Double-Take Application Manager now provides the ability to protect SQL servers which are configured as part of a workgroup in addition to members of an Active Directory domain.

### (New) Many-to-One Support

Double-Take SQL Manager provides many-to-one support, allowing you to replicate multiple SQL servers to one target server for protection and failover. This method of protection uses Application Manager's "database only" mode as described above.

### (New) SQL Named Instance Support

Double-Take SQL Manager can discover and protect not only default, but named SQL instances as well.

### SQL Configuration Cloning

Further simplifying the overall configuration of SQL protection with Double-Take, Double-Take Application Manager provides the ability to clone the production SQL server configuration to the target server. Simply perform the base install of SQL on the target server and Double-Take will replicate the necessary configuration settings to ensure the target is ready to be brought online without additional manual changes.

When performing a validation, if DTAM discovers that there are differences in the SQL server settings between the source and target servers, the option is provided to clone the production server to the target server. Cloning helps minimize configuration errors and the risk of an incomplete or incorrectly configured target server should a failover occur. Setup time is reduced by eliminating the need to manually configure the target server, while future changes need only be made once to the production server as Double-Take will replicate those changes to the target.

## Exchange-Specific Features

### (New) Microsoft Exchange 2007 Support

Double-Take Exchange Manager supports Microsoft Exchange 2007.

### Configurable Data Protection

Though it is recommended that all storage groups be protected, Double-Take Application Manager provides the flexibility to reduce backup server storage requirements and bandwidth utilization by selecting one or more Exchange storage groups to failover. At failover, only the users associated with the selected storage groups will be moved to the target server.

### Improved Failover Times

Double-Take Application Manager contains functionality that allows the immediate propagation of Active Directory and DNS changes during a failover. While this process can typically take up to 45 minutes for Windows to make the changes globally, Double-Take Application Manager can request immediate propagation of these changes to allow users to reconnect to the target server much more quickly.

### Target Data Verification

Double-Take Application Manager allows for the testing of replica data through its Target Data Verification feature. As long as the target server is running Windows Server 2003 SP1 or later, testing can be performed against the replicated copy of Exchange data without the need to stop tracking changes on the source server or to re-mirror the dataset once testing is complete (Figure 5).

While in verification mode, Double-Take will queue changes on the target server in the specified queue directory without applying them to the replicated copy of the data. These changes are still available, however, should an outage occur and failover be required to be performed immediately.

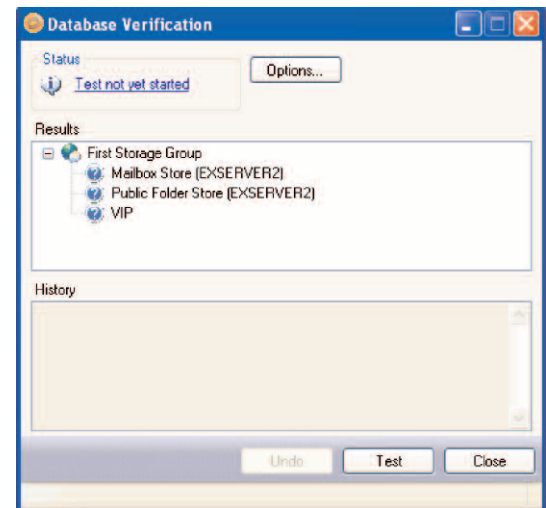


Figure 5: Target Data Verification

Several options are available for testing and different status indicators can reflect the status of testing and its results. At the end of the test, changes to the replicated data are reverted using a snapshot performed at the beginning of the test and application of the replicated data in the replication queue is resumed.

### **Exchange Configuration Cloning**

Further simplifying the overall configuration of Exchange protection with Double-Take, Double-Take Application Manager provides the ability to clone the production Exchange server configuration to the target server. This includes the creation and configuration of storage groups and mailbox stores if needed. Simply perform the base install of Exchange on the target server and Double-Take will replicate the necessary configuration settings to ensure the target is ready to be brought online without additional manual changes.

When performing a validation, if DTAM discovers that there are differences in the Exchange server settings between the source and target servers, the option is provided to clone the production server to the target server. Cloning helps minimize configuration errors and the risk of an incomplete or incorrectly configured target server should a failover occur. Setup time is reduced by eliminating the need to manually configure the target server, while future changes need only be made once to the production server as Double-Take will replicate those changes to the target.

### **Cluster Configuration Support**

Double-Take Application Manager includes support for Exchange clustered configurations. Protection configuration of Exchange clusters leveraging Microsoft Clustering Services (MSCS) can be done through DTAM in the same way stand-alone servers are protected. Because Double-Take is tightly integrated with MSCS, no modification of your existing cluster environment is required and failover can happen automatically without administrator intervention if desired.

### **(New) Cluster to Standalone Capability**

Using clustered source servers and a standalone target server, Double-Take Application Manager can now configure failover from a clustered environment to a non-clustered environment, providing a cost-effective solution for disaster recovery and remote availability.

## **File Services-Specific Features**

### **(New) Support for File Servers**

Double-Take Application Manager v4.2 introduces support for the configuration of file server replication and failover leveraging all of the common features described in this feature guide as well as the file server specific features listed below.

### **(New) File Share Auto-Discovery**

File shares are auto-discovered and presented in a logical grouping on the user interface.

## About Double-Take® Software

Headquartered in Southborough, Massachusetts, Double-Take® Software (Nasdaq: DBTK) is a leading provider of affordable software for recoverability, including continuous data replication, application availability and system state protection. Double-Take Software products and services enable customers to protect and recover business-critical data and applications such as Microsoft Exchange, SQL, and SharePoint in both physical and virtual environments. With its unparalleled partner programs, technical support, and professional services, Double-Take Software is the solution of choice for more than ten thousand customers worldwide, from SMEs to the Fortune 500. Information about Double-Take Software's products and services can be found at [www.doubletake.com](http://www.doubletake.com).

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