

# Indian Health Service (IHS) Electronic Dental Record (EDR) Business Continuity/Server Backup Plan

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## 1. Overview

The recommendations below are guidelines for providing business continuity/disaster recovery for the Electronic Dental Record project (EDR) to be able to provide dental care to patients should hardware or software failures occur. All policies and procedures for reporting, recovering and supporting critical hardware, software, and data should be in accordance with national IHS policies and local site policies and procedures to recover systems as efficiently as possible. The guidelines below are for general recovery of hardware and/or software failures. Disasters resulting from natural or environmental events need to be addressed through the local site business Continuity of Operations Plan (COOP).

The data in the dental database is one of the most valuable resources used in running the dental facility. Dentrix Enterprise customers are responsible for maintaining their database and for ensuring that they have an adequate disaster recovery plan. To accomplish this, trained personnel and the equipment necessary to support the EDR database are needed to implement the local site disaster recovery plan (see Appendix A for Support Contact Information). In order to protect the EDR investment, a backup and disaster recovery plan must be developed, implemented, maintained, and tested to protect the data. Processes must be implemented to repair hardware as well recover data and restore/reinstall the associated software needed to run the servers to get systems back on line.

The purpose of this document is to provide general COOP guidelines for the EDR in the event of various hardware, software or disaster events that may disrupt normal business operations. This document will provide overview, recommendations, and some specific details that can be used to create a disaster recovery plan for the EDR or to merge the EDR plan into an existing disaster recovery plan.

**This document is not intended to provide, nor can it provide all necessary information, steps, training, and configurations to fully develop and implement a disaster recovery plan.** This document assumes that local IT staff and management will have some existing training and experience in installing, configuring, and supporting IT tools, operating systems, domains, database servers, backup tools, disaster recovery plans, etc. in order to fully and successfully implement an effective disaster recovery plan for the EDR.

## 2. Hardware and General Data Backup Recommendations

### Hardware

In order to avoid certain system outages, redundant or backup hardware is recommended whenever possible. It is also recommended that hardware maintenance be procured support through the hardware vendor for 4 hour response times or better. This will assist in the limitation of or reduction of extended system outages due to hardware failures and allow the site to leverage the existing technology solutions to best serve patients and customers.

### Redundant Hardware

It is recommended that the hardware solution offer redundancy whenever possible. This would include but not be limited to redundant power supplies, various forms of RAID configurations, extra servers, etc.

### ***Vendor Support***

Remote Support: EDR hardware should have a warranty provided by the manufacturer to assist in resolution of business critical hardware (EDR Server provided under the EDR Deployment contract, are provided with 5 years of Dell 4 hour on site Gold Support). This should include 24x7 responses of a certified hardware and software technician to troubleshoot issues and then offer recommended and supported solutions. It is recommended appropriate personnel be aware of and know how to contact and obtain warranty hardware support from their service contract, should the need arise.

### ***Local/Onsite Support***

Warranty support should include provisions to dispatch a technician with replacement components to get the hardware back up and running within the committed service levels of the manufacturer warranty. IHS EDR manufacturer's warranties (including how to contact the vendor) are delivered with the server hardware at the time of install.

### **Operating System**

#### ***CDs***

Original installation CDs and/or DVDs and licenses for the operating system and other purchased products will be delivered with the EDR server hardware. These CDs and/or DVDs should be stored in a safe place for use in a disaster recovery situation in order to reinstall the operating system and associated products and licenses.

#### ***OS Files and Data***

All critical Operating System directories and OS data files should be backed up to tape and/or disk on a nightly basis and should be stored offsite for security purposes. This will ensure the data is available for recovery should a disaster happen with the facility and all systems are lost. These tapes will also allow for recovery of corrupt or missing file(s) and/or directories in the case of a minor failure. These could be critical system files, application files, client files, document folders, etc. The processes associated with this backup methodology should be in accordance with local business continuity policies.

### **Business Critical Applications**

#### ***Application DATA***

All business critical application data including non-EDR related applications should be backed up to tape and/or disk and be stored offsite for security purposes. This will ensure the data is available for recovery should a disaster happen with the facility and all systems are lost. These tapes will also allow for recovery of corrupt or missing file(s) and/or directories. These could be critical system files, application files, client files, documents, etc. Access to these tapes will allow for quick recovery of the business applications. The processes associated with this backup methodology should be in accordance with local business continuity policies. The restore process should be tested periodically to validate the reliability of the backup solution prior to an emergency need arising.

## 3. EDR Backup

### Critical EDR Data, Directories and Files

#### EDR Data

The data stored in the EDR database is crucial to providing patient care and running the dental business. Detailed focus should be afforded in ensuring a proper EDR data backup plan for each EDR location is in place and working properly.

#### Initial Backup Configuration

When the database servers are delivered for the EDR project, they will come preconfigured with backup plans at both the MS SQL Server level as well as tape backup plans. Training will be provided during the hardware install to show the local IT personnel how to use these pre-configured plans. IT personnel can use pre-configured backup plans or they may want to review them and modify or add additional items to meet their specific requirements for their site.

#### EDR Server Initial Configuration

When EDR servers are delivered to and installed at the sites, a completed hardware configuration form for that specific server will be supplied to the IT personnel. The IT personnel will want to save this form in a safe location. The hardware configuration form will provide all of the details of how the server hardware is configured, including memory, processor, hard drives, raid configuration, OS versions, etc.

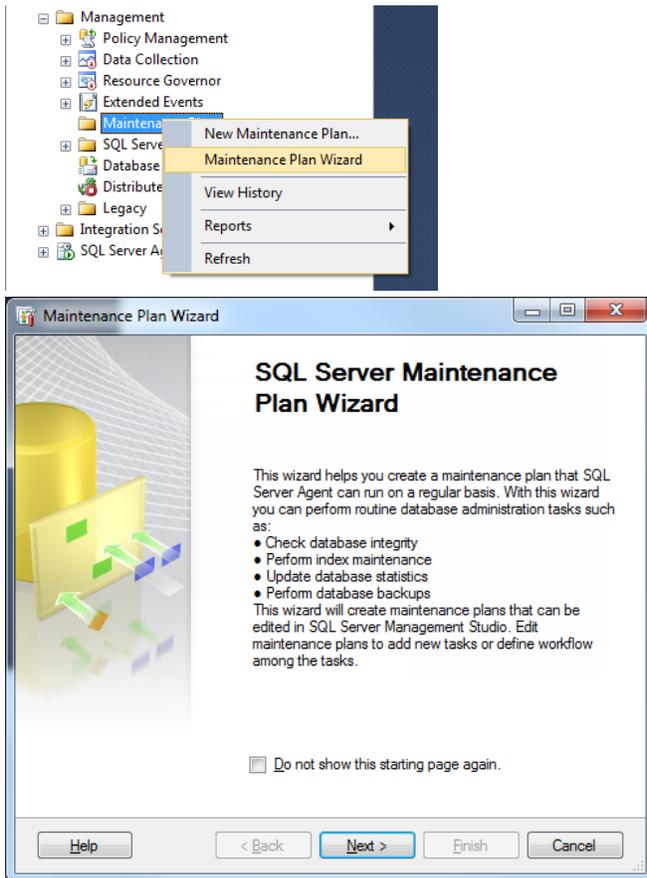
#### Backup Prerequisites

It is very important to choose a backup directory that is not on the same drive as the windows operating system. For those locations that are also storing digital images, a maintenance plan will also need to be run for that DB as well. Below are some sample/preconfigured MS SQL maintenance plans for the EDR database and image database plans and the associated backup data paths.

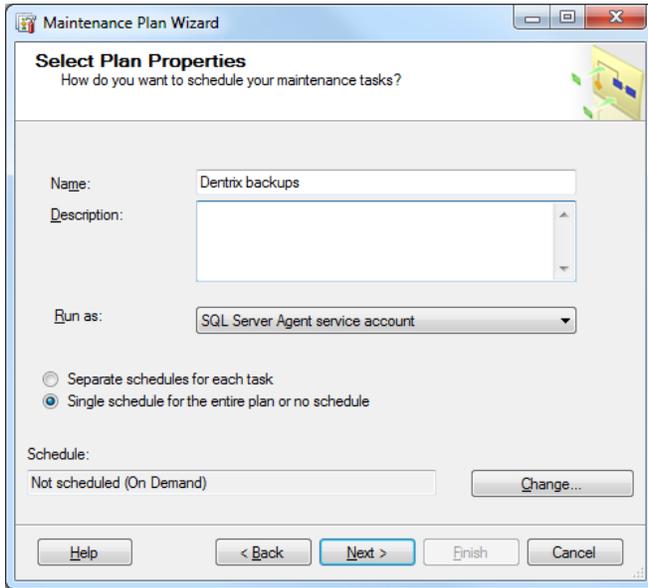
## EDR Database (SQL) Maintenance Plan

The following explains how to set up an MS SQL maintenance plan for the EDR database using the Maintenance Plan Wizard.

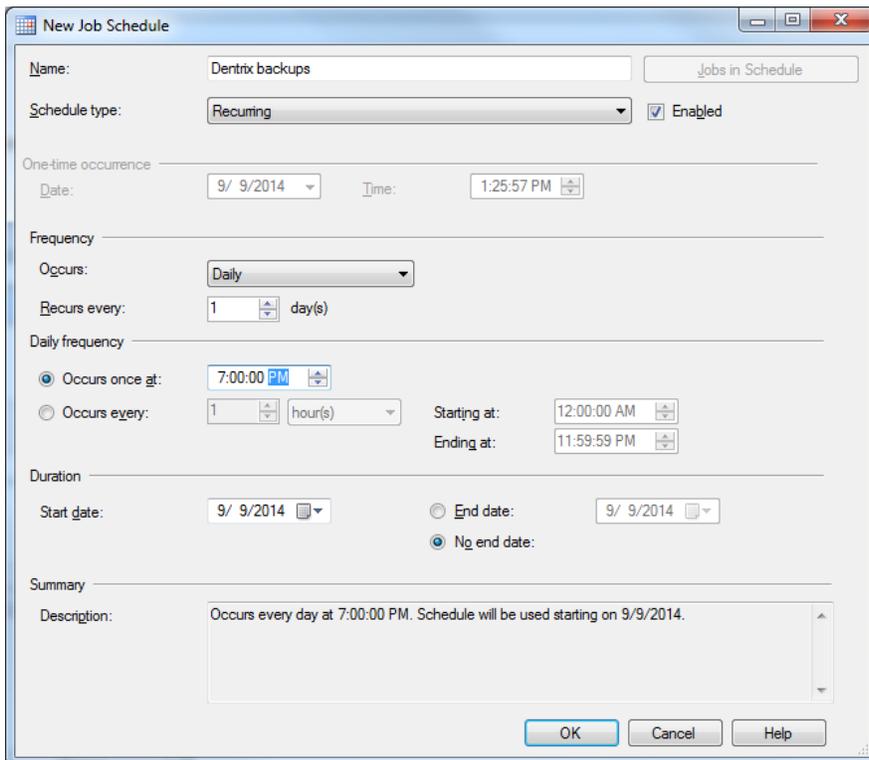
1. In SQL Server Management Studio, right-click **Maintenance Plans**, and then click **Maintenance Plan Wizard**.



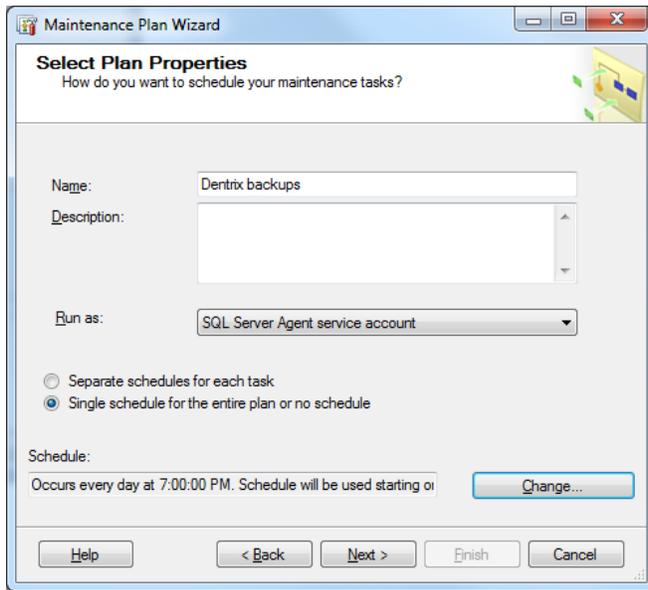
2. Click **Next**.



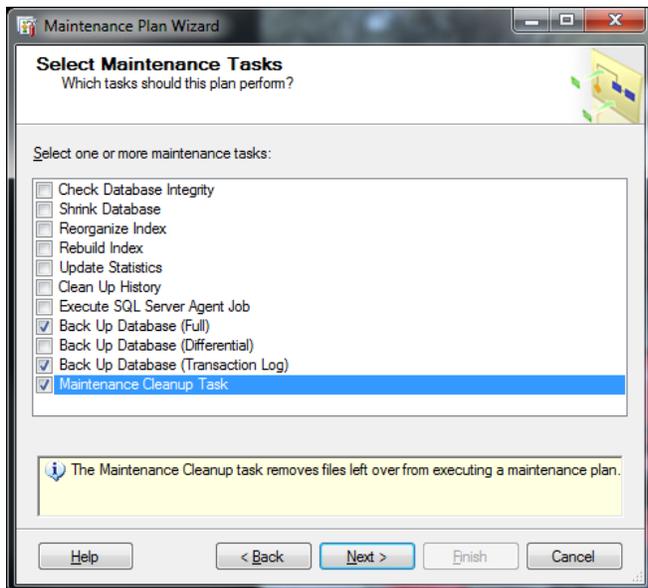
3. Enter a name for the plan, such as “Dentrix backups,” and then click **Change** to set a schedule for when this should run.



4. Set it up similar to the screenshot above, and then click **OK**.

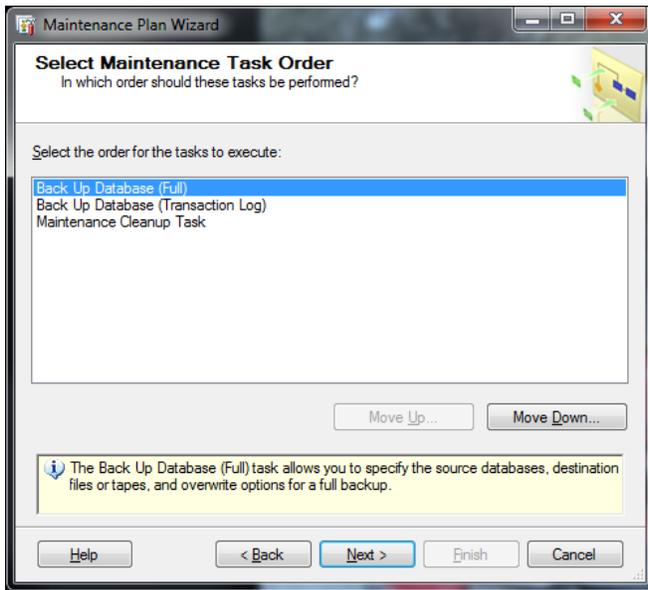


5. Click **Next**.

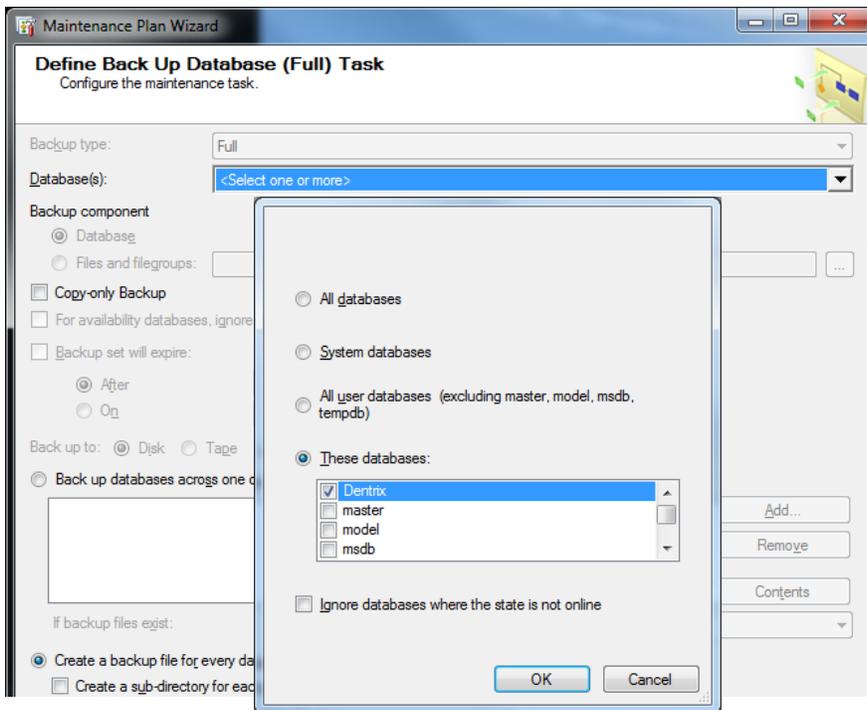


6. Select **Back Up Database (Full)**, **Back Up (Transaction Log)**, and **Maintenance Cleanup Task**.

7. Click **Next**.



8. Click **Next**.



9. Select the Dentrix and Dexis databases from the **Database(s)** list.

**Maintenance Plan Wizard**

**Define Back Up Database (Full) Task**  
Configure the maintenance task.

Backup type: Full

Database(s): Specific databases

Backup component

Databasg

Files and filegroups: ...

Copy-only Backup

For availability databases, ignore Replica Priority for Backup and Backup on Primary Settings

Backup set will expire:

After 14 days

On 9/23/2014

Back up to:  Disk  Tape

Back up databases across one or more files:

... Add... Remove Contents

If backup files exist: Append

Create a backup file for every database

Create a sub-directory for each database

Folder: E:\SQL Backups

Backup file extension: bak

Verify backup integrity

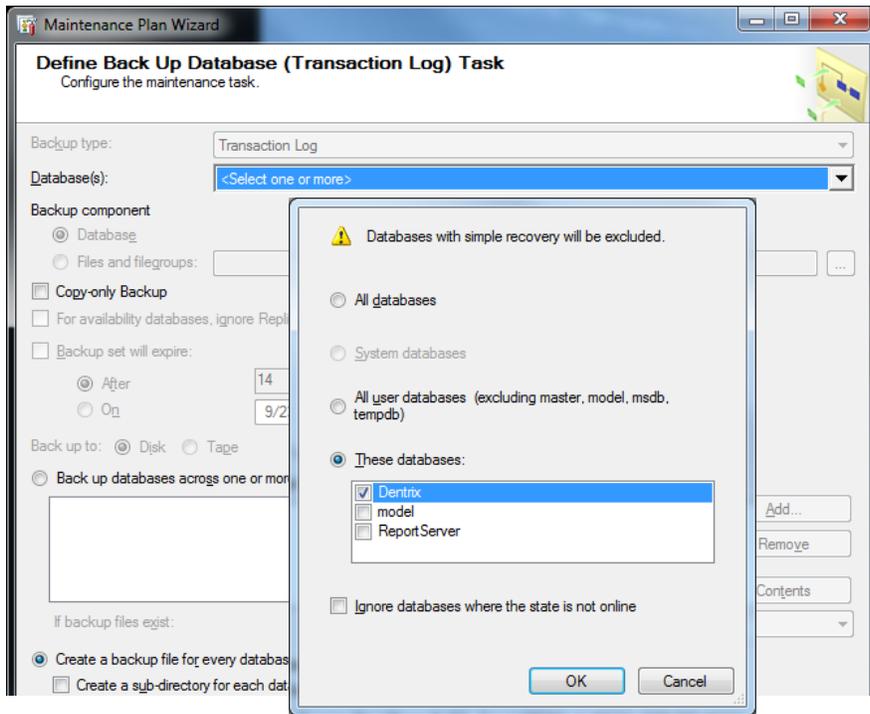
Set backup compression: Use the default server setting

Schedule: Not scheduled (On Demand) Change...

Help < Back Next > Finish >> Cancel

10. Enter the correct backup path in the **Folder** field.

11. Click **Next**.



12. Select the Dentrix and Dexis databases from the **Database(s)** list.

**Maintenance Plan Wizard**

**Define Back Up Database (Transaction Log) Task**  
Configure the maintenance task.

Backup type: Transaction Log

Database(s): Specific databases

Backup component

Database

Files and filegroups: ...

Copy-only Backup

For availability databases, ignore Replica Priority for Backup and Backup on Primary Settings

Backup set will expire:

After 14 days

On 9/23/2014

Back up to:  Disk  Tape

Back up databases across one or more files:

...

Add...  
Remove  
Contents

If backup files exist: Append

Create a backup file for every database

Create a sub-directory for each database

Folder: E:\SQL Backups

Backup file extension: tm

Verify backup integrity

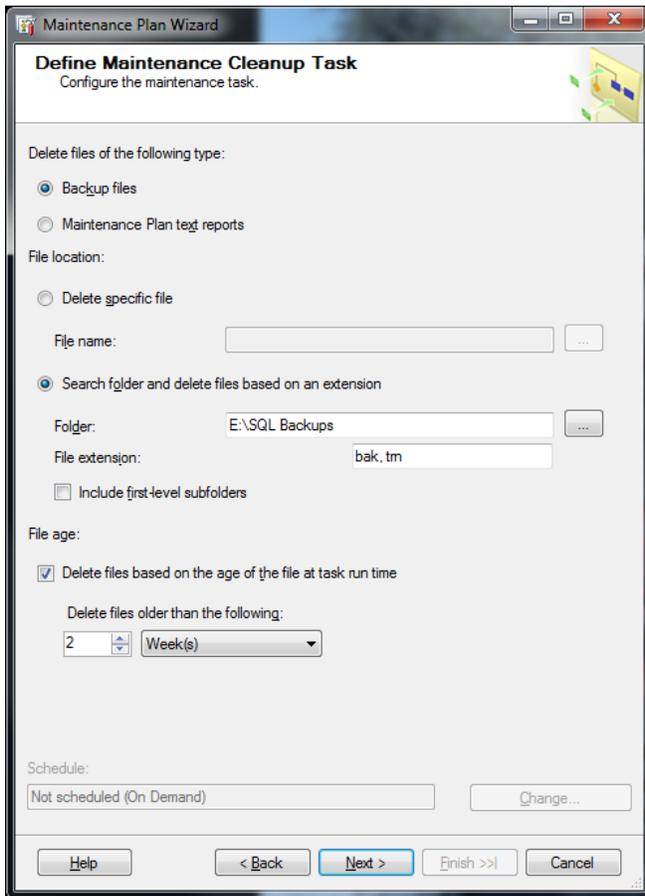
Set backup compression: Use the default server setting

Schedule: Not scheduled (On Demand) Change...

Help < Back Next > Finish >> Cancel

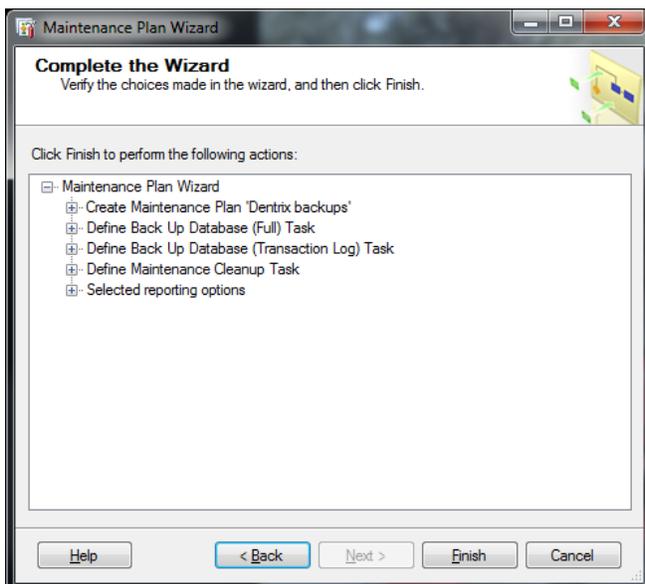
13. Enter the correct backup path in the **Folder** field.

14. Click **Next**.

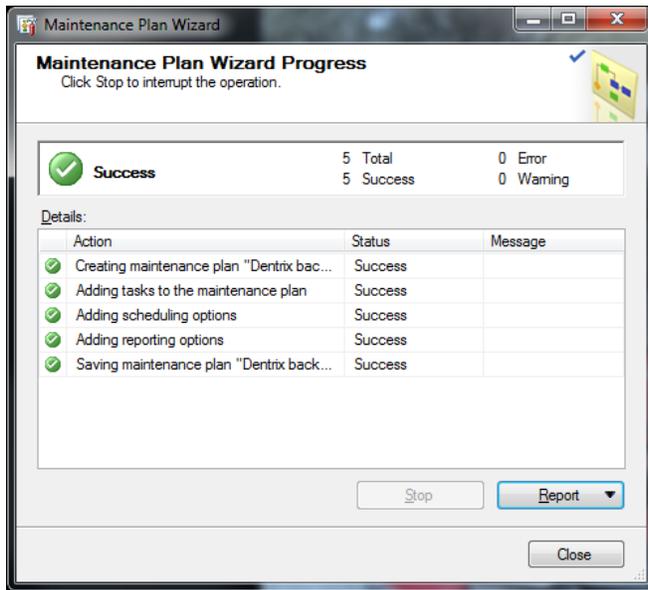


15. Update the backup path in the **Folder** field, and type the **File Extensions** to delete. Also, update the date **File Age** range based on how long old backups will be kept.

16. Click **Next**.

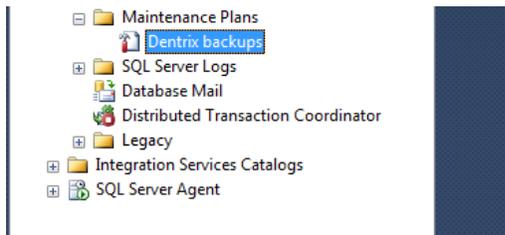


17. Click **Finish**.



18. Click **Close**.

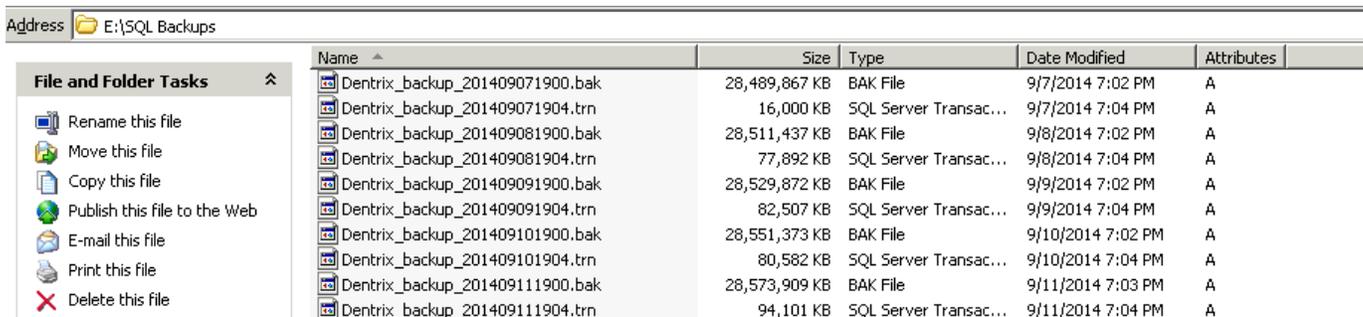
The "Dentrix backups" maintenance plan now appears.



**Important:** Make sure that the SQL Server Agent is running (see above screenshot) or else backups will not run.

The little green arrow next to SQL Server Agent means it is running, if it is a down red arrow it is not currently running. If it is not running **right click** and select **start** to turn on the service.

Below is an example of what the backup directory should look like if backups from the maintenance plan are running each night.



19. Using Symantec Backup Exec or the backup software in use at the facility, schedule a daily backup routine to copy data from the partition on the server where the database backups are being saved to the tape drive (if using the tape drive supplied by the EDR deployment project for backups) or whatever storage is in use at the site for backups.

For Symantec Backup Exec, this backup process involves creating a media set for the tape drive, using the correct append and overwrite settings, creating a scheduled backup using the media set to back up the important folders on the EDR server, and then testing the backup to ensure successful completion.

## **4. Rebuilding EDR Database Server, Database & Image Server and Hardware Recovery Recommendations and Processes**

### **Hardware**

Restoration of physical hardware configurations should follow local site IT support policy combined with the warranty provided by the hardware vendor. Once the replacement of failed hardware components is completed, the Operating System section below should be referenced.

### **Operating System**

When restoring the base Operating System (Windows 2008 Server), follow local site IT support policy. This will include the loading of the Windows 2008 Server Operating System, updating system service packs, drivers, patches, etc., and the configuration of the system (i.e., Computer name, IP address, network settings, etc.). Once the Operating System is restored and configured, continue to the Business Critical Applications section below.

### **Business Critical Applications**

Restoration of the business applications will follow local site IT support policy in combination of the following recommendations for Dentrix Enterprise and image software.

### **Overview of Steps**

- 1.1. Software Requirements
  - 1.1.1. All sites need to safely retain a copy of the Microsoft SQL Server database software (delivered with server) and necessary service packs.
  - 1.1.2. All sites need to safely retain a copy of the Microsoft 2008 Server operating system software (delivered with server) and necessary service packs.
  - 1.1.3. All sites need to safely retain a copy of Dentrix Enterprise (delivered with server).
- 1.2. Install Windows 2008 OS and configure hardware
- 1.3. Microsoft SQL will need to be installed on the database server (SQL 2005 or 2008 for Dentrix)
  - 1.3.1. Install an instance of SQL Server for Dentrix Enterprise and ensure there is a .bak (backup file) ready to restore.
- 1.4. Contact Dentrix Enterprise Support (800)459-8067 for assistance in restoring the database and running restore scripts.
- 1.5. If the images are on the same server as the database, then the images folder needs to be restored.

## 5. Standard EDR Database Maintenance Plan Recommendations

The data in the Dentrix Enterprise database is one of the most valuable resources used in managing site dental services. Dentrix Enterprise customers are responsible for maintaining their database and for ensuring that they have an adequate disaster recovery plan in place.

Listed in this section are general maintenance items that should be reviewed with the site Database Administrator (DBA) to create a plan to protect and secure the database server and data. This plan may need to be customized to fit site needs and/or the site environment.

### Certified Database Administrator Recommended

It is recommended that the DBA be a MCITP Database Administrator (Microsoft Certified IT Professional Database Administrator) or MCM (Microsoft Certified Master) for MS SQL Server 2005 or 2008. A trained and qualified MCM or MCITP Database Administrator will already know how to accomplish the tasks listed in this document. The best tool to implement and track the maintenance plans is the SQL Server Management Studio which comes with MS SQL Server.

Visit the following web page for information on what skills a trained MCM or MCITP Database Administrator will possess:

<https://www.microsoft.com/learning/en-us/default.aspx>

### MS SQL Server Documentation

The following link is for the MS SQL Server 2005 and MS SQL Server 2008 R2 books/documentation on the Internet:

<http://msdn.microsoft.com/en-us/library/bb545450.aspx>

**Note:** This information is also available in the MS SQL Server 2005, 2008 R2 Online Books, which can be installed on a local server or workstation.

## 6. Detailed EDR Database Backup and Maintenance Recommendations

NOTE: Click on the links to jump to the MS SQL documentation that describe concepts and features, and provide detailed instructions and steps for completing the item. As part of the site backup plan, we recommend the following items:

### *A) All databases should have a backup and restore plan*

A plan to protect the EDR data in case of disaster is critical (equipment failure, employee sabotage, fire, and so forth). To determine the recovery plan that is best, refer to the following:

#### **MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms187048\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms187048(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms141164\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms141164(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms140255\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms140255(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms187658\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms187658(v=SQL.90).aspx)

#### **MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms187048\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms187048(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms141164\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms141164(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms140255\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms140255(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms187658\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms187658(v=SQL.105).aspx)

### *B) Create MS SQL Maintenance Plans*

One of the easiest ways to implement the backup portion of this plan is to create a database maintenance plan using the MS SQL Database Maintenance Plan Wizard. See:

#### **MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms189036\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms189036(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms191002\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms191002(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms190914\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms190914(v=SQL.90).aspx)

#### **MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms189036\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms189036(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms191002\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms191002(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms190914\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms190914(v=SQL.105).aspx)

### *C) Assign a password for the MS SQL Server the 'SA' user*

Assign a password for the MS SQL Server Administrative (SA) user. This user is the administrator for all the databases; therefore, Henry Schein Practice Solutions recommends that a strong password be assigned. For further details, refer to the following:

#### **MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms161962\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms161962(v=SQL.90).aspx)

#### **MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms161962\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms161962(v=SQL.105).aspx)

#### ***D) A full database backup for key events***

Create a full database backup for key events after the initial database setup for any live, test, or training Dentrix Enterprise databases. These events include the initial install, going live, upgrading versions, and so forth. Refer to the following:

##### **MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms186289\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms186289(v=SQL.90).aspx)

##### **MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms186289\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms186289(v=SQL.105).aspx)

#### ***E) Back up and truncate transaction logs***

Back up transaction logs on a daily or weekly basis to keep them small.

##### **Truncating the Transaction Log**

When MS SQL Server finishes backing up the transaction log, it automatically truncates the inactive portion of the transaction log. This inactive portion contains completed transactions and is no longer used during the recovery process. Conversely, the active portion of the transaction log contains transactions that are still running and have not yet completed. MS SQL Server reuses this truncated, inactive space in the transaction log instead of allowing the transaction log to continue to grow and use more space. Although the transaction log may be truncated manually, Henry Schein Practice Solutions strongly recommends that this not be done, as it breaks the log backup chain. Until a full database backup is created, the database is not protected from media failure. Use manual log truncation only in very special circumstances, and create a full database backup as soon as it is practical.

Refer to the following:

##### **MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms345583\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms345583(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms191429\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms191429(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms179478\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms179478(v=SQL.90).aspx)

##### **MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms345583\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms345583(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms191429\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms191429(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms179478\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms179478(v=SQL.105).aspx)

#### ***F) The live EDR database should be backed up every day***

The MS SQL Server Management Studio and MS SQL Server Agent can be used to backup directly to the tape media, or the MS SQL Server Agent can be used with the tape/network storage backup program to stop the database, backup, and then restart the database. Lastly, the MS SQL Server Management Studio can be used to schedule backups to a flat file. This flat file can then be backed up with the tape backup program. This file can be copied or backed up to another machine as well.

**Note:** Many tape backup systems cannot effectively or directly backup MS SQL databases. If the MS SQL Server engine is running, the files that make up the database are locked open, and many tape systems cannot backup the locked database files from outside of the MS SQL Server Management Studio. These tape backup programs may see that the database files are open and skip the files.

Refer to the following:

**MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms187510\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms187510(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms191209\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms191209(v=SQL.90).aspx)

**MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms187510\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms187510(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms191209\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms191209(v=SQL.105).aspx)

### *G) Check Server drive space*

Check the server weekly or monthly to ensure that there is adequate available free disk space for the growth of the live database files, transaction logs, and backup files.

When Dentrix Enterprise databases are installed, by default, they are configured to pre-allocate an adequate portion of space on the EDR server's hard drive to store the database and transaction logs. The databases are also configured such that the size of the database and transaction log files will grow automatically as needed once the initial pre-allocated space is filled, and will continue to grow until the hard drive is full. Use the operating system to check free space on drives.

### *H) Store database backups offsite*

Henry Schein Practice Solutions recommends that weekly and monthly off-site backups be performed and stored in a secure location. It is recommended that the site rotates the backups stored off site every three to six months.

Refer to the following:

**MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms177435\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms177435(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms178094\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms178094(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms190964\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms190964(v=SQL.90).aspx)

**MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms177435\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms177435(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms178094\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms178094(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms190964\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms190964(v=SQL.105).aspx)

### *I) Compress and defragment databases*

Compress the live databases. This includes moving pages internally to the beginning of the files that make up the database, defragmenting, and using the MS SQL Server tools monthly or after significant deletions of data in the database (purging appointments, purging old audit records, and so forth).

Also, defragment the server hard drive containing the Dentrix Enterprise database on a regular basis at the operating system level by using the operating system defragmenting tools. This defragmenting of the database files at the operating system level will ensure optimal data layout on the hard drive to enhance database performance.

Refer to the following:

**MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms189080\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms189080(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms141819\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms141819(v=SQL.90).aspx)

**MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms189080\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms189080(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms141819\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms141819(v=SQL.105).aspx)

### *J) Monitor EDR Database performance statistics*

Henry Schein Practice Solutions recommends that database performance statistics be monitored monthly or semi-annually to ensure proper server performance is being achieved. Refer to the following:

**MS SQL Server 2005**

[http://msdn.microsoft.com/en-us/library/ms191246\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms191246(v=SQL.90).aspx)

[http://msdn.microsoft.com/en-us/library/ms179428\(v=SQL.90\).aspx](http://msdn.microsoft.com/en-us/library/ms179428(v=SQL.90).aspx)

**MS SQL Server 2008 R2**

[http://msdn.microsoft.com/en-us/library/ms191246\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms191246(v=SQL.105).aspx)

[http://msdn.microsoft.com/en-us/library/ms179428\(v=SQL.105\).aspx](http://msdn.microsoft.com/en-us/library/ms179428(v=SQL.105).aspx)

### *K) Rebuild database indexes*

Henry Schein Practice Solutions recommends that the database indexes be rebuilt semi-annually or annually to ensure optimal index performance. For assistance, please contact Dentrix Enterprise Support 1.800.459.8067. This rebuild is usually done when upgrading to new versions of Dentrix Enterprise.

### *L) Install patches for OS and SQL Server*

Monthly, check with Microsoft for updates to the Windows operating system and MS SQL Server 2005, MS SQL Server 2008 R2, or MS SQL 2012 to make sure that the latest patches and fixes are installed. If any other third-party products are in use, Henry Schein Practice Solutions recommends the latest patches and fixes for those programs be installed too. Use the Microsoft Update websites to look for, download, and install patch updates for the Windows 2003 and 2008 Server Operating Systems and MS SQL Server database engine.

### *M) Evaluate EDR server hardware capacity*

Henry Schein Practice Solutions recommends that the database server hardware be evaluated every six months to one year or when other significant events occur (adding significantly more users to the database, hosting more locations, and so forth). During this evaluation, check to see if the hardware performance characteristics (for example, speed of processor, amount of memory, speed of hard drives, and available hard drive space) are handling the needs for the Dentrix Enterprise server.



## Appendix A:

### Support Contact Information

<b>Dell</b>	<b>800-727-1100</b>	<b>Covers Dell hardware</b>
<b>Microsoft</b>	<b>800-642-7676</b>	<b>Covers MS Products</b>
<b>Dentrix Enterprise</b>	<b>800.459.8067</b>	<b>Covers EDR / Dentrix Software</b>
<b>Tech Central</b>	<b>800-288-7691</b>	<b>Can coordinate with all above</b>