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Overview
Information systems, used on a regular basis, require preventive maintenance to be performed in order to maintain proper functionality. The RemitTrac System is no exception to this rule.

This System Maintenance Guide contains details of the clean-up and maintenance tasks, as well as instructions for performing these tasks. The clean-up tasks included in this guide are organized by how often they are performed (daily, weekly, monthly, etc.). By following the guidelines outlined here, your system will run more efficiently.

This System Maintenance Guide has been written for administrative personnel, supervisors, and technical support staff and is meant to assist with the system maintenance tasks. This guide is NOT intended to replace input from ImageScan support staff. If you have questions or concerns regarding the implementation or execution of any of the tasks mentioned in this guide, please contact your ImageScan Support Account Manager.

The procedures and guidelines for RemitTrac V 8.11.x.x differ somewhat from the procedures used in the RemitTrac V 1.5 series of code.

RemitTrac Manuals
The RemitTrac Setup and Workflow manuals provide the user with all of the necessary information to set up and operate the system on a daily basis. The RemitTrac manuals should be the starting point for accessing information concerning the system.

The releases of RemitTrac V 8.10 and V 8.11 incorporated the documentation and release notes as part of the software installation. All of the documentation is provided in the software installation as a sub-directory of the release. When processing the RemitTrac software on a workstation, the operator can navigate to the drive I: and the sub-directory docs (I:\Docs or I:\DocExtra) and find all of the release notes and documentation for the current release version that is being used.

Online Help
The Internet provides a new and exciting opportunity for ImageScan to provide 24-hour support. The ImageScan website is www.goimagescan.com. ImageScan encourages you to access the website to gather information and answer questions regarding the RemitTrac System. Through the Customer Support Portal area of the website, users can access the following sections: Find an Answer, Ask a Question, Open a Support Ticket, Documentation, Technical Bulletins, eLearning and much more. Please contact your Support Account Manager to obtain a username and password.

Note: In order to access the hyperlinks in this document, you must be logged onto the Customer Support Portal in at least one Internet browser.
Getting Started

The topics covered in this guide cover a wide range of tasks. Some of the tasks are Administrator level tasks, while others are Supervisor and Technical Support level tasks. Administrators need to thoroughly review the information contained within this guide and assign all of the tasks to the responsible parties. If questions or concerns should arise regarding the implementation or execution of any of the tasks mentioned in this guide, please contact your ImageScan Support Account Manager. This guide has been developed for quick reference. Please distribute copies to all personnel that are responsible for System Maintenance tasks.

Manual Tasks

ImageScan maintains that some of the tasks in the system are ALWAYS to be performed manually. This requirement comes out of the need for the customer to understand the consequences of what they will be doing and to ensure the ‘production’ system is not being utilized when the actions are taken.

Automatic Tasks

As of this time, ImageScan allows only one automatic task. This task is the automatic cleaning of workstation logs to the database server. No other task can be automated due to the time considerations and management of the local environment in the lockbox department.

Downtime Consideration

The majority of the tasks outlined below require very little downtime in the overall workflow of the system. The only tasks that can be considered an imposition to the normal workflow process are the ‘End of Day’ Archive and the Monthly Backup Archive. The ‘End of Day’ archive can take up to 20 minutes or more (depending on your workflow). The Monthly Backup Archive can take much longer, even hours, to perform the complete system backup that is required. Both of these archives require that NO work is processed during their procedure.
Daily Maintenance Tasks
The following tasks must be performed on a daily basis to maintain the system:

- Transport Maintenance
- Data Entry Cleanup
- Daily System Backup
- End Of Day

Transport Maintenance
Keep the surrounding area of the transport clean. The transport area must kept clear of debris such as staples and paper clips, which can cause jams and slow down production. Maintaining an organized workspace provides numerous benefits, such as fewer jams, better image reads, and longer transport life. Additionally, performing the transport maintenance and cleaning tasks (as specified by the vendor) on every shift reduces the problems identified with bad imaging of documents.

NCR Users
Transport maintenance should be performed at the end of each shift. Clean the camera lens and remove dirt and dust as necessary. Remember to check the endorser and encoder ribbons to ensure proper operation and working order.

IBML Users
Transport maintenance should be performed at the end of each shift. Clean the top and bottom camera lens and remove dirt and dust as necessary.

Opex Users
Transport maintenance should be performed at the end of each shift. Clean the camera lens and remove dirt and dust as necessary.

All Machines
Clean out the local Image Directory where RemitTrac stores the files that are being processed for capture. The local file of each machine is identified in the RemitTrac TrakCntl.ini file.
Data Entry Cleanup

The Data Entry process removes data entry and backup files from the Data Entry Server. This process frees up disk space on the Data Entry Server.

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**CAUTION:** You should only perform Data Entry Cleanup after all data entry processing has been completed for the selected processing date.

- For instructions on removing data entry and backup files on the Data Entry Server, refer to the section “Data Entry Cleanup and Resend” in the Formware Functions document, located in the Data Entry section of the RemitTrac Workflow Manual.

Daily System Backup

The ‘Daily System Backup’ is a two phase procedure. The First Phase is the RemitTrac backup of the system. This entails that the software is shut down on all workstations and the database server and that the component files are properly backed up. The software is then re-started and processing can be continued. The Second Phase is to perform an Archival Backup of the files generated in the First Phase. The logic behind this approach is that the First Phase is handled by the local operators when they are ready to release the system for a few minutes to create the backup and the Second Phase is performed by the IT staff that is comprised of the data created from the First Phase. The data can be all the files in different directory trees or a single ZIP of the encompassing directory tree that was created as part of the First Phase.

**Note:** The ‘Daily System Backup’ First Phase is ALWAYS performed prior to the ‘End-of-Day’ procedure.

ImageScan RemitTrac Daily Backup

When you perform the Daily Backup, you are required to perform a backup script on the Database Server. This action will make a copy of the system databases. This action is performed prior to performing the ‘End-of-Day’ process. This action will require that all operators are out of the system.

- For instructions on performing the ImageScan Daily Backup Script, please refer to the V 8.11 Daily Backup document that is available in the Release Help documents.
Site Archival Backup

The ‘Daily System Backup’ is the archival of the current RemitTrac database files to another media. This task is the single most important task of the day for system maintenance. This is generally the ‘Second to the Last’ task of the day. It provides a mechanism where the current status of the database system can be archived off to some other system for safekeeping. In case of failure, this archive can be used to create a DR site with the same system status as that of system that was backed up. Without daily backups, it is virtually impossible for ImageScan to provide proper support when disaster recovery situations arise.

End-of-Day

The End-of-Day process is required for the continuation of processing for future days. If proper shutdown and end-of-day procedures are not performed, a myriad of technical problems can occur. The End-of-Day process is performed at the completion of each day’s processing. The End-of-Day process is only performed after the ImageScan Daily Backup Script is executed.

The End of Day process consists of two sub-processes:

- Bank End of Day
- Site (Process) End of Day

Bank End-of-Day

The Bank End-of-Day process updates the previous, current and next bank days for the bank. During the Bank End-of-Day process, the next bank day becomes the current bank day and the current bank day becomes the previous bank day. The system then uses the bank calendar in Bank Setup to determine the next bank day. You should run the Bank End-of-Day process at the end of each bank day.


Site End-of-Day

When you perform the Site End-of-Day, the following occurs: An empty set of databases for the NEXT process day is created. The CURRENT process day is stored as the PREVIOUS process day. The NEXT process day is stored as the CURRENT process day. The NEXT processing day is stored based on the next available date in the site calendar. You should perform the Site End-of-Day function at the end of each processing day.

Weekly Maintenance Tasks
Weekly maintenance tasks remove files that are no longer needed, helping to free up space on the system. The following tasks must be performed on a weekly basis to maintain the system:

- Manage Logins Cleanup
- Database Engine Cleanup
- Formware Jobflow Log File Cleanup
- Workstation Log File Cleanup

Manage Logins Cleanup
Manage Logins is a supervisor level tool that can be used to view and delete workstation and operator login records stored in the system database. When an operator initiates the RemitTrac software on a workstation, a workstation login record and operator login record are added to the database. Conversely, when an operator exits the RemitTrac software, the system automatically deletes the workstation and operator login records from the database. During daily workflow processing, if a workstation abnormally terminates, the workstation and operator login record associated with the workstation may not get deleted properly.

▷ For instructions on using the Manage Logins tool, refer to the “Security” document in the Maintenance section of the RemitTrac Workflow Manual.

Database Engine Cleanup
The Database Engine Syslog Directory cleanup process helps to save space on the Database server. This process should be performed once a week, but only after a backup has been performed and there are no outstanding system issues or errors.

▷ For instructions on cleaning the Database Engine Directory, refer to “Database Engine” in Appendix C.

▷ Some sites may prefer to perform the Database Engine Cleanup monthly. This action depends on the time frame available to perform the task and the staff available.

Formware Jobflow Directory Cleanup
For Formware Users using Jobflow Logs only:

The Formware Jobflow directory cleanup process should only be completed when Data Entry is NOT being performed. This process should be performed once a week.
To perform Formware Jobflow Directory Cleanup

- Starting from the Formware server, click on the Formware Administration Icon.
- Select the Jobflow folder.
- Delete files with a .log extension.

Workstation Log File Cleanup

The RemitTrac software implemented a new feature as part of V 8.11.2.0. This feature will archive and copy the ‘RemitTrac workstation’ log files to the server for archival purposes. If this action is enabled in the software (Configuration setup), then the Database Server will utilize additional disk space to keep these log files. It is the responsibility of the organization to perform a cleanup process on these Log files. The files will either be ‘ZIPed’ and then archived, or just archived individually. All the files are placed in the Database Server on the Daily Directory Share for the ‘Processing System’ being performed. This allows for all the files to be placed in a central area that is relative to the ‘Processing System’ directory tree for retrieval by other agents.

It is the responsibility of the Site to clean up the directory on the database server of the ‘Archived’ files from the workstation. These files are to be archived by the ‘Site wide’ archival software and then cleaned manually, either on a weekly basis or a monthly basis.

- Because this is a ‘critical’ piece of the debugging framework for the RemitTrac product, it has been left for MANUAL cleanup. The site should archive the files (whether they are ZIP or individual files) before the removal.
Monthly Maintenance Tasks
Monthly maintenance tasks are not performed as frequently as the daily maintenance tasks; however, the monthly tasks are just as important for insuring proper operation of the system. The monthly maintenance tasks remove unneeded files and/or information from the system to save disk space for the application. Monthly maintenance tasks include the following:

- Data Entry (Formware) Backup File Removal
- Deletion of Formware Operator Statistics
- Cleanup of the Database Engine
- Full System Backup
- Clean-Up System Process

Data Entry Backup File Removal
ImageScan recommends that the Formware backup files be removed from the system at least once a month to conserve space on the Formware Server.

To manually remove Formware backup files
2. Open Disk D on the Formware Server.
3. Open the FWOUTPUT folder.
4. Open the BACKUP folder.
5. Delete files in the Export, Files, and Image folders as needed.

These files are kept so that Formware jobs may be rescheduled if incorrect information was entered when the job was originally keyed. It is up to each site to decide when these files are deleted. Once these jobs have been completed and no further changes are required, these backup files can be deleted.

Deletion of Formware Operator Statistics
The Formware operator statistics files should be deleted following the successful generation and printing of each Operator Statistics report. The Operator Statistics report should be generated at least once a month. This cleanup process will also help save space on the Formware Server.

To delete Formware operator statistics
2. Select the Apps folder on the C drive (note that some sites will have the Apps folder located on the D drive).
3. Open the Formware folder.
4. Open the Programs folder.
5. Open the Stats folder.
6. Delete the “Operator.BAK” file, if one exists.
7. Rename the current Operator file to “Operator.BAK”.

The Formware operator statistics have been removed and backed up in the system.

Full System Backup

It is important to maintain a backup copy of the system files for use in the event of a failure.

Ideally, the backup copies should be kept at a different site or in a fire safe. Although hardware may be insured against fire, the data on it is almost certainly neither insured nor easily replaced.

A full system backup is recommended to be performed every month. In addition to the regularly scheduled daily backups, it is advised that a full system backup is performed before every upgrade.

- For instructions on performing a full system backup, refer to the “RemitTrac Application Database Archive Specification” document. For a copy of this document, contact your Support Account Manager.

System Clean-Up Process

With the advent of large hard drives for servers and near online storage, the need to clean up the system has dropped in necessity. However, for those sites that want to keep a small foot print on their servers, the need to clean up the system is required. To implement this, a utility was added to the Maintenance menu in Version 8.11.2.0 to allow an operator to clean up the database server and the image server(s). The operator can manage the public data (files) for the RemitTrac system that takes the most storage space on the server.

ImageScan recommends performing this task on a monthly basis if required. This task can be performed at any time, but ImageScan recommends performing the System Clean-Up on a monthly basis after the normal monthly backup, if it is required. It is advised that a full system backup is performed before the clean-up process is initiated.

- For instructions on performing a the Clean-Up System tasks, refer to the “RemitTrac V 8.11 Clean-Up Module” document.
Miscellaneous Tasks

Miscellaneous tasks can be performed at various times, such as daily, weekly, monthly, or quarterly. Each site needs to determine a time that is most convenient for the following tasks to be completed:

- Lockbox Archive Workstation Cleanup
- Batch Archive Workstation Cleanup
- Decisioning Workstation Cleanup
- Periodic Rebooting of the Servers
- Periodic Defrag of the Servers
- Periodic Scan of Disks on the System
- Periodic Virus Scan
- Periodic Removal of ETP Files in Formware
- Overview of the System Management Clean Up Utility
- RemitTrac Software Updates Archived

Lockbox Archive Workstation Cleanup

**NOTE:** Lockbox Archive is a separate Module that must be purchased through ImageScan. If the Lockbox Archive Module is not installed on your system, it is unnecessary to perform Lockbox Archive workstation cleanup.

If Lockbox Archive is being performed on a local drive on the workstation, the user will need to clean the old images and “adf” files, depending on the available disk space.

- **To perform Lockbox Archive Workstation cleanup**
  1. From the **Lockbox Archive** workstation, access **Windows Explorer**.
  2. Open the drive that the Lock Arch folder is located in.
  3. Open the **Lock Arch** folder.
     - The Lock Arch folder contains a folder (if configured) for each lockbox that uses Lockbox Archive.
  4. Open the lockbox folder that contains the files that need to be removed.
     - Files are listed by the creation date in standard date format (YYYYMMDD).
  5. Delete the image (.FCI, .RCI, .FEI, .REI) and “.adf” files.
Because this is a ‘critical’ piece of the debugging framework for the RemitTrac product, it has been left for MANUAL cleanup. The site should archive the files (whether they are ZIP or individual files) before the removal.

Batch Archive Workstation Cleanup

NOTE: Batch Archive is a separate Module that must be purchased through ImageScan. If the Batch Archive Module is not installed on your system, it is unnecessary to perform Batch Archive workstation cleanup.

If Batch Archive is being performed on a local drive on the workstation, then the user will need to clean the old images and “.xml” files, depending on the available disk space.

To perform Batch Archive Workstation cleanup

1. From the Batch Archive workstation, access Windows Explorer.
2. Open the drive that the Batch Archive folder is located in.
3. Open the folder.
   The folder contains all the files that were generated for Batch Archive. Each Batch is contained in a separate directory.
4. Open the batch folder that contains the files that need to be removed.
   Files are listed by the creation date in standard date format (YYYYMMDD).
5. Delete the image (.JPG, .TIF) and “.xml” files.

Because this is a ‘critical’ piece of the debugging framework for the RemitTrac product, it has been left for MANUAL cleanup. The site should archive the files (whether they are ZIP or individual files) before the removal.

Decisioning Workstation Cleanup

NOTE: Decisioning is a separate Module that must be purchased through ImageScan. If the Decisioning Module is not installed on your system, it is unnecessary to perform Decisioning workstation cleanup.

If Decisioning is being performed on a local drive on the workstation, then the user will need to clean the old images, “.adf”, and “.dcn” files, depending on the available disk space.

To perform Decisioning Workstation cleanup

1. From the Decisioning workstation, access Windows Explorer.
2. Open the drive that the Decisioning transmit folder is located in.
3. Open the folder.
   The folder contains all the files that were generated for Decisioning. Each Batch is contained in a separate directory.

4. Open the batch folder that contains the files that need to be removed.
   Files are listed by the creation date in standard date format (YYYYMMDD).

5. Delete the image (.FCI, .RCI, .FEI, .REI), ".adf" and ".dcn" files.
   Because this is a ‘Critical’ piece of the debugging framework for the RemitTrac product, it has been left for MANUAL cleanup. The site should archive the files (whether they are ZIP or individual files) before the removal.

Removal of Install Files after an Upgrade
It is important to remember to remove installation files after an upgrade because these files can accumulate on the system and space may become an issue. These installation files are the ZIP files introduced with the release of Version 8.11.

Periodic Rebooting of the Servers
Periodic rebooting of the servers is necessary to clear memory and a number of other background functions running on the server that may slow down production. Please refer to the manufacturer’s instructions in the owner’s manual for proper shutdown and rebooting procedures. If there are any questions concerning the shutdown and rebooting of the servers, contact your ImageScan Support Account Manager.

Period Defragmentation of the Servers
As modern file systems are used and files are deleted and created, the total free disk space becomes split into smaller non-contiguous blocks, composed of "clusters" or "sectors" or some other unit of allocation. Eventually new files that have been created and old files that have been extended cannot be stored in a single contiguous block, but become scattered across the file system. This degrades performance as multiple seek operations are required to access a single fragmented file.

Periodic defrag of the system consolidates each existing file and the free space into a continuous group of sectors. Access speed will be improved due to reduced seeking. The rate of fragmentation depends on the algorithm used to allocate space and the number and position of free sectors. A nearly full file system will fragment more quickly.

Diskeeper Software
The Diskeeper software is recommended as a valuable utility in your ImageScan install documentation. This software will not only defrag your workstations and servers, it will look for disk errors by scanning all of the hard disks on the system.
ImageScan recommends the use of the Diskeeper utility to defrag servers on the system. It also recommends the utility to perform disk analysis of the disks in the servers and on the workstations.

For instructions, please refer to the Diskeeper Manual.

Periodic Scan of Disks on the Servers
Modern computers write and remove files to and from a remote location, usually a hard disk. Over time, the surface of the hard disk can become worn out. These sections are called “bad sectors.” A periodic scan for these “bad sectors” will help to detect problems with a disk before any major crash or loss of information takes place.

For instructions, please refer to the Windows Server Manual.

Periodic Virus Scan
Computer viruses can originate from many sources, such as floppy disks, Internet email and downloads, and even programs shipped from a manufacturer.

ImageScan recommends that a daily virus scan be performed. If it is not feasible for a virus scan to be done every day, ImageScan recommends, at the very least, a weekly virus check. This simple act will save a lot of time and lost work. ImageScan publishes a list of exclusions for Virus Scanning.

WARNING: Performing a virus scan during production hours can cause serious performance issues. There is a noticeable slowdown in the amount of work that the system can process. ImageScan strongly recommends that a virus scan ONLY be performed at boot up, and not run continuously during processing.

Periodic Removal of ETP Files in Formware
ETP files are created when compiling during normal operations on the Formware application. These files serve no useful purpose and only take up disk space on the Data Entry Server. ImageScan recommends that these files be removed a minimum of once a month.

To remove ETP files in Formware
1. Starting from the Data Entry workstation, access Windows Explorer.
2. Open the Apps folder.
3. Open the Formware folder.
4. Locate all of the files with an “.ETP” extension and delete all of those files.
Overview of the System Management Clean Up Utility

NOTE: The formal documentation has been released with Version 8.11.2.0. The documentation covers the use of the utility through the RemitTrac Main Screen Window.

This module can be run from any workstation. The utility will allow for the clean-up of specific resources in the system. This module can be run on a weekly or monthly basis. Due to variation in every customer requirements for the archival of data, this is still considered a ‘Manual’ task to perform. It is with specific intent that the actions are performed, as there is no online recovery once the utility performs its clean-up actions.

To access the System Clean Up Utility

1. From the Main Program Menu, select the Maintenance Menu option. The System Management Clean Up icon is displayed.

   The module offers three (3) different functions at this time. The functions are Clean-Up Log Attempts, Clean-Up Image Files, and Clean-Up Public Files.

   Please refer to the “RemitTrac System Management Clean-Up” document to use the utility.

   It is recommended that this utility only be used at the end of the month when the system is NOT in production mode. The cleaning up of files can take an extended time period to perform and will affect performance of the databases and image servers.

RemitTrac Software Updates Archived

Whenever a RemitTrac software update is introduced to the database server, a ‘complete’ software backup should be performed. This backup provides a copy of the software ‘before’ the update is put in place and then a second live copy ‘After’ the update is in place. These archives are managed by date and the software system. After the ‘Live’ archive has been created, the archive should be sent to the Disaster Recovery Site for proper synchronization of the systems.
Generic Cleanup Procedures
This portion of the document covers any generic procedures that should be followed. These procedures are usually the optional / less intensive methods to follow.

Event Logger Cleanup
Event Loggers are an essential resource used by ImageScan for troubleshooting issues and problems in the system. Prior to version 8.11.2.0, the cleanup was a manual task to be performed on the workstation. With the release of version 8.11.2.0, an automated method was formulated to copy - remove or just remove the ‘RemitTrac logger’ files from the workstation.

RemitTrac Users need to consider the following before performing Event Logger Cleanup:

- Before deleting any Event Logger files, verify that there is no outstanding system issues from the previous week.
- Event Log files from the previous week are no longer needed.
- Dump files need to be included in this cleanup.
- Every workstation and the database server should have its own logger and the Event Logger Cleanup must be performed on every workstation.
- The new utility will clean up the local directory and place the files (if archived) onto the database server for longer time storage or archival.


Please note that ImageScan recommends that the cleanup procedure to follow is the one that ‘Copies and Removes’ the files. The files for the workstation should be left on the database server for a minimum of six (6) months.

If the cleanup is going to be performed manually, it should be performed once a week on each workstation; ImageScan recommends the beginning or end of the week. The number of files to leave on the workstation should be the recommended six (6) month history.

RemitTrac Automatic Logger Cleanup
The RemitTrac software provided an automatic cleanup feature for each workstation with the implementation of version 8.11.2.0. This new feature would clean up RemitTrac Logger files and Dump Files from the workstation based on the ‘Processing System’ being used. Thus, if the software was in the Production software system, only those ‘Logger files’ for the Production system would be cleaned up and the other systems would not be touched. It is expected that once the files are placed onto the Database Server, those files are ‘archived’ to the site for long term backup.
Appendix A - Customer Backup Strategy

ImageScan has repeatedly been asked to provide the proper procedure to back up the ImageScan Servers that are used in the RemitTrac system. Each customer has their own approach to the backup and archival features that their IT department mandates for them. ImageScan does not want to dictate policy to our customers except where necessary. We provide guidance as to what we think is the most expedient and reliable methodology to follow for backups. Guidelines are listed below to consider for the proper backup of your installation. You may have different considerations or technology concerns that are in place for your site. Please contact ImageScan Support if you have questions about what you should or should not be doing.

Installation Backup

The various servers should be backed up as part of the installation process. After the completion of all installation processes and a system wide test, the servers are backed up. This backup should not be cycled for at least one (1) year. The purpose is to provide a comparison mechanism to the customer of the status of their server at installation and current setup.

Database Server Backup

The Database Server can be backed up using standard backup software with the following two caveats:

1) If the ImageScan directory trees are to be backed up, the RemitTrac database engine must be stopped prior to the backup. This ensures that no database files are open at the time of the backup and no possibility of corruption can occur. The archival process must either call the RemitTrac provided utilities or implement their own commands to stop the database service prior to the backup.

2) If the archival process cannot interface with the server to stop the RemitTrac database service, the ImageScan directories must be excluded from the archival process.

Daily Database Backup

The RemitTrac system should be backed up using the method described above. This provides the quickest method to create the daily backup. The daily backup for the RemitTrac system can then be archived off at any other time. The archival of the backup that was performed by the operator can be done without interruption to the production workflow.
Monthly Backup
The Database Server should have a complete backup performed every month. This backup is on a 12-month cycle. Thus, there are 12 tapes in the backup and you always have the last 12 backups. This is a recommendation, not a requirement. Over time, ImageScan has found that this form of backup provides a high degree of safety to a customer for the data that resides on their Database Server.

Image Server Backup
The Image Server(s) does not require a backup unless it is desired by the customer. Machines are generating large amounts of image file per day and can overwhelm a backup system. There is no other data per day stored on the image server except for the image files. The usage of the daily image backup from the Lockbox Archive and/or Image Archive should be used instead.

Workstation Backup
The workstations are not required to be backed up unless the customer has a specific requirement to do so. The workstations can be created from scratch in a short time; after the Windows Operating System has been installed, it is simple to copy the software from the database server and finalize the workstation setup. There are very few workstations that have extra or unique software installed on them. Some considerations are the CAR workstation, the FAX workstation, and the Software OCR workstation. Each of these workstations requires additional software and hardware that is from a third party vendor. The installation process is short; thus, if a machine dies (from hardware failure), another machine can be brought up as a functional workstation in short period of time.

Formware Server Backup
The Formware Server should have a complete backup performed at installation. There are other files that are present on the server to be backed up. These are the job files and associative files used by the Formware server to use to perform its task. The RemitTrac software cannot back this up reliably. The customer must decide when they make changes to the Formware related files and plan on a schedule to back them up. The Formware files are relatively static in nature. All of the Formware files reside in a single directory tree. This tree can be backed up by simply using standard backup software. The backup procedure for them can be more relaxed. The customer should implement a policy on file updates, not the work being processed, to notify the IT department of a request for backup.

Note: Please contact Captiva Software to understand the proper procedures for the correct method of backing up their software. There are differences between the file-based version of Formware and the database version of Formware.
Appendix B – Server Directory Structure
This portion of the document is a description of the directory structures that ImageScan requires on the various servers that make up the RemitTrac environment.

Database Server
ImageScan recommends and only allows the RemitTrac system to work on the Database Server if there are three (3) physical drives. This requirement is for the performance aspect of the product and the intended requirements of processing the work in the system.

System Drive
The System Drive is the disk that boots up the Database Server. This is called the Operating System Disk or Boot Drive for the computer. Other than the operating system, there is only a small footprint for the RemitTrac client software on the System Drive.

Main Drive
The Main Drive houses the core portion of the RemitTrac product. All Main data is maintained in this drive (Disk D:). The directory tree on this drive is rooted at D:\ImageScan. This directory contains all of the required files and directories that comprise the Main portion of the RemitTrac product.

D:\ImageScan (Share: ImageScan_Main$)

DemoRoomDBFServ01

Main_DBFS

Main_Systems (Share: RemitTrac_DemoRoomDBFServ01_Main)

ProductFile - Directories for the Production System

TestCode File - Directories for the Test Code System

Install

Client

Server
Software

Ver_8.10.1.4 (Share: RemitSoft_V.8.10.1.4)
Ver_8.11.1.0 (Share: RemitSoft_V.8.11.1.0)

Daily Drive

The Daily Drive houses the daily work portion of the RemitTrac product. All Daily data is maintained in this drive (Disk E:). The directory tree on this drive is rooted at E:\ImageScan. This directory contains all of the required files and directories that comprise the Daily Work directories and files of the RemitTrac product.

- E:\ImageScan (Share: ImageScan_Daily$)
  - DemoRoomDBFServ01
    - Daily_DBFS
  - Daily_Systems (Share: RemitTrac_DemoRoomDBFServ01_Daily)
    - Product_Daily
      - Product_PD20110524
      - Product_PD20110525
    - TestCode_Daily
      - TestCode_PD20110524
      - TestCode_PD20110526

Image Server

The Image Server is expected to be installed with two (2) disk drives. One is reserved for the Operating System (Disk C:) and the other (Disk D:) is for image files generated by the RemitTrac application. The RemitTrac application will access the secondary disk (D:) through a Windows OS share. The following is an example of the expected Directory Tree and the required permissions.

- D:\ImageScan (Share: ImageScan_Image$)
  - Available RWED to Control group
- DemoRoomDBFServ01 (Share: RemitTrac_DemoRoomDBFServ01_Images)
  - Available RWED to Production Group
- Product_Images
  - Image Directories for the Production System
In the directory D:\ImageScan\DemoRoomDBFServ01\Product_Images will be a series of directories that will relate to the different ‘Process Dates’ performed in the Production system. The directories always start with ‘IDF_’ and then end with a fully qualified date. The letters IDF stand for ‘Image Directory For’. An example for May 24, 2011 would be IDF_20110524, which is ‘Image Directory For May 24, 2011’. Any transport using this server would place the image files in this directory for that process date. There is no longer a unique sub-directory per transport per process date. All files for a specific process date across all transports are in that directory if the transport uses this server.

Each Image Server in your system will mimic this directory tree for image files. Each server will have the same share name (RemitTrac_DemoRoomDBFServ01_Images) on it corresponding to the same directory path. Thus, at the end of the day, all Image Directories could be combined into one standard image directory if need be, which would be the IDF_20110524 directory.

Each Image Server could support multiple Database Engines (each with a different directory tree), such as DemoRoomDBFServ02, DemoRoomDBFServ03, etc. The directories would be kept separate and the ‘share’ names would reflect the database engine that is being accessed. This will prevent ‘cross-contamination’ of image files from different database engines or different ‘application’ systems.

**Formware Server**

The Formware Server is expected to be installed with two (2) disk drives. One is reserved for the Operating System (Disk C:\ ) and the other is for data (Disk D: ) for the Formware Application system. It is up to the installer of the Formware system where the Formware application will live and what it uses for data.

- For instructions on understanding where the Formware installation was performed and the proper actions for formware cleanup, refer to the “Installing the Formware System” document from Captiva Software.
Appendix C – Database Engine

This portion of the document clarifies the proper procedure for a database server system administrator to perform a recovery from a catastrophic failure of the Database Engine. A description of the files and their uses will assist you in understanding the rationale for performing these procedures. These special files (detailed below) are **VERY IMPORTANT** to the health and status of the Database Engine and your production databases.

There are criteria for deciding when to delete these files and the system administrator needs to be concerned with that reasoning! The content and existence of these files severely **IMPACTS** the customer databases and their ability to **recover completely from crashes** in the system. If you have any automatic scripts that delete these files, the deletion should be removed from those scripts! If you are deleting these on a daily basis as part of your backup procedures, you should stop doing that also! If you delete these on server startup, you should also stop that!

Relative Directory Tree

The rest of this appendix references directories and files relative to the ‘Root’ Database Engine directory. The Database Engine directory is different for every single physical site and server. The names ‘Velocis’ and ‘Raima’ are never used; the Root Database Engine directory is the name provided to ImageScan for your database server. For example, in the ImageScan Demo Room, we named the Database Server ‘DemoRoomDBFServ01’. The ‘Root’ Database Engine directory on our server will be D:\ImageScan\DemoRoomDBFServ01. Thus, any directory or files names mentioned below will be found in this directory.

Role of the Special Files

In the database engine, there are several files that manage changes to your databases. The database engine uses these files to recover from catastrophic crashes of the system. The files are Catalog\RDM.CHI and the contents of the ‘SysLog’ directory. As the database engine makes changes to your databases through the RemitTrac Application, it keeps a historical log of everything that it does. This historical log is kept in the SysLog directory as various rXXXXXXX.chg files and a single file called RDM.CHK. Additionally, the three files Catalog\RDS.LOG, Catalog\RDS.bak, Catalog\RDM.CHI and Catalog\lockcat.fil are very important in determining when to delete the special files from the system.

**Special Files** (on Database Server in D:\ImageScan\DemoRoomDBFServ01 = Root Server Directory)
- RdmStart.bat
- RdmStop.bat
Deleting the Special Files

The special files can be deleted from the system ONLY when the Database Engine has been stopped properly (described below) and there have been no major problems with the system. There is a specific decision point that needs to be determined by the system administrator of the server as to when the files should be deleted. Normally, it is recommended to delete these files once every week as part of the Daily RemitTrac Backup procedures. However, file deletion can only be performed if the proper criteria for evaluating database reliability have been met. All of the files listed above are integral to each other; they have to be treated as a SET. Deleting one part without deleting the others will cause problems with how the database engine will function. The deletion of these special files should NOT be an automatic function performed by a script/batch file. This procedure should only be performed after careful consideration of the current status of the system.

Stopping and Starting the Database Engine

ImageScan installs two batch files on the database server to be used to stop and start the Database Engine. To properly stop and start the database engine, the system administrator should use these files. Links are made to the Administrator Account Desktop window for these two batch files. This allows the system administrator to stop and start the database engine with the simple click of a button. All these files should do is to STOP and START the database engine. They should do nothing else! If you or someone else has modified the STOP batch file to delete the special files, those commands should be removed. The two batch files are called RdmStop.bat and RdmStart.bat and are located in the D:\ImageScan\EngineName directory on the database server.

Database Engine Crash and Recovery

ImageScan has tried to minimize the possibility of the database engine in RemitTrac having a failure. Since the upgrade to Version 8.3 (and version 7.0) of the database engine, there have been no ‘internal’ or application level problems with the database engine. All issues to date that have resulted in a database engine ‘crash’ have resulted from ‘external’ agents attacking or interfering with the functional workflow of the database engine. There have been no reports of the RemitTrac application causing the
engine to fail. There is one issue from the previous engine usage (V 1.4.x.x) that had a problem with memory usage or the size of the database files. There are no longer any of these restrictions or problems in the database engine.

**ImageScan requires** that the site DOES NOT attempt to perform a recovery of a database engine crash without the aid of the ImageScan Professional Services technical support. If the site does not have proper guidance to a proper recovery for the database engine, serious harm and/or erroneous data could be introduced to the databases.

**Decision to Delete the Special Files**

The decision to delete the *special files* is a straightforward procedure, but can be confusing. If the system has been performing properly and normally, the files can be deleted whenever the database engine has been shut down. This will be the case for most system administrators of the database server. This should be a **MANUAL** procedure. The prime indicator for deciding to delete the *special files* is the contents of the RDS.LOG file. This is the database engine logger that details the transactions the database engine has performed internally. An example of the RDS.LOG file after the database engine has been stopped after a normal day of processing is shown below:

**Example of Clean RDS.LOG file**

```plaintext
[08:15:39] Date: 11-Apr-2011
[08:15:39] ***** RM Subsystem Startup (Version 8.3.998D_unlimited_semaphores [03-Mar-2011]) ****
[08:15:39] RDM Server version 8.3 (build 998 [03-Mar-2011])
[08:15:39] Built for: Windows XP/Vista/7 (x86) (32-bit)
[08:15:39] ***** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:15:39] Serial Number 10704044
[08:15:39] Licensed Users unlimited
[08:15:39] Licensed Features ODBC,ADO.NET,Enc,InMem,Rep
[08:15:39] ***** RPC Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:15:39] Server Name DemoRoomDBFServ01
[08:15:39] Network encryption enabled
[08:15:39] Remote Shutdown allowed
[08:15:39] Loaded module _eadm (D:\ImageScan\DemoRoomDBFServ01\bin\_eadm32)
[08:15:39] Loaded module _erdm (D:\ImageScan\DemoRoomDBFServ01\bin\_erdm32)
[08:15:39] Loaded module _esql (D:\ImageScan\DemoRoomDBFServ01\bin\_esql32)
```
The above example shows that the server started normally, processed different work for several workstations and then was shutdown properly. At this point, it can be determined that with the database engine stopped, the special files can be deleted. There are no indicators in the RDS.LOG file indicating a problem.

Example RDS.LOG file after Database Crash

The following is an example from after the database engine has crashed, but before the RdmStop utility has been run.

[08:43:47] Date: 15-Jun-2011
[08:43:47] **** RM Subsystem Startup (Version 8.3.998D_unlimited_semaphores [03-Mar-2011]) ****
[08:43:47] RDM Server version 8.3 (build 998 [03-Mar-2011])
[08:43:47] Built for : Windows XP/Vista/7 (x86) (32-bit)
[08:43:47] **** RDM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:43:47] Cache Size (Min. Unchanged) 9990 (100) pages
[08:43:47] Checkpoint Threshold 40% (3996 pages)
[08:43:47] Maximum Checkpoint Buffer 2048000 bytes
[08:43:47] Change Log Size 2000000 bytes
[08:43:48] **** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:43:48] Serial Number 10704044
[08:43:48] Licensed Users unlimited
[08:43:48] Licensed Features ODBC,ADO.NET,Enc,InMem,Rep
[08:43:48] **** RPC Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:43:48] Server Name DemoRoomDBFServ01
[08:43:48] Network encryption enabled
[08:43:48] Remote Shutdown allowed
[08:43:48] Loaded module _eadm (D:\ImageScan\DemoRoomDBFServ01\bin\_eadm32)
[08:43:48] Loaded module _erdm (D:\ImageScan\DemoRoomDBFServ01\bin\_erdm32)
[08:43:48] **** SQL Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:43:48] Loaded module _esql (D:\ImageScan\DemoRoomDBFServ01\bin\_esql32)
[08:43:48] **** NCP Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[08:43:48] Shared Memory Started
[08:43:48] TCP/IP Started (port: 50300 (IPv4))
[08:43:48] RDM Server is now ready
[08:49:18] Login for user SV06020 (USR), session 1 from SV06020 via TCP/IP (not encrypted)
[08:49:18] SV06020 ==> Windows (x86,C) (Windows Server 2003 Standard Edition Service Pack 2 (Build 3790) [x86 X 2])
[08:49:48] Login for user zImageScan_Admin (ADM), session 2 from SV06020 via TCP/IP (encrypted)
[08:49:48] creating database device Product_DB20110615
[08:49:48] creating database instance Product_PD20110615 from PDDV81010 on Product_DB20110615;
[08:50:06] Changing change log cycle from AAAAULO to AAAAULP
[08:50:06] Change log cycle completed.
[08:50:06] Logout for session 2
[08:50:26] Logout for session 1
[08:50:51] Login for user IMAGEPRINT2 (USR), session 1 from IMAGEPRINT2 via TCP/IP (not encrypted)
[08:50:51] IMAGEPRINT2 ==> Windows (x86,C) (Windows XP Professional Service Pack 3 (Build 2600) [x86 X 2])
[08:50:51] System Login Station: IMAGEPRINT2 WinUser: Qa Print2 LocSess: 1
[08:51:04] Login for user CAR-54 (USR), session 2 from CAR-54 via TCP/IP (not encrypted)
[08:51:04] CAR-54 ==> Windows (x86,C) (Windows XP Professional Service Pack 2 (Build 2600) [x86 X 2])
[08:51:08] Logout for session 1
[08:51:23] Login for user DEMOWKS04 (USR), session 1 from DEMOWKS04 via TCP/IP (not encrypted)
[08:51:23] DEMOWKS04 ==> Windows (x86,C) (Windows XP Professional Service Pack 3 (Build 2600) [x86 X 2])
[08:51:25] Login for user DEMOWKS03 (USR), session 3 from DEMOWKS03 via TCP/IP (not encrypted)
[08:51:25] DEMOWKS03 ==> Windows (x86,C) (Windows XP Professional Service Pack 3 (Build 2600) [x86 X 2])
[08:51:30] Login for user DEMOWKS01 (USR), session 4 from DEMOWKS01 via TCP/IP (not encrypted)
[08:51:30] DEMOWKS01 ==> Windows (x86,C) (Windows XP Professional Service Pack 3 (Build 2600) [x86 X 2])
[08:51:30] System Login Station: DEMOWKS01 WinUser: qa sched1 LocSess: 4
[08:51:34] Login for user DEMOWKS02 (USR), session 5 from DEMOWKS02 via TCP/IP (not encrypted)

**NOTE:** In the current database engine release (indicated by the words: *Raima Database Engine 8.3 [Build 149]* in the example above), there is **NO** indication of the problem! There is a possibility that the recovery effort will work. Until the recovery is attempted, we will not know.

**NOTE:** There have been incidents at different customers with external agents affecting the database engine. The communication stream to the database engine needs to be protected from interference from firewalls, virus scans, etc. The files that comprise the database engine need to be excluded from virus scans, file intrusion detection, etc.
NOTE: When consulting the log above, if we were to see information indicating ‘Fatal’ errors, there is no recovery from this problem! The databases must be restored to a previous backup version.

If the database engine fails and the server is still running, review the RDS.LOG file for indications of a problem. This is a critical DEBUG tool for the system administrator and ImageScan.

At this time, it is important to save the RDS.LOG and the RDS.BAK files in the Catalog directory BEFORE bringing the database engine back up. These files will assist ImageScan in performing additional debugging of the issue.

The system administrator will have to restore the system to a previous day's backup. Please contact Professional Services at ImageScan prior to restoring the Backup.

Example Recovery RDS.LOG file after server crash

[17:33:43] **** RM Subsystem Startup (Version 8.3.998D_unlimited_semaphores [03-Mar-2011]) ****
[17:33:43] RDM Server version 8.3 (build 998 [03-Mar-2011])
[17:33:43] Built for : Windows XP/Vista/7 (x86) (32-bit)
[17:33:43] **** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[17:33:43] Cache Size (Min. Unchanged) 9990 (100) pages
[17:33:43] Checkpoint Threshold 40% (3996 pages)
[17:33:43] Maximum Checkpoint Buffer 2048000 bytes
[17:33:43] Change Log Size 2000000 bytes
[17:33:43] RECOVERY REQUIRED
[17:33:43] RECOVERY: change log file=D:\ImageScan\DemoRoomDBFServ01\syslog\rAAAAUREchg
[17:33:43] RECOVERY: pass 1, discover last checkpoint address
[17:33:43] RECOVERY: checkpoint address=253783, EOP=693804
[17:33:43] RECOVERY: pass 2, build REDO and UNDO list
[17:33:43] RECOVERY: pass 3, redo 720 transactions
[17:33:43] RECOVERY: REDO transaction 1
[17:33:43] RECOVERY: REDO transaction 2
[17:33:43] RECOVERY: REDO transaction 4
[17:33:43] RECOVERY: REDO transaction 8
[17:33:43] RECOVERY: REDO transaction 10
[17:33:43] RECOVERY: Restoring the replication cache
[17:33:43] RECOVERY: opened database App
[17:33:43] RECOVERY: opened database Product_Main
[17:33:43] RECOVERY COMPLETED
[17:33:43] **** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[17:33:43] Serial Number 10704044
[17:33:43] Licensed Users unlimited
The above example shows the status of the database engine after the database server was restarted. This is a normal case when a hardware component has caused the database server to fail or a power outage (without UPS support) caused the server to go down. The database engine was in the middle of normal updates to the database when the server crashed. The database engine determined where it was in the processing cycle and performed a recovery ('RECOVERY lines above'). The database engine was able to recover the work that was 'COMPLETE'.

At this time, the system administrator should stop the database engine, save the RDS.LOG file and then restart the database engine. If the database engine comes up with a normal RDS.LOG file as in the example above, then the system has recovered and processing can continue.

The users of the database should review the work they were processing and continue to process or reprocess, if necessary, their work. The shift managers must investigate all operators to determine the work being processed and then redo the work. The ImageScan RemitTrac product performs updates to the database in a proper manner for this type of recovery. If the database engine failed in the middle of a database 'Transaction', that change will not be recorded. An example would be that while in the middle of adding a contact to a lockbox, the database failed and the contact will not be added to the database. The adding of the contact will have to be redone.

NOTE: There is still the possibility of an internal, unrecoverable database error. This is always a possibility, but in 99.9% of the time, if the entire server has crashed, this will not happen. It is
normally found when hardware fails in the server. The database engine protects itself from those
errors; only when a piece of hardware fails do those errors normally occur.

The system administrator can delete the special files from the server after a proper Stop if the above
RDS.LOG example is found and processing was able to continue.

If the system administrator is in doubt of deleting the special files, then DO NOT remove them. It is okay
to leave them there. The deletion action should only happen on a weekly basis.

Example of a Clean RDS.LOG file after Restart

[10:27:54] Date: 30-Jun-2011
[10:27:54] **** RM Subsystem Startup (Version 8.3.998D_unlimited_semaphores [03-Mar-2011]) ****
[10:27:54] RDM Server version 8.3 (build 998 [03-Mar-2011])
[10:27:54] Built for : Windows XP/Vista/7 (x86) (32-bit)
[2] 2] @ SV06020
[10:27:54] **** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] Serial Number                  10704044
[10:27:54] Licensed Users                 unlimited
[10:27:54] Server Name                    DemoRoomDBFServ01
[10:27:54] Network encryption enabled
[10:27:54] Remote Shutdown              allowed
[10:27:54] Loaded module _eadm (D:\ImageScan\DemoRoomDBFServ01\bin\_eadm32)
[10:27:54] Loaded module _erdm (D:\ImageScan\DemoRoomDBFServ01\bin\_erdm32)
[10:27:54] Loaded module _esql (D:\ImageScan\DemoRoomDBFServ01\bin\_esql32)
[10:27:54] Loaded module _ncp (D:\ImageScan\DemoRoomDBFServ01\bin\_ncp32)
[10:27:54] **** SQL Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] **** NCP Subsystem Startup (Version 8.3.998D_instrumented [[03-Nov-2010]]) ****
[10:27:54] TCP/IP Started (port: 50300 (IPv4))
[10:27:54] **** RM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] *** RDM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ***
[10:27:54] Cache Size (Min. Unchanged) 9990 (100) pages
[10:27:54] Checkpoint Threshold      40% (3996 pages)
[10:27:54] Maximum Checkpoint Buffer 2048000 bytes
[10:27:54] Change Log Size            2000000 bytes
[10:27:54] **** ADM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] **** RPC Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] **** SQL Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] **** NCP Subsystem Startup (Version 8.3.998D_instrumented [[03-Nov-2010]]) ****
[10:27:54] **** RM Subsystem Startup (Version 8.3.998D [09-Feb-2010]) ****
[10:27:54] Server Name DemoRoomDBFServ01
[10:27:54] Network encryption enabled
[10:27:54] Remote Shutdown allowed
[10:27:54] Loaded module _eadm (D:\ImageScan\DemoRoomDBFServ01\bin\_eadm32)
[10:27:54] Loaded module _erdm (D:\ImageScan\DemoRoomDBFServ01\bin\_erdm32)
[10:27:54] Loaded module _esql (D:\ImageScan\DemoRoomDBFServ01\bin\_esql32)
[10:27:54] Loaded module _ncp (D:\ImageScan\DemoRoomDBFServ01\bin\_ncp32)
[10:27:54] RDM Server is now ready

If there are any issues or questions concerning the information contained herein, please call Professional
Services at ImageScan.
Modification History

This section will attempt to detail major changes to this document to identify alterations to the logic and design issues of the module as time progresses.

Dec. 15, 2011  Initial release of this document.