

Wyoming Department of Revenue CAMA Server Backup and Recovery

Monday, November 23, 2009

Overview

Backing up the data contained in the Wyoming CAMA system is an important function that should occur daily. The CAMA system presently performs a nightly replication of a subset of the records contained in RealWare. However, this data is far from complete and it cannot be used to recreate the County's CAMA system.

Protecting the integrity of the CAMA system requires several measures be taken by both the State and the County. The following are the Departments recommendations for the backup and general safeguarding the CAMA system.

Oracle Data Export

Nightly, each County's CAMA system generates an export file (in a .dmp file format) of all the data contained in RealWare. This export routine generates a log file, along with the .dmp file, that indicates whether Oracle completed the data export successfully. This file should be reviewed daily by County personnel to ensure the data contained in the .dmp file is complete. This file can be found at D:/ORACLEBACKUP/EXP_WY##.LOG.

County CAMA System Backup

The nightly Oracle data export is just one step in safeguarding the County CAMA system. This export file resides on the same server and hard drive as the production CAMA data. If the CAMA server suffers a catastrophic failure, all of the production and the backup data would be lost with no means of recovery. Subsequently, it is vitally important that certain directories on the CAMA server be backed up regularly. The Department recommends these directories are backed up as follows:

Nightly Backup

- D:\OracleBackup
- D:\Documents
- D:\Photos
- D:\Sketches

Periodic Backup

- D:\Applications
- D:\GeoCortex
- D:\RealWare
- D:\Scripts

Special Backup

The D:\Oracle directory contains the production database for RealWare. It is possible to backup this directory, but it is not required. The Oracle Data Export will recover all of the data in the production database from the prior evening. This directory may be backed up as well. However, a successful backup of this directory requires all Oracle services to be stopped first.

Directory Security & Sharing

It is important that security and sharing of the directories is set up properly. The only directories that should be shared with everyone are the Realware, Documents, Photos and Sketches directories. The Applications and OracleBackup directories should only be shared with Administrator rights to the server and no other directories should be shared. By setting up this level security, the Assessor is protecting the files and folders on the server and keeping the server in a pristine state.

CAMA Directory Structure

The Wyoming County CAMA servers were built using a common data structure and contain both a C: and the D: drive. The following describes what information should be stored and where.

1. The **C:\ drive** will be used for all installed applications; ESRI ArcIMS, JAVA, Apache Tomcat, etc. The installation of these products should fall within the default pathways for the application. Normally, this will be located under the Program Files on the C: drive.
 - A. The uninstalled software application should not be stored in whole or part on the C:\ drive. This includes the storing of upgrades, enhancements, patches, etc. with My Documents folder or on the Desktop as both of these reside on the C:\ drive.
2. The **D:\ drive** will be used primarily for the storage of uninstalled applications and data. Each server will have the following directories.
 - A. **Applications** – This will house all the uninstalled applications, enhancements and upgrades that can be installed from a setup file for either the server or the client. Upon deliver, these directories include:
 - 1) Under Adobe: Acrobat Reader 9.0
 - 2) Under Apache: Apache Tomcat 5.5.27
 - 3) Under Apex: Apex, Medina version 4
 - 4) Under ESRI: ESRI ArcIMS version 9.3
 - 5) Under Java: JDK-6U14-WINDOWS-X64.exe and jdk-6u14-javafx-1_2-windows-i586 for 32-bit
 - 6) Under Latitude: Geocortex IMF, Server and Site Manager files
 - 7) Under Microsoft: /Microsoft/VM_OS: XP Pro Operating System; /Microsoft/VM_OfficeXP: Office XP 2002
 - 8) Under Oracle_Server: Oracle Server 11g Production database
 - 9) Under Oracle_Client_32Bit: Oracle 32 bit Client, 11g.
 - 10) Under SQLDeveloper: SQL Developer, 32 bit client, version 1.5.5.59.69
 - 11) Under RealWare: RW Setup version 4.5.1.22 and RealWare version 4.17.02
 - 12) Under SPSS: SPSS version 15.
 - 13) Under SQLDeveloper-32Bit: SQL Developer 1.5.5 32-Bit application
 - 14) Under MiscUtilities, Toad Free. This directory should be actively backed up by the county each time applications are updated or removed.
 - B. **Documents** – This folder will have all the scans and any .doc or .txt files that are used through the RealWare application. This directory should be actively backed up by the county.

- C. **Geocortex** - This directory contains the Latitude Geographics IMF framework.
- D. **Geodata** – This is where the PLSS and parcel information will be stored that feeds Geoware.
- E. **Oracle** – This folder will have the production data files and Product folder (admin, db_1 and Flash_Recovery). This directory may be backed up by the county, but it will require all Oracle services to be stopped. This is referred to as a cold backup. Note, this is not the primary way data will be recovered in an emergency. Normally the backup dump files are used for this purpose.
- F. **OracleBackup** – The OracleBackup directory will store the logs and dump file for each nightly backup. This includes, but is not necessarily limited to, the.dmp file, export log, security log, temp table cleanup log. Also, this directory includes a ‘Yesterday’ folder. This will contain a copy of the .dmp file and the users’ security script from one full day prior. This is to ensure that, in case of failure, the latest backup file is not corrupt. This directory is vital to the CAMA system and should be actively checked for errors daily and should be regularly backed up by the county. This includes moving a copy of this information offsite for safekeeping.
- G. **Photos** – Will have all the photo jpegs that are used through the RealWare application. This directory should be actively backed up by the county.
- H. **RealWare** – This is CCI’s software application folder for their system. All client machines are pointed to this directory to look for updates and various system items. This directory is identified in each client machine in the registry and must remain in place. This directory has many subdirectories that this that the DOR does not directly maintain and they are used to directly support the CAMA system by the vendor.
- I. **Scripts** – The Scripts folder will have the following associated sub-folders and will contain several different types of scripts including .bat files, .exe files, Oracle SQL scripts, etc. This directory should be backed up by the county on a fairly frequent basis, but not necessarily nightly. Note, not authentication data should be stored in the scripts themselves. All password information should be hashed ‘*****’ for security purposes.
 - 1) **ScheduledTasks** – Any task the Department has set up to run on a scheduled basis. These include Gen_Users.exe, users.sql, EXP_FULL_WY().exe, TempTableCleanup.exe. This script actively help maintain temp tables, create the nightly backup dump file and creates a current list of users, hashed passwords and all roles and system rights. The files in this directory should not be edited except by the Technical Services Group.
 - 2) **TestedScripts** - This directory should contain any required script that is not regularly scheduled (See item 1). This will include the latest tested scripts to import data into the database, perform cleaning routines, check for data consistency, etc. This directory is not a dumping ground for all attempts, but rather should contain only those scripts that have been tested and proven useful in the past.
 - 3) **DORScripts** – These are scripts the DOR has set up that are not on a schedule to run. These include any work up scripts that are used in the normal day to day maintenance of the system. These should be reviewed periodically to keep the directory clean.

4) **CCIScripts** – These are scripts CCI has set up that are not on a schedule to run. These include any work up scripts that are used in the normal day to day maintenance of the system. These should be reviewed periodically to keep the directory clean.

J. **Sketches** – Will house the Apex sketches that are used through the RealWare application. This directory should be actively backed up by the county.