

# Chapter 7

## TECHNICAL ADMINISTRATION

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## 7-1 INTRODUCTION

There are a few references describing the actions necessary for the effective administration of PD<sup>2</sup>. The Air Force Contracting E-Business Procedures outlines the primary system set-up and support considerations. CACI also provides a helpful website for the system administrator community with PD<sup>2</sup> relative information at <http://sps.caci.com/>. At this website, users will find FAQs, Call Records and other PD<sup>2</sup> miscellaneous documentation.

This part provides instruction on areas of consideration for the long term maintenance of technical/database responsibilities pertaining to system administrators.

System Administration (functional), often labeled SA, refers to the management and support of the PD<sup>2</sup> application itself. Throughout the Air Force E-Business Procedures, a reference to system administrators implies those users with functional administration responsibilities. Technical System Administration refers to the more technical tasks associated with the management and support of the server and its operating system. Finally, Database Administration (DBA) refers to the performance management and support of the SPS Database. Contracting Systems/HIBB at Maxwell-Gunter Annex will provide centralized Remote DBA (RDBA) to support field activities. Below is a brief summary of the tasks associated with Technical and Database administrative roles:

### 7-1.1 Technical/Database System Administration

Support Mechanisms may encompass:

Site Servers

Workstations

Database

Application

Communication Infrastructure

Remote Database Administration

RDBA Process

### *Site Responsibilities*

As the site system administrator, you are responsible for non-technical, daily system and functional administration. Your responsibilities include ownership of the site's data stored in SPS (accuracy, timely updates, etc.) as well as:

- Daily and periodic Backup and Restoration of Databases and Logs
- Monitoring Logs (interfaces, DB changes, Logon, etc.)
- Managing Errors and the Error Log
- Scheduling Routine Backups

- Installing Database Software
- Granting Special Privileges (Passwords, Warrant Authority, etc)
- Reconfigure Sybase after server failure or tech refresh. Note that these instructions are not included in these Air Force Contracting E-Business Procedures. To install Sybase, contact Contracting Systems/HIBB RDBAs for the process and required scripts.
- Correcting Data Problems with RDBA assistance using CACI supplied scripts. At no time should a site create a new or modify an existing script to change data in the database. Possible data problems include:
  - Data Corruption
  - Incorrect Input of Data
  - Runaway queries that consume processing time
  - Updating security patches and anti-virus definitions
  - Develops and maintains a Backup and Recovery Plan
  - Database Regular Maintenance and Troubleshooting

### **Contracting Systems/HIBB Responsibilities**

- Configuring Physical and Logical Database Devices with site assistance
- Creating a Database on a Logical Device with site assistance
- Growing a Database with site assistance
- Assessing site SPS performance (look at peak periods)
- Determining Automated Backup Procedures
- Increasing the Number of Devices with Site Assistance
- Configuring Additional Memory with site assistance
- Database Restore with Site SA Cooperation (to fix a critical failure)
- Creating a Database on a Logical Device
- Database Regular Maintenance and Troubleshooting

## **7-2 ELECTRONIC DOCUMENT ACCESS (EDA)**

### **7-2.1 EDA FTP Automation Process**

After a contract action is released in PD2 it is placed into a queue for the ASF software to create Post Script and Index files. The ASF software queries PD2 for newly released contract actions at scheduled times. The schedule for ASF software can be set either through the ASF software or through the ASF task within “Utilities | System Administration” menu in PD2. The ASF software creates the Post Script and Index files and saves them to the Adapter server in D:\PD2\EDA directory.

A Windows Scheduled Task (usually named EDA FTP) will call a Visual Basic (VB) script named EDAFTP.vbs. When the Scheduled Task is run, the VB script connects the Adapter server to the site's designated FTP server and transfers all .ps and .idx files in the root of D:\PD2\EDA directory to the FTP server. After the files have been transferred, the VB script creates a new directory using current date as the name and moves .ps and .idx files into it. The VB script also creates a log file showing the transfer process of the files for your review to determine transfer was successful. This log file is written into the same directory that the files are moved to.

If the EDAFTP.vbs is not working and you have to manually transfer the files refer to Attachment A of this chapter for the Manual FTP process.

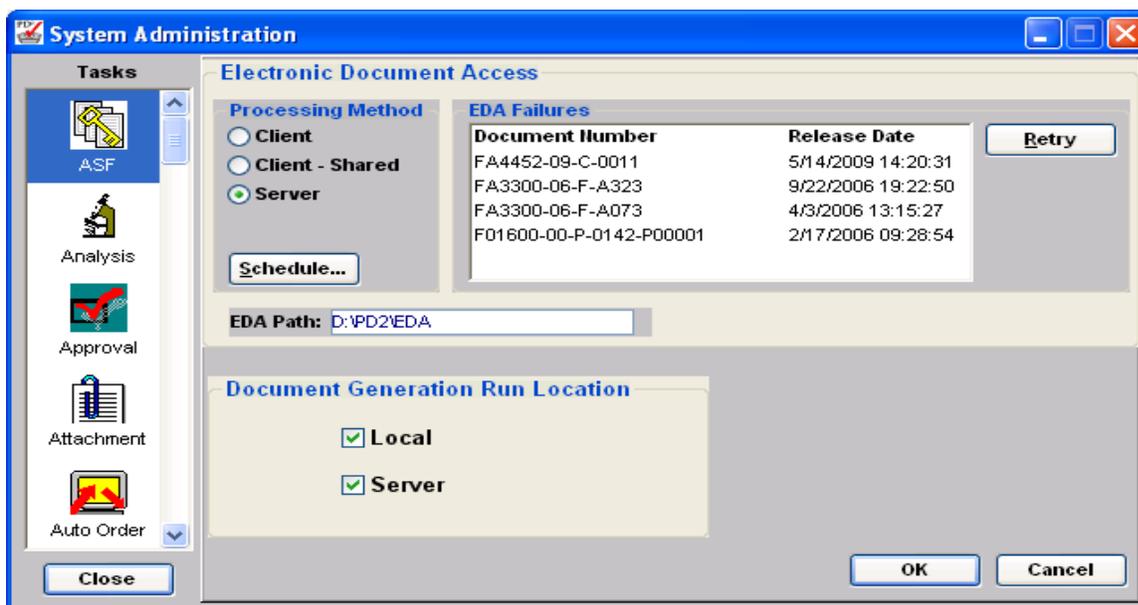
### 7-2.2 Microsoft Word and Default Postscript printer driver requirements.

When an EDA file is generated and processed by the ASF Server, the EDA files will process only if the Adapter/ASF Server has been configured with both Microsoft Word and a Postscript printer driver. The Postscript printer must be set up as the Application Server's default printer. There are no additional requirements that must be fulfilled before EDA files may be processed, generated and saved using an ASF Server.

### 7-2.3 PD<sup>2</sup> System Administration screen

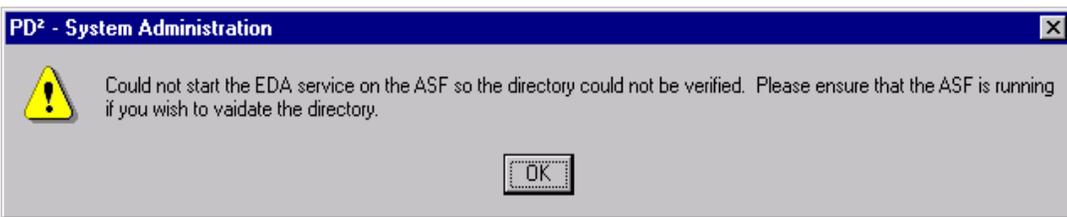
In order for PD<sup>2</sup> to generate and save EDA files using the ASF Server you must tell PD<sup>2</sup> how EDA transactions are to be processed. To do this you must modify the ASF task located in the System Administration screen.

1. Log into PD<sup>2</sup> as a system administrator.
2. Select the "Utilities | System Administration" menu options. Scroll down the list of tasks and select the ASF task. The following screen will appear.



3. Select the “Server” option. Update the EDA path option and change the directory to point to the EDA directory on the Adapter Server. It should read: D:\PD2\EDA.

**NOTE:** If the ASF Server software is not running, you will see the following message(s).



At this point you need to start the ASF Server service (on the ASF Server choose the “Start | Programs | Procurement Desktop | PD2 Application Server” menu options) before repeating step 3.

4. If the ASF Server service is running and the directory you entered in EDA path can be accessed from this workstation, no messages will be displayed.

5. To validate the EDA transaction process, log into the EDA website to verify data.

#### **7-2.4 Steps to Generate EDA file from the EDA Failed queue**

Every once in a while an EDA transaction may not generate due to a system-related (printer, network, etc.) problem. When an EDA transaction does not complete successfully, it is added to the EDA failure queue and at that point requires the attention of the system administrator.

1. Logon to PD2 and select “Utilities | System Administration” menu options.
2. Select “ASF” Task.
3. Select Client radio button under Processing Method
4. Select “OK”
5. Select “ASF” Task

6. Select each EDA document and press the Retry button
7. After all documents have been generated, select Server radio button under Processing Method
8. Select “OK”
9. Open Windows Explorer, navigate to the PD2\EDA\out directory on “C” drive  
NOTE: If PD2 is installed in C:\Program files then the EDA\OUT directory will be found at %USERPROFILE%\AppData\Local\VirtualStore\Program Files\PD2\EDA\OUT (*hidden directory*)
10. Move the newly created \*.ps and \*.idx files from the client machine to the D:\PD2\EDA directory on the Adapter server. This is best accomplished by having a mapped network drive to this location.

### **7-2.5 The document is not located in the EDA Failed queue**

If an EDA transaction has failed to generate and does **not** appear in the EDA Failures queue, the two EDA files associated with one EDA transaction can be generated manually by following these steps:

- ❑ Recreating the Post Script EDA file:
- ❑ Go to Script Aid and run the “flag EDA as failed” under manipulative
- ❑ Run steps from Paragraph 7-2.4

## **7-3 SOFTWARE UPGRADES**

Software upgrades include PD<sup>2</sup> version and maintenance releases, as well as the installation of new or revised reference data (such as clauses and Reference Library materials). Separate consideration must be given to general software configuration management and upgrades, including the version of the MS Office suite installed.

### **7-3.1 PD<sup>2</sup> Upgrades/Updates**

CACI releases of PD<sup>2</sup> software fall into two categories: major releases and maintenance releases. Major releases are planned version upgrades, while maintenance releases are updates to those software iterations. Recurring updates may include:

- Clause Installer
- Standard Data Installer
- Reference Library
- Translators
- PD<sup>2</sup> Service Releases

Database administrators assigned to the upgrade and maintenance of PD<sup>2</sup> should keep the following in mind:

- PD<sup>2</sup> software is installed using the JPMO approved installation routines.
- Because each PD<sup>2</sup> client and database software upgrade offers additional or modified functionality, it can't be backward compatible. Partial upgrades (i.e., upgrading just the database or a few machines) can result in system error. If any

client or database is upgraded at a particular site, every other client must also be upgraded at that site. Therefore it is not possible to “phase in” upgrades. As such, sites must have a well-defined upgrade strategy to minimize associated downtime.

- The updates and instructions will be provided by CACI or the Contracting Systems/HIBB
- The approved list of updates are located on the Contracting Systems website

## **7-4 REMOTE DB ADMINISTRATION**

The Contracting Systems SPO has built a Remote Database Administration (RDBA) Team of Sybase DBA experts to reduce the overall cost of system operations and maintenance and to handle significant problems more efficiently, accurately, and economically than providing this expertise at each Air Force site. Because SPS supports a Sybase database, the RDBA will use the latest Sybase software and tool releases when troubleshooting.

The RDBA will maintain and reference a depository of lessons learned and practical solutions or workarounds for typical problems. Additionally, the Government will establish and maintain a configuration management process. This is part of reports.

### **7-4.1 RDBA Process**

The purpose of monitoring is to quickly and proactively respond to computer and database resource problems, understanding proactive to mean flagging situations when normal operating parameters are breached and before serious problems result.

The HIBB/RDBA will provide support for tasks requiring advanced technical knowledge, Sybase expertise, or those exceeding your regular system administrator duties. The RDBA will perform two key tasks:

- Technical database support -- knowledge-based analysis and response to site problems.
- Performance assessment and fine-tuning

### **7-4.2 RDBA CONFIGURATION**

Four static IP addresses will be assigned to four machines at the Contracting Systems/HIBB for use by the RDBAs. Each base will allow these IP addresses through their firewalls at port 5000 - 5003. Depending upon the base network, the main base router will allow data from those four IP addresses to pass to the contracting offices network. This solution works with Sidewinder, Firewall-1, and Gauntlet. The sensitive information sent across the wire, are the user-id and password. Sessions will contain merely metrics from the database, such as processor utilization, database sizes, etc. No sensitive information will transmit after the encrypted user-id and the encrypted password has been passed. For more information consult the Authority To Operate (ATO) document (Note: document may be found on the Contracting Systems/HIBB website)

### **7-4.3 Contracting Systems SPO Points of Contact**

Contact the Contracting Systems/HIBB Help Desk at DSN 596-3134/3245 or [SPS.Helpdesk@gunter.af.mil](mailto:SPS.Helpdesk@gunter.af.mil).

## **7-5 PD<sup>2</sup> REGULAR MAINTENANCE AND TROUBLESHOOTING**

It is essential that database administrators conduct a series of regular maintenance procedures on Sybase SQL Server. Excluding topics covering the site-specific responsibilities of regular backup, periodic restore, and transaction log monitoring, the following section highlights database maintenance tasks.

### **7-5.1 Manually Dumping the Database**

Occasionally site may want to manually dump the database for special purposes such as to backup a database prior to running a CACI script. See Chapter 12 SPS Database Administration.

### **7-5.2 Restoring a database**

Databases are restored to either the same database they were dumped from (usually to bring the database back to a 'point in time') or to another database. An example of the later would be dumping the production database and restoring it into the test database.

Contact Contracting Systems Help Desk for RDBA assistance when restoring any production database.

### **7-5.3 Sybase Database Dumps and File System Backups**

When performed properly, both types of backups--file system and Sybase database dump--offer disaster recovery protection for a server. If the server or Sybase software should suffer a catastrophic failure requiring a rebuild or replacement of disk drives, the backups should provide a complete record of installed software and data from which to restart. The ability to recover from a disaster is predicated on frequent, complete backups being performed so that a minimum of work would be lost between disaster occurrence and recovery.

In order to understand the steps required to execute a successful backup, it is important to understand the players in the backup process. Sybase SQL Server is a database management system (DBMS); it responds to requests from client computers to retrieve and update data. In order to do this it opens, maintains, and controls access to the data files that comprise each database. While the DBMS is running, these data files are marked as "in use" and attempting to directly access them from the operating system results in a sharing violation--all access to the file must be through the DBMS. The converse of this is also true. While the DBMS is not running, these data files are viewed as regular files by the operating system and can be copied, moved, or deleted without a problem (the implications of deleting or changing a data file directly via the operating system are enormous and will most usually render your Sybase installation inoperable).

**File System Backup:** This type of backup is executed using the BrightStor ARCserve Backup software. A program or process is run on a scheduled basis to backup sets of files on the hard drive(s) of the computer. These files are backed up directly to tape. File backups are usually performed at night, when system usage is low. Generally, file system backups are used to backup all files, applications, and data files, so that the entire computer or specific files can be restored in the event of a catastrophic failure of the system. Please refer to the SPS BrightStor ARCserve Administrator's Guide for details on configuring the backup software.

**Sybase Database Dump:** This type of backup involves extracting the data in the database and saving it to disk. This backup (commonly called a database "dump") is performed while the database is running and allows users to continue to process data while the dump is run. Database dumps only capture the data in the database and do not perform a backup of Sybase application files; however, database dumps are necessary to restore databases in the event of a catastrophic Sybase failure, or if a previous version of data is needed.

#### **7-5.4 Killing Processes**

A process is a task carried out by SQL Server. Processes can be initiated with a user command or by SQL Server itself. Each process is assigned a unique process identification number when it starts. These ID numbers, and other information about each process, are stored in master database. You can see most of the information by running the system procedure `sp_who`.

The kill command eliminates an ongoing process. The most frequent reason for killing a process is because it interferes with other users and the person responsible for running it is not available. The process may hold locks that block access to database objects, or there may be many sleeping processes occupying the available user connections.

A System Administrator can kill processes that are:

Waiting for an alarm, such as a `waitfor` command

Waiting for network sends or receives

Waiting for a lock

Prior to killing a process, the site SA should contact the user and find out what he or she was doing that caused the lock

SQL Server allows you to kill processes only if it can cleanly roll back any uncompleted transactions and release all system resources that are used by the process.

#### **Steps:**

1. Launch Interactive SQL. See 12-9--Connecting Interactive SQL on the Client or 12-10--Connecting Interactive SQL on the server.
2. Running `sp_who`. See 12-7 Running `sp_who`.
3. Kill the process that is causing the block. See 12-6 Running kill command.
4. Log out and close Interactive SQL

### **7-5.5 Stopping and Starting a Sybase SQL Server**

Occasionally you may need to stop or restart the SQL server if killing processes are unsuccessful at releasing a database block or if you encounter other server problems. The following procedures walk through stopping and starting the SQL server.

**Note:** These following activities are performed at the server.

#### **Step:**

1. Stop and start Sybase. See 12-8 Sybase Service Controller.

### **7-5.6 Database Consistency Checker (DBCC)**

The Database Consistency Checker (DBCC) is a set of utility commands for checking the logical and physical consistency of a database. The DBCC commands are executed as part of regular database maintenance, either daily or weekly. These checks can detect errors before they affect a user's ability to use SQL Server. The checks will often correct the errors for you. If not, some table maintenance may be required.

Some DBCC commands should not be run when users are on the database as PD<sup>2</sup> will slow down dramatically. If you do need to run DBCC manually, see 12-11 review daily and weekend.

Make sure that you discuss the problem with the RDBAs, at Contracting Systems/HIBB, prior to running DBCC commands manually.

In general, the more thoroughly the dbcc command checks the integrity of an object or database, the slower it is. In order for the DBCC to validate your table allocation pages and page linkages it performs a huge amount of physical I/O and locks tables from update activity while running. As a result, the process can be very time consuming and may greatly impact on-line performance.

### **7-5.7 Scheduled Tasks**

There are several scheduled tasks that facilitate in the management of the SPS software suite. The following are examples of scheduled tasks:

- EDA FTP
- SPS Retrieval
- IAPS FTP
- CBIS
- EZQuery
- Weekend logs
- Daily logs
- SBSS FTP (if applicable)

### **7-5.8 Recommended Backup Schedule**

A complete server backup should be performed once every weekday (Mon, Tues, etc). Refer to Chapter 13 SPS BrightStor ARCserve Administrator's Guide for detailed instructions for configuring the tape backup schedule.

## **7-6 CACI SCRIPTS AND SCRIPT APPROVAL**

Occasionally PD<sup>2</sup> requires fixes, at the Sybase database level, for problems. Scripts are defined as Sybase SQL statements that either query info about a problem or repair the problem.

All scripts shall be approved by the RDBAs at the Contracting Systems/HIBB. Do not run a script that hasn't been approved by the Contracting Systems/HIBB. Also, do not modify any script that you got from another source as it will void your warranty.