

FSA Modernization Partner
United States Department of Education
Federal Student Aid



Integrated Technical Architecture
Application Questionnaire

Task Order # 94 WO 3 -Detail Design Phase
Contract # ED-99-DO-0002

NSLDS II Reengineering

September 18, 2002



Table of Contents

1 CONTACTS	3
1.1 BACKGROUND.....	4
1.2 APPLICATION DESCRIPTION	5
1.3 LOCATION.....	6
1.4 USERS AND GROUPS.....	6
2 ITA FUNCTIONALITY INDEX AND PRODUCT INVENTORY	8
2.1.1 WEB SERVER.....	8
2.1.2 APPLICATION SERVER	9
3 SEARCH ENGINE.....	10
3.1 SEARCH ENGINE (KNOWLEDGE SERVER DRE)	10
3.2 LOCAL CONTENT RETRIEVAL (KNOWLEDGE SERVER AUTOINDEXER).....	10
3.3 INTERNET CONTENT RETRIEVAL (HTTPFETCH)	11
3.4 SEARCH ENGINE INTERFACE.....	12
4 ADDITIONAL INFORMATION	13
4.1 CONTENT DEPLOYMENT MANAGEMENT	13
4.2 DEVELOPMENT TOOLS.....	13
4.3 NON STANDARD ITA COMPONENTS.....	13
5 INITIAL CAPACITY PLANNING	14
6 ENVIRONMENTS	15
6.1 DOCUMENT ROOT.....	15
6.2 FILE SHARING	16



6.3	NAMING CONVENTIONS.....	16
6.4	CONNECTIVITY.....	17
6.5	MAIL CAPABILITIES.....	17
7	DATABASE REQUIREMENTS.....	18
8	SCHEDULED JOBS	20
9	MAINTENANCE.....	21



1 Contacts

Application: National Student Loan Data System

Application Abbreviation: NSLDS

Date form filled out: September 18, 2002

Application Team Lead: Sunil Malhotra

Contact Info: Office: 703-947-2146
Desk: 202-962-0512
Office Phone: 703-947-2146
Cell Phone: N/A
Email: Sunil.Malhotra@accenture.com

Application Team Architect: Amy Settle

Contact Info: Office: 703-947-1176
Desk: 202-962-0738
Office Phone: 703-947-1176
Cell Phone: N/A
Email: Amy.Settle@accenture.com

Technical Architecture Liaison: Terry Helwig

Contact Info: Office: 703-947-1087
Desk: 202-962-0880
Office Phone: 703-947-1087
Cell Phone: 443-801-4256
Email: Terry.Helwig@accenture.com



1.1 Background

The interaction between the Integrated Technical Architecture (ITA) team and your Application team is essential in successful completion of the product. Work with your Tech Arch Liaison named above, to ensure your project's success.

After completing this questionnaire, please schedule a review with your ITA Liaison. You must conduct a pre-development review of the following items with your ITA Liaison prior to beginning development of your application:

- Architecture Diagrams
- Database Model
- Object Model
- Design Documents

This review is intended to identify any architecture issues before development starts. It is in no way intended to evaluate an application's ability to meet functional requirements.

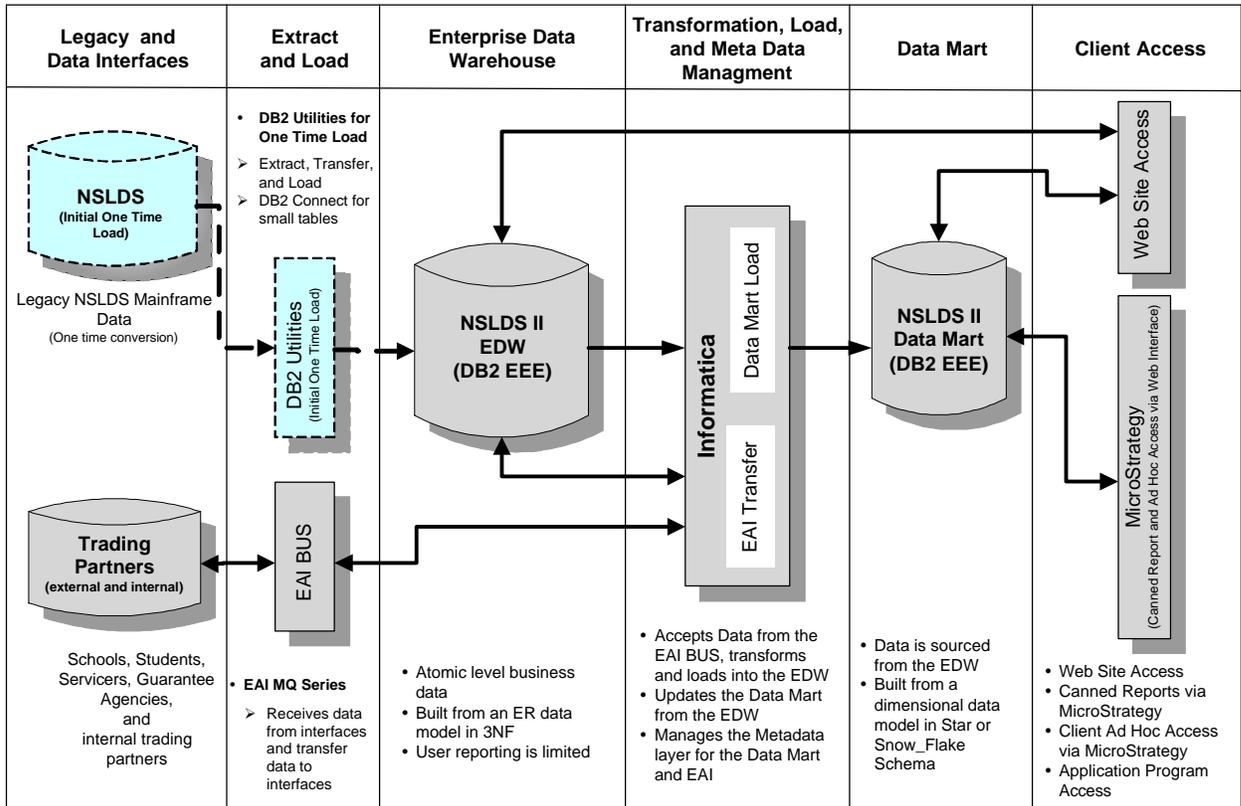
The ITA, which your application will become part of, has standards for development, testing, staging, and production. Standardized processes for Data Model Requests (DMRs), Software Investigation Reports (SIRs), and Data Center Change Requests are presently being formalized. Software Configuration management is necessary for all applications, no matter how small the development endeavor. Each application, as much as possible, should use the same systems for such software change management to keep the ITA efficient and standardized.



1.2 Application Description

The objective of this task order is to provide a redesign effort that will result in the implementation to version 2.0 of the existing SFA Internet site architecture. The redesign will concentrate on usability and reorganization in order to expand current functionality. It will also focus on planning for future functionality and connectivity and establishing performance metrics. All content will follow existing SFA web standards, and will be compliant with equal access to the disabled identified in Section 508 (29 U.S.C § 794d).

PROVIDE DATA FLOWCHARTS FOR THE APPLICATION THAT DESCRIBES THE INTER-RELATIONSHIPS OF DATA AND ACCESS BETWEEN THE VARIOUS SOFTWARE PACKAGES.



PLEASE IDENTIFY END USERS OF THE APPLICATION AND HOW THEY USE THE APPLICATION.

TBD: The following is a high level list of end users.

The NSLDS application is used primarily by the following users:



- ED/FSA
- Schools
- Guaranty Agencies
- Lenders
- Servicers
- Other Government Agencies

1.3 Location

WHERE WILL APPLICATION DEVELOPMENT AND TESTING TAKE PLACE? (i.e. where are the workstations located?)

The NSLDS II Reengineering development environment is a distributed environment with servers located in CSC's Virtual Data Center (VDC) in Meriden Ct and development workstations located at 820 Union Plaza (7th floor).

1.4 Users and Groups

**IDENTIFY APPLICATION DEVELOPMENT ROLES AND ASSIGN INDIVIDUALS TO THE ROLES.
THESE MAY INCLUDE ADMINISTRATOR, DEVELOPER, TESTER, AND END-USER.**

TBD

IDENTIFY THE USERS WHO NEED UNIX ACCOUNTS. NOTE: Not all team roles will need UNIX accounts. Some team roles will perform their role via an application that resides on a workstation (i.e. a browser) and not through a UNIX account.

TBD – Anthony Pinheiro

DO THE UNIX USERS REQUIRE A HOME ACCOUNT?

Yes

IF SO, HOW MUCH FILE SPACE IS NEEDED?

100 MB

IDENTIFY UNIX GROUPS AND ASSIGN USER IDS TO THE UNIX GROUPS.

TBD – Currently under progress with ClearCase administrators.



Note: CSC creates user accounts only after the proper security forms and paperwork has been completed and approved by SFA. ITA is not involved in this process and it typically requires 6 weeks for new user accounts to be completed. For those with existing security clearance and accounts, the process will typically be less than 6 weeks.



2 ITA Functionality Index and Product Inventory

The Integrated Technical Architecture provides the following functionality with the associated products:

<i>Function</i>	<i>Product</i>
HTTP Server	IBM HTTP Server v1.3.12.5
Java Application Server	WebSphere Application Server v3.5.5
Search Engine	Autonomy v2.2
Cluster Load Balance and Failover	eNetwork Dispatcher v 3.0
Content Deployment and Management	Interwoven v5.0.1
Configuration Management	Interwoven OpenDeploy v5.0.1
Development Tools	VisualAge for Java v4.0
Messaging System/Middleware	MQ Series v5.2
Data Warehouse Management	Informatica v5.1.2
Data Warehouse Analysis	MicroStrategy Intelligence Server and Web v7i
Database	Oracle 8i (v 8.1.7)

2.1.1 Web Server

Currently, the ITA uses IBM HTTP Server as the Web server.

The following features/standards are implemented in IBM HTTP Server v1.3.12.5:

- HTTP/1.1 Protocol (backward compatibility with HTTP/1.0 Protocol)
- Common Gateway Interface (CGI) and FastCGI
- Secure Socket Layer (SSL)

Answer all questions to define the Environment:

ARE SERVER SIDE INCLUDES NEEDED?

TBD – Amy Settle

IS CGI USED? (Not recommended)

TBD – Amy Settle

IS SSL NEEDED? IF SO, WHAT VERSION OF SSL AND LEVEL OF ENCRYPTION IS NEEDED?

Yes. The Financial Aid Partners website currently supports SSL 3.0. The Student Access website currently supports SSL 2.0 and 3.0. Browsers currently support 40-bit, 56-bit and 128-bit encryption.



IS THERE A REQUIREMENT FOR A DNS ENTRY FOR A URL? (or is the box to be accessed via the IP address)? If so, is the request for a production URL only or will unique URLs be need for each of the environments? Requests need to be submitted to SFA and all internal and external DNS names end in sfa.ed.gov. In certain cases, the DNS name needs to be known at the time of installation.

Yes.

<https://www.nslsdfap.ed.gov> (Financial Aid Partners website)

<http://www.nsls.ed.gov> (Student Access website)

2.1.2 Application Server

The ITA uses IBM WebSphere Application Server as the Application server.

WebSphere Application Server supports Java Server Pages (JSP), Java Servlets, and Enterprise Java Beans (EJB). The following J2EE standards are used:

- JSP Specification 1.1 is standard (backwards compatibility to JSP 1.0 and JSP .91)
- Java Development Kit (JDK) 1.2.2
- Java Servlet Specification 2.2
- EJB Specification 1.0
- Oracle 8.1.7 Thin JDBC Driver

Answer all questions to define the Environment:

WHAT JSP SPECIFICATION SHOULD WE PROVIDE YOUR APPLICATION SERVER?

TBD – Amy Settle

ARE OPTIONAL JAVA PACKAGES NEEDED (E.G. MAIL)? IF SO, WHICH ONES?

TBD – Amy Settle

DOES THE APPLICATION REQUIRE PERSISTENT SESSION MANAGEMENT? IF SO, WHICH METHOD WILL BE USED? Note: WebSphere’s Runtime Engine includes a Persistent Session Management Framework that supports Session Cookies and URL Rewriting. The WebSphere Runtime Engine does not support Hidden Fields. ITA recommends the use of cookies for session management because of ease of implementation, however, for those applications that cannot use cookies, URL rewriting is the proper alternative. The ITA team requests that any deviation from the WebSphere persistent session management be discussed prior to moving forward.



Yes, persistent session management is required. The method used is TBD.

3 Search Engine

The ITA uses the Autonomy Suite of Products for Search capabilities. Please read the sections below and provide answers to the questions to define the environment.

3.1 Search Engine (Knowledge Server DRE)

There is currently no search capability in the Financial Aid Partners and Student Access websites.

HOW MANY DATABASES ARE NEEDED IN THE DRE TO STORE SEARCH ENGINE CONTENT?

N/A

WHAT IS THE NAME OF EACH DATABASE NEEDED IN THE DRE (NOTE: NAMES MUST BE UNIQUE AND ARE CASE SENSITIVE)?

N/A

3.2 Local Content Retrieval (Knowledge Server Autoindexer)

WILL THE SEARCH ENGINE RETRIEVE CONTENT FROM THE LOCAL WEB SITE AND DOCUMENTS?

N/A

If so, please answer questions below:

WHAT ARE THE DIRECTORIES TO RETRIEVE THE CONTENT FROM AND THE CORRESPONDING DRE DATABASES TO STORE THE CONTENT? (e.g. directory=/www/myapp/htdocs/news DRE database=myappnews)

N/A

WHAT TYPE OF CONTENT SHOULD THE SEARCH ENGINE RETRIEVAL INCLUDE FROM THE LOCAL WEB SITE AND DOCUMENTS?

HTML N/A
(* .html, *.htm)?

WORD PROCESSING FORMATS N/A
(* .doc, *.txt, *.rtf, *.pdf, etc.)?



SPREADSHEET FORMATS N/A
(*xls, etc.)?

PRESENTATION GRAPHICS FORMATS N/A
(*ppt, etc.)?

WHAT TYPE OF CONTENT SHOULD THE SEARCH ENGINE RETRIEVAL EXCLUDE FROM THE LOCAL WEB SITE AND DOCUMENTS? (e.g. myapp has internal metadata files in /www/myapp/htdocs/news called MetaData.dat, exclude these from the search engine content)

N/A

LOCAL CONTENT RETRIEVAL IS SCHEDULED TO RUN EVERY MINUTE. IF THIS IS NOT ADEQUATE PLEASE SPECIFY THE REASON AND REQUESTED SCHEDULE.

N/A

3.3 Internet Content Retrieval (HTTPFetch)

WILL THE SEARCH ENGINE RETRIEVE CONTENT FROM THE INTERNET? IF SO, PLEASE ANSWER QUESTIONS BELOW:

N/A

WHAT ARE THE WEBSITES TO RETRIEVE CONTENT FROM AND THE CORRESPONDING DRE DATABASES TO STORE THE CONTENT? (e.g. web site=http://www.myapp.ed.gov/links/ DRE database=myapplinks)

N/A

WHAT TYPE OF CONTENT SHOULD THE SEARCH ENGINE RETRIEVAL INCLUDE FROM THE INTERNET?

HTML N/A
(*html, *.htm)?

WORD PROCESSING FORMATS N/A
(*doc, *.txt, *.rtf, *.pdf, etc.)?



SPREADSHEET FORMATS N/A
(*xls, etc.)?

PRESENTATION GRAPHICS FORMATS N/A
(*ppt, etc.)?

WHAT TYPE OF CONTENT SHOULD THE SEARCH ENGINE RETRIEVAL EXCLUDE FROM THE INTERNET? (e.g. www.myapp.ed.gov/links has links to commercial web sites, please exclude any content not ending in ed.gov)

N/A

INTERNET CONTENT RETRIEVAL IS SCHEDULED TO RUN ONCE NIGHTLY. IF THIS IS NOT ADEQUATE PLEASE SPECIFY THE REASON AND REQUESTED SCHEDULE.

N/A

3.4 Search Engine Interface

Currently there are two methods for interfacing with the search engine both using CGI. (Autonomy will be releasing a Java-based solution in a future release and this will be evaluated at that time). The first method of interfacing with the search engine is using a custom developed CGI program using the Autonomy KnowledgeBuilder API and the C programming language. The second method of interfacing with the search engine is using the Autonomy provided CGI program and modifying HTML template files to match the look and feel of your web site.

WHAT METHOD WILL BE USED TO INTERFACE WITH THE SEARCH ENGINE?

N/A



4 Additional Information

4.1 Content Deployment Management

IF YOU HAVE ANY CONTENT DEPLOYMENT REQUESTS OR CONCERNS, PLEASE DOCUMENT THEM HERE:

TBD if Interwoven will be used for content deployment.

4.2 Development Tools

IF YOU HAVE ANY REQUESTS FOR DEVELOPMENT TOOLS, PLEASE DOCUMENT THEM HERE:

Visual Aid for Java v4.0. This is currently being installed on our workstations.

4.3 Non Standard ITA Components

ANY REQUEST FOR A NON-ITA SOFTWARE VERSION OR TOOL MUST HAVE A FULL EXPLANATION AS TO WHY THAT TOOL IS NEEDED. PLEASE ALSO INCLUDE HOW THE PRODUCTS CAN BE ACQUIRED AND WHO ARE THE CONTACTS THAT WILL HELP WITH PRODUCT PROCUREMENT AND PRODUCT INSTALLATION.

Erwin Data Modeling Tool. Other data modeling tools are not compatible with DB2EEE v7.2.



5 Initial Capacity Planning

WHAT IS THE AVERAGE NUMBER OF CONCURRENT USERS PER DAY ON THE PLANNED SITE?

TBD

WHAT IS THE PEAK NUMBER OF CONCURRENT USERS PER DAY ON THE PLANNED SITE?

Approximately 200 users on the Financial Aid Partners website
TBD for Student Access website

IDENTIFY THE PEAK USAGE PERIODS IN TERMS OF TIME (i.e. 8am–9am M–F, January 1st – 15th, etc.).

TBD

WHAT IS THE REQUIREMENT FOR RESPONSE TIME DURING AVERAGE AND PEAK?

8 seconds

WHAT IS THE AVERAGE USER'S SESSION LENGTH IN TERMS OF MINUTES?

Approximately 10 minutes

IS THE APPLICATION PREDOMINATELY STATIC CONTENT OR DYNAMIC (JSP, SERVLETS, EJB) CONTENT? WHAT PERCENTAGE OF EACH?

Dynamic

PLEASE PROVIDE PERFORMANCE DATA FROM CURRENT WEB REPORTS AND EXPECTED GROWTH WITHIN THE YEAR.

TBD



6 Environments

The ITA standard defines four standard environments available for your use:

- Development (DEV) – used by the application developers for unit development and unit testing
- Test (TST) – used for component and integration testing
- Staging (STG) – used for performance testing and production readiness review
- Production (PROD) – the fully tested and released application

PLEASE PROVIDE THE ITA WITH A TIMEFRAME FOR THESE ENVIRONMENTS. Note: Requesting the timeframe does not guarantee the timeframe, but allows the ITA team to have a target timeframe to work with SFA.

- 10/01/02 Development
- 12/18/02 Test 1
- 12/27/02 Test
- 1/31/02 Production

These environments have standardized directory structures specified below in the directory structures section. The application team will be responsible for updating the different environments. Please see the User and Group section to define the different roles.

6.1 Document Root

The standard ITA directory structure is `/www/env/app` where **app** is a short name for the application and **env** is the environment (dev, tst, stg); the **env** is omitted in the production environment. Construction and naming of subdirectories is left to the discretion of the development team.

IF THIS STRUCTURE DOES NOT WORK FOR YOUR APPLICATION, PLEASE GIVE A DETAILED DESCRIPTION WHY AND PROVIDE A DESCRIPTION OF THE REQUESTED APPLICATION DIRECTORY STRUCTURE.

Fine.

**PLEASE PROVIDE THE FOLLOWING INFORMATION ABOUT THE DIRECTORY STRUCTURE:
WHAT UNIX ACCOUNT OWNS THE DIRECTORY?**

Root and TBD.



WHAT UNIX GROUP ACCOUNT HAS ACCESS TO THE DIRECTORY?

TBD

WHAT ARE THE PERMISSIONS FOR THE DIRECTORY?

Read, Write, Execute, Delete

WHAT SIZE ARE THE DIRECTORIES CONTAINING THE SOURCE CODE AND DATA?

200 MB

ARE FTP AREAS NEEDED TO MOVE DATA BETWEEN WORKSTATIONS AND SERVERS? IF SO, WHAT SIZE?

500 MB

6.2 File Sharing

IDENTIFY APPLICATION/BUSINESS REQUIREMENTS FOR A SHARED FILE SYSTEM.

TBD. Currently looking at ClearCase requirements.

6.3 Naming Conventions

What naming standards have been implemented? Note: It is highly recommended that file names do not contain spaces. Spaces in file names cause problems in both the Sun Solaris environment and with some of the products.

See NSLDS II Application Architecture Detail Design document

Note: If the application needs a Java Application Server, the web application name will be **APP**WebApp where **APP** is the application abbreviation, such as IFAP, CBS, FOTW, etc. This web application name lets the web server know where to redirect requests for servlets and jsp's and will need to be included as part of the URL structure. For example, to access a jsp called test.jsp, the html code will include “/APPWebApp/test.jsp”. This information needs to be shared with the code developers.



6.4 Connectivity

TYPE OF ACCESS REQUIRED FOR THE APPLICATION:

FTP? Yes

TELNET? Yes

HTTP? Yes

HTTPS? Yes

OTHER? PLEASE SPECIFY: Yes

6.5 Mail Capabilities

DOES THE APPLICATION REQUIRE SEND MAIL CAPABILITY? IF SO, WHEN IS THIS NEEDED?

Note: Requesting the timeframe does not guarantee the timeframe, but allows the technical architecture team to have a target timeframe to work with SFA.

Not required

IS MAIL BEING ACCESSED USING JAVA OR THROUGH A SHELL SCRIPT?

N/A

WHERE WILL MAIL BE SENT? BE SPECIFIC.

N/A

WHY WILL SENDMAIL BE UTILIZED?

N/A

WHAT TYPE OF PROTOCOL IS BEING USED? (POP3, SMTP, etc.)

N/A

DOES THE APPLICATION REQUIRE NEWS FEEDS? (i.e. does the NNTP port need to be opened?)

TBD



7 Database Requirements

The standard ITA provides the opportunity to utilize an Oracle database.

There will be a connection to the NSLDS II data warehouse. The connection information is TBD until the database connection is established.

WHAT DATABASE IS REQUIRED? IF THIS DIFFERS FROM THE ABOVE STATEMENT, PLEASE PROVIDE AN EXPLANATION.

All database products are provided by the NSLDS II project. Please reference the Application Architecture document.

WHAT DATABASE PRODUCTS ARE REQUIRED? (e.g. SQL-PLUS)

TBD

WHAT IS THE DATABASE NAME?

TBD

DEFINE THE TABLESPACE REQUIREMENTS FOR EACH ENVIRONMENT:

TABLESPACE NAMES – TBD

SIZES - TBD

DEFAULT STORAGE PARAMETERS - TBD

WHAT IS THE ESTIMATED NUMBER OF EXPECTED CONCURRENT USERS?

TBD

THE NUMBER OF DATABASE OBJECTS: TBD

TABLES - TBD

INDEXES - TBD

OTHER - TBD

WHICH OPTIMIZER SHOULD BE EMPLOYED (rule, cost, choose)?

TBD

WHAT IS THE RECOMMENDED DATABASE BLOCK SIZE?



TBD

IS ARCHIVE LOGGING REQUIRED?

TBD

WHAT LOGIN IDS ARE NECESSARY? PLEASE PROVIDE A DETAILED EXPLANATION FOR EACH REQUEST.

TBD

ARE THERE ANY ADDITIONAL REQUESTS FOR THE DBA?

TBD

PLEASE PROVIDE THE TECHNICAL ARCHITECTURE LIAISON WITH THE SCRIPTS THAT WILL BE USED TO CREATE THE TABLESPACES, INDEXES, ETC. Note: CSC requires 10 business days to complete the initial database build.

Note: CSC performs a nightly “hot” backup of the databases. Please make sure that your application is developed in such a way that it can recover gracefully from a complete database restart (shutdown and startup).



8 Scheduled Jobs

DOES THIS APPLICATION HAVE A NEED FOR SCHEDULED JOBS? If so,

IDENTIFY THE USER THAT WILL BE USED FOR SCHEDULING

TBD

IDENTIFY THE FREQUENCY OF THE SCHEDULE (i.e. every hour on the hour, nightly at 10:00pm, weekly, etc.)

TBD

PROVIDE THE SCRIPTS

TBD



9 Maintenance

Document the backup procedures:

IDENTIFY WHAT NEEDS TO BE BACKED UP

TBD

IDENTIFY WHEN BACKUPS NEED TO OCCUR

TBD

DOCUMENT THE PROCESS

TBD

Standard reboot is performed on the first Sunday morning of the month between midnight - 5 a.m. by the VDC.

IF THIS PROCEDURE DOES NOT WORK FOR YOUR APPLICATION, PLEASE EXPLAIN WHY AND INDICATE WHAT THE SCHEDULE FOR REBOOT FOR THIS APPLICATION SHOULD BE.

TBD

Note: Please see the Technical Architecture Operations team for a copy of the Maintenance Schedule. Tom Schweikert (Thomas.c.Schweikert@accenture.com) is the Technical Architecture Operations primary contact.