TRIAD FINANCIAL

Emergency

Power

Outage

Reference Guide

With Shutdown & Restart Procedures

TRIAD FINANCIAL
CORPORATION

Introduction

> *"In an IT Architect survey conducted in 2008, 85.5 % of respondents said a good business continuity plan is a necessary defense against disaster, more than any other measure. Fewer respondents (73.3 %) had such a plan."* **InfoWorld Magazine**.

This quote is typical of most organizations and the reason why this documentation effort is taking place. The goal of this initiative is to create a written plan describing who should do what in an emergency and ultimately provide a grounding guideline when mayhem descends.

⚠️ Important note: this document in intended to be used when a power outage occurs during business hours (M-F 8:00 am – 5:30 pm). If an outage occurs during evenings, weekends, or holidays, engineering personnel are to follow normal escalation protocols.

Overview

The focus of this guide is to shutdown Triad Financials Development, QA, and Production servers within a 30 minute window during *normal business hours*. As a preventative measure the DBAs, SEs, and NOC personnel have been provided battery backup UPS capability to keep their systems powered on for a minimum of 30 minutes. This will allow for a more *graceful* method of server shutdown.

How to use the checklist

The Shutdown and Restart checklist is the primary driving document that helps the Network Operation Center (NOC) coordinate a shutdown while there is still power available to the servers. Quite a bit of thought has been put into the checklist design whereas its goal is to provide high-level steps that are concise enough to quickly shutdown all three environments within a 30 minute window.

The checklist is divided into two sections: Shutdown & Restart.

The **Shutdown section** shows contact and escalation priority information for IT management, facilities, and Vendors. On the right side of the list are sequential steps that are used to shutdown servers in a defined order. The steps are color-coded to show the appropriate team to perform the task. As a step is completed, its checkbox is crossed off. To the left of the numbered steps is a graduated color time line is uses to represent when the step should be accomplished by.

The **Restart Section** lists the steps necessary to restart the Production, Dev and QA servers. The sequence of events is nearly the opposite of the shutdown tasks with one major exception - there are no automatic Autosys processes involved. In restarting production servers, the application engineers and DBAs have a more critical roll in verifying that the database and applications are successfully restored. The Application Recovery Priority Checklist should be used with this section. As you'll note there is column that shows validation criteria for each application. This criteria has been approved by each listed application developer.

Shutdown

Emergency Power Outage Shutdown and Restart Procedures (Business Hours)

Shutdown

Contact Information

Team	Number	Notes
Help Desk	866-866-1076 or Ext 25000	
IT Operations NOC	714-799-5050 or Ext 25050	
NOC bridge line	714-799-5297 or Ext 25297	Pass code 10101#
IT Ops	714-372-3189	Phone not connected to PBX

IT Escalation

IT Operations Manager	714-713-9338	Robert Skau
Sr. Manager Production Services	714-330-8456	Dave Lutes
IT Operation Process Manager	714-713-9554	Charlie Lind
Systems Engineering Manager	682-429-8872	Leon Bailie
Help Desk Manager	817-584-5474	Paul Gerber

Application Escalation

IMD	714-713-9338	David Peckham
Manager	714-330-8456	George Karidakis
Portfolio	714-713-9554	Mark Romero

Emergency Numbers

Building Management	714-894-5569	
Building Security	714-231-5569	
SoCalif Edison Electric		
Delta Power	949-702-3765	Cyrus Gilani - Emergency generator supplier
Triad Facilities (West)	714-713-9512	Jeff Van Horn
Huntington Beach Police	911	

Power Failure (Business Hours) — Completed
1. Assemble Team in NOC & designate Command Authority ☐
2. Assess power failure ☐
3. Communicate with Texas via bridgeline and passcode ☐
4. Inform Help Desk to communicate current outage situation to business via Outlook ☐
5. Open UPS room on 1st floor and secure doors open to maintain access. Key located in NOC ☐
6. Prepare team for coordinated shutdown ☐

(Timeline: 00:00 - 00:06)

Dev & Q/A Environment — Completed
1. Shutdown Oracle database manually ☐
2. Run AutoSys process to shutdown Dev and Q/A ☐
3. Verify Dev and QA physical servers are shutdown (blue stickers) ☐
4. Verify Dev and QA VM guest OS are shutdown ☐
5. Verify Dev and QA Physical hosts are shutdown ☐

(Timeline: 00:05 - 00:14)

Production Environment — Completed
1. Shutdown Oracle database servers ☐
2. Run Autosys process to shutdown Production (Level 5) ☐
3. Run Autosys process to shutdown Production (Level 4) ☐
4. Run Autosys process to shutdown Production (Level 3) ☐
5. Run Autosys process to shutdown Production (Level 2 - SQL) ☐
6. Run Autosys process to shutdown Production (Level 1) ☐

(Timeline: 00:14 - 00:30)

Remaining Time — Completed
1. Shutdown any remaining network equipment ☐

(Timeline: 00:29 - 00:39 Loss of Power)

Shutdown Color Code
- Production server (green)
- Dev & QA server (blue)

Team Responsibility
- ■ DBA (red)
- ■ System Engineer (blue)
- ■ NOC Command Authority (orange)
- ■ Available Engineer (black)

Restart

Restart Systems and Equipment (Business & off hours) — Completed
1. Prepare team to restart production servers, processes, and applications (See *Application Restart List*) ☐
2. Notify Texas via bridge line that power is restored and systems are being restored ☐
3. Reset high temperature alarm on thermostat and secure the UPS room ☐
4. Make sure team members understand to notify NOC after completing each item ☐

Production Environment — Completed
1. Restart network equipment ☐
2. Restart SAN ☐
3. Restart domain controllers ☐
4. Restart mail servers ☐
5. Restart SQL clusters and Oracle servers ☐
6. Start services/processes on SQL and Oracle servers ☐
7. Restart Unix systems (EDW, Proxy Server) ☐
8. Restart physical production servers (IIS, Front-end clients) ☐
9. Restart VM hosts ☐
10 Restart VM guest OS (DMZ, Internal Domain) ☐
11. Restart non-SQL production physical servers (green stickers) ☐
12. Restart AIX server (TSM) ☐
13. Business team members test production systems for proper operation using departmental restart checklist ☐
14. Inform Help Desk to communicate to business that affected production systems and applications are back online ☐

Dev & Q/A Environment — Completed
1. Direct team to restart Dev and QA servers, processes, and applications ☐
2. Restart Dev and QA physical servers. (blue stickers) ☐
3. Restart Oracle manually ☐
4. Issue SQL restart commands using scripts from team laptops ☐
5. Business team members test Dev & QA systems for proper operation using departmental restart checklist ☐
6. Restart Dev and QA VM hosts ☐
7. Restart Dev and QA VM guest OS ☐

Other sections in this guide

Dev, Q/A, & production server shutdown lists

The server lists in this guide are generated by running a query to the IT Grid database. Keep in mind that the lists shown are current as of the date listed at the top of the page. To get the latest server list, you will need to run a query on the IT Grid using an Access data base. The file to run is located on the following share:

ITGRID.MDB

\\triadfin.com\nrshare\NRIT\ITGRID Access Database

> ⚠️ It is recommended that this query be run quarterly to capture the latest servers. Once run, print a copy and place it in the appropriate section in this guide.

Application recovery priority list

The applications have been prioritized by the IMD and Portfolio teams based upon criteria such as business impact, system type, and urgency. These systems will be shutdown and restarted as defined in the list. As applications are restarted, validation criteria is provided that shows successful restoration.

Roles and Responsibilities

Command Authority - a Command Authority is selected when a power outage event occurs. The Command Authority is usually an IT manager who drives each checklist step in the shutdown and restart process. Communication between the Command Authority and the respective teams is essential for a successful shutdown.

Once the power has been restored, the Command Authority directs the responsible team members to restart the systems in the proper order as defined in the Restart section of the checklist.

DBA – Uses tools and scripts to shutdown and restart database services.

System Engineering – this is the main person who physically verifies that each step completed. This includes opening doors in the UPS room and checking server status in the equipment racks. Also, the Sys Engineer maintains constant communication with the Command Authority.

Power outage walk-thru

When a power outage does occur, the first step is for all team members to assemble in NOC. Once assembled, a Command Authority is selected. This is usually an available senior IT manager.

Next, the Command Authority utilizes this guide and checklist to direct team members to perform the required shutdown tasks. Each step is to be completed within the respective graduated timeline. Development and QA servers are shutdown first; followed by the Production environment. The color-coded step identifies the roles and responsible team member needed to perform the task. As the procedure is performed, the Command Authority checks off each step to ensure completion. If at any time a person needs to be called, this information can be found on the right side of the checklist. Contact information, IT Escalation, Application Escalation, and Emergency numbers are provided for quick reference.

Automatic shutdown

Much of the shutdown process is performed automatically by several Autosys scripts that are executed by an Ops team member in the NOC. The job names are:

Dev- *ITSE_BxD_PerformShutdownOfDevServers_StartHere*

QA----------

Production--------

As each script is executed, there is a brief delay to give the Ops team member a chance to stop the shutdown process in the event power is restored during the 30 minute window. Otherwise, the Command Authority will FORCE START the next Autosys job to continue with the shutdown process.

Command, control, & communications

The NOC runs a primary bridge line for all high-severity issues – This is a teleconference line that is manned by a team of people with specific job responsibilities for the crisis. The sole responsibility of the Command Authority is to ensure the each step of the checklist is followed. Phone numbers are listed on the left side of the checklist.

Emergency kit and tools

Flashlights with spare batteries are located in the NOC.

Physical access

Physical access points to and from the NOC have been identified. A team member will need access to the UPS on the first floor. The key to the UPS door is located in the NOC. Obtain the flashlight and use the stairway to get to the 1st floor. Secure the stairway door open to allow for access back to the 3rd floor.

Restart procedures

Once the power outage has passed, the same resources are needed to restart the servers. Follow the restart checklist to return each environment to operational readiness. This is entirely a manual process and all servers need to be verified as powered on.

As each environment's servers are restarted, applications and databases should be verified that they are working correctly. The Application Recovery Priority Checklist provides validation criteria for each application. This criteria has been approved by each listed application developer.

The Command Authority will be in communication with all teams to ensure that the production environment is successfully restored to normal operation.

Preventative measures & recommendations

Continuous awareness

All IT team members must know the importance of these activities so they aren't caught off guard when a power outage occurs. Regular bulletin communications to the assignees is useful so they are ready to when the time arises.

Periodic dry-runs

Some of the areas where the shutdown process may fail is with:

1. Staff turnover - causes those who are familiar and have been assigned roles to move to other responsibilities, or outside of the organization altogether. Such movements need to be accounted for, and new resources need to be assigned and trained.

2. Infrequent training - if the incidents are infrequent resources tend to forget their roles and it wanes into the background of more pressing day-to-day operations. Periodic exercises should be conducted quarterly to ensure sharp response under duress during a real power outage.

Lessons learned documentation

When a power outage does occur, team members should create a lessons learned document to capture and all items/activities that occurred with shutdown and restart process. This will aid in ensuring that all (good and bad) details about the power outage learned are not lost, and that the process will ultimately be refined to the point of precision.

Source control for documentation

This guide and all accompanying checklists can be found on the Emergency Power Outage Share Point site.

IT >Architecture Repository> Living Infrastructure Documents (Gold Copy)> Infrastructure> Emergency Power Outage documentation

Shutdown & Restart
Checklist

Dev & QA Environment

Server Shutdown Checklist

Production Environment

Server Shutdown Checklist

Application Recovery Priority

Checklist