Avolve Software

# ProjectDox Server Administration/Monitoring

*This document provides information on server monitoring, maintenance and backup recommendations along with other IT related management tasks for the ProjectDox application.* 

nthorne@avolvesoftware.com 5-19-2016



# Contents

Ser	rver Monitoring	. 2
Reb	boot Sequence	. 4
Job	o Processor Driver Updates	. 4
Dat	ta Protection Best Practices	. 5
4.1	RAID	. 5
4.2	BACKUP	. 5
Ma	aintenance Plan	. 6
5.1	Setup Maintenance Plan	. 6
5.2	Edit the Tasks	. 8
5.3	Check Database Integrity Task	. 8
5.3	Execute the IndexOptimize SP	. 9
5.3	2.2 Execute Final Database Backup SP 1	10
5.4	Schedule Daily1	11
5.5	Reporting and Logging1	12
5.6	Test the Maintenance Plan	13



# Server Monitoring

- I. Patch Status
  - a. Patch Servers based upon certified and approved patches by Avolve on a schedule (Avolve does patch management updates on Saturday's).
  - b. Patch information may be found on the Avolve Support website at (access does require an account):
     http://cupport.aucluscoftuger.com/index.php2//Kpoulodgebace/Article/View/212/0/cp

http://support.avolvesoftware.com/index.php?/Knowledgebase/Article/View/212/0/ap proved-microsoft-updates-for-projectdox-8515

- c. Apache and Java should be excluded from automatic updates. Updates to this software will be provided by Avolve when software is upgraded to ensure compatibility and certification with the application.
- II. Install monitoring agents (Avolve uses N-Central and PRTG Monitor) for the below services:
  - a. Avolve Services:
    - i. Brava!Enterprise Job Processor (Job Processor Server(s))
    - ii. ProjectDox Utility Service (Application Server)
    - iii. ProjectDox WCF Service (Application Server)
    - iv. ProjectDox ProjectCreator Service (Application Server)
    - v. Brava!Enterprise Server (Web Server)
  - b. IIS
- i. ApplicationPool:
  - ProjectDoxAppPool
- ii. ProjectDox Website: Monitor the uptime of the site. Avolve monitors allow an input of the URL and credentials to ensure an OK response is received indicating the login process is up and available.
- c. Disk Space
  - i. Key ProjectDox folders:
    - UserFilesPublish
    - UserFilesSource
    - DLCache
    - WFlowDLLCache
    - PdoxTemp
- d. Disk I/O
- e. CPU Usage
- f. RAM Usage
- g. Uptime:
  - i. Job Processors have a scheduled task established to reboot the server nightly to clear the OS cache and memory.
  - ii. Reboot after every regular scheduled windows updates.
- h. Windows Event logs -Setup server notification to troubleshoot any errors that occur within the Event Logs not related to ProjectDox.



- i. Firewall Status -Ensure ProjectDox ports remain open see Implementation Guide or specific ports for the application noted below.
- j. UAC settings- Monitor to ensure the UAC remains disabled on the servers.
- k. Server clock drift-Monitor for no time sync and that the time is off.
- III. Ensure Firewall is set to only allow servers to access other servers on specified ports noted in the Implementation Documentation and seen below for the Orlando configuration.

Portal	Source	Destination	Source Port	Destination Port	Service
ТСР	Client	Web Server IIS	Any	443	ActiveX Viewer
		(external IP)			(URL:https://plans.cityoforlando.net)
ТСР	Client	Web Server	Any	8443	HTML Viewer
		Apache			(URL:https://plans.cityoforlando.net)
Email	Web Server	Mail Relay Server	Any	Customer Specific	Outgoing email from ProjectDox
TCP/UDP	Web Server	Job Processor 1	Any	Bi-directional 445	UserFilesSource Share
TCP/UDP	Web Server	Job Processor 2	Any	Bi-directional 445	UserFilesPublish Share for IE Viewing
TCP/UDP	Web Server	Application	Any	Bi-directional	DLCache Share for HTML Viewing (non-IE),
		Server		445	WFlowDLLCache
ТСР	Application Server	Web Server	Any	443	Project Creator
ТСР	Job Processor 1 & 2	Web Server	Any	8080	Allows internal communication
ТСР	Web Server	SSRS Report	Any	Bi-directional	ProjectDox Reporting (must be in the
		Server		443	same domain as ProjectDox)
ТСР	Web Server	Web Server	Any	10116	License Verification loopback
ТСР	Web Server	Web Server	Any	8879	Workflow Service dual workflow only
ТСР	Web Server	Web Server	Any	8000	Search Service (ProjectDox WCF Service)
тср	Web Server	Application Server	Any	1433	MSSQL
ТСР	Web Server	Application Server	Any	8001	Middle Tier Security
ТСР	Application Server	SQL Server	Any	1433	Middle Tier Security
ТСР	Any	GIS Server	Any	80/443	Maps Server (client may specify port)

If your site is load balanced these additional ports are required.

Portal	Source	Destination	Source	Destination	Service
			Port	Port	
TCP/UDP	Web Server	San or NAS	Any	445	Publishing, Downloading Source,
		Network Storage			Viewing Files, ProjectFlow (WF)
TCP/UDP	Job Processor	San or NAS	Any	445	Publishing
	Servers 1 & 2	Network Storage			



If you site uses Single Sign-On (SSO/LDAP) the below ports are required:

Portal	Source	Destination	Source Port	Destination Port	Service
TCP/UDP	ProjectDox SSO Web Server	LDAP/AD Server	Any	389	Single Sign-On/ LDAP

# **Reboot Sequence**

When rebooting the ProjectDox environment below is server reboot sequence:

- 1. Database Server
- 2. Web Server
- 3. Application Server
- 4. Job Processor Server(s)

# Job Processor Driver Updates

Driver Updates occur as new versions of AutoCad, PDF, etc. are being release providing new features for the publishing engine to accommodate. If you are experiencing issues with publishing files, ensure the latest drivers for the 5 main DLL files are applied. You can check the version via the properties of each file. The 5 main DLL files are located on the Job Processor Servers in the \Program Files (x86)\IGC\Brava!\Brava! Enterprise JobProcessor and are:

- 1. PDF2DL.dll
- 2. DWGDL.dll
- 3. DGNDL.dll
- 4. DWF2DL.dll
- 5. EMF2DL.dll

Updated drivers and instructions to apply the drivers are made available from the Avolve Support Portal knowledge base. Contact your Avolve representative for access to the support portal.



# Data Protection Best Practices

This section provides Avolve Software's recommended best practices for data protection of ProjectDox sites. Data protection is essential to the success of your organization. Due to variables in customer environments that are outside our control, Avolve Software cannot be responsible for success or failure of customer measures to protect data, including agility related to backup or recovery efforts.

## 4.1 RAID

Data protection can be enhanced by configuring your servers to use RAID configuration. RAID 1 (mirrored disks), RAID 5, or RAID 10 (0+1). Either configuration can provide redundancy in the event of hardware failure. None of these substitute for regular backups.

#### 4.2 BACKUP

Protect your valuable data by performing regular backups for the below. Avolve recommends a minimum of nightly differential and weekly full backups of your ProjectDox server environment, including a nightly full database backup of the MSSQL server. See the maintenance plan section for recommendation on the database back.

- MSSQL server databases
  - MDF file Because the MDF file is continuously opened and closed, the operating system will not change the date/time stamp on the file. Ensure the MDF file is being backed up on a daily basis, regardless of time stamp.
- SSRS server
- ProjectDox web server(s)
  - ProjectDox directory
  - \Program Files (x86)\IGC\Brava! Enterprise Server
- NAS/SAN sever
  - Typically holds key share folders for the application including:
    - UserFilesPublish
    - UserFilesSource
    - Export
    - Batchstamps (if applicable)
    - DLCache
- Application server
  - ProjectDox Utility Service
  - ProjectDox Project Creator Service
  - ProjectDox WCF Service
    - Index folder



- Index\db folder
- Job Processor config files and drivers
  - \Program Files(x86)\IGC
  - \Program Files(x86)\IGC\IGCWriter

The file system backup will take longer to back up than the database. It is Avolve's recommendation to back up the file system first, and then the database, to ensure they are in sync. Depending on your configuration, some folders may reside in a different location, albeit, they must be backed up and it is the customer responsibility to assure the backups are executed. Contact your Avolve representative to confirm or identify the location/existence of any of these files or folders.

In the case of a catastrophic event, all ProjectDox services and ProjectDox can be reinstalled. The configuration files are the most time consuming to reconfigure so it is significant benefit to back the services installation folders up.

# Maintenance Plan

A maintenance plan is a requirement of the ProjectDox application to assist in optimal performance and disaster recovery events. This section will provide best practices recommendations for creating and maintaining a backup plan for ProjectDox to be consider along with the jurisdiction/organizations policies and procedures.

To create or manage maintenance plans, you must be a member of the **sysadmin** fixed server role. Object Explorer only displays the Maintenance Plans node for users who are members of the **sysadmin** fixed server role.

You must be a SQL system administrator to proceed.

## 5.1 Setup Maintenance Plan

The sequence of the maintenance plan is a preference; the following is a recommended sequence.

- 1) In Object Explorer, click the plus sign to expand the server where you want to create a maintenance plan.
- 2) Click the plus sign to expand the *Management* folder.
- 3) Right-click the *Maintenance Plans* folder and select **New Maintenance Plan**.
- 4) Enter *ProjectDoxMaintenancePlan* into the *Name* text box.



5) Open the Toolbox, and expand the *Maintenance Plan Tasks*, then close the Object Browser to take advantage of the design surface.

	0.11.0									
disturbed.asc.local - Kemote	Desktop Cor	nnection								
Microsoft SQL Server Manaç	jement Stud	lio								
File Edit View Project De	sbug Tools	Window Community Help								
일 New Query   🛅   📸 📸	🐴   🗈   🖆	š 🖬 🗇 🖾 💂								
Toolbox 🚽 🕈 🗙	ProjectD	DoxMain sa [Design]* ProjectDox_Indps81	(sa (55)) Maintenance_Plps81 (sa (57)) SQ	(LQuery1.sqleps81 (sa (53))						
Maintenance Plan Tasks     Pointer	🔁 Add Subp	plan 🛛 🔀   🧱 📰 💆 Manage Connections	- 💼   🗟 Servers							
P Back Up Database Task	Name	ne ProjectDoxMaintenancePlan								
Check Database Integrity	Description									
Execute SQL Server Agen	boschpoon									
Bxecute T-SQL Statement	Subplan		Description	Schedule						
强 History Cleanup Task	Subplan_1	, i i i i i i i i i i i i i i i i i i i	Subplan_1	Not scheduled (On Demand)						
Maintenance Cleanup Task				L						
Å Notify Operator Task										
Standard Index Task										
St. Reorganize Index Task	ļ									
🗓 Shrink Database Task										
Update Statistics Task										
🗉 General										
			The build of substant data to due to a the bilinets.	Table to the the designed of the						
			i o build a subplan, drag tasks from the Mainter	tance i asks tooloox to the designer suitace.						

- 6) Click on **Check Database Integrity** Task and drag it to the design surface.
- Choose Execute T-SQL from the Maintenance Plan Tasks two times and drag to the design surface.
- 8) Click on the title of each T-SQL Statement Task and rename as shown in the screen shot.
  - Check Database Integrity Task name update not required
  - Execute IndexOptimize SP
  - Execute Final DatabaseBackup SP
- 9) Click on **Check Database Integrity** Task and a green connector will become available.
- 10) Drag the connector to the Execute IndexOptimize SP Task.
- 11) Repeat the action to connect the third Task. Continue until the three tasks are connected.





## 5.2 Edit the Tasks



ProjectFlow is contained in ProjectDox and requires no additional database, therefore, any reference in this setup to WorkflowPersistenceStore can be ignored. If your system is dual workflow or strictly ProjectDox Workflow, you must include the WorkflowPersistenceStore database maintenance in your plan.

- 1) Edit the Check Database Integrity Task and select your two databases, ProjectDox and WorkflowPersistenceStore (if dual workflow).
- 2) Right-click to select Edit for each of the T-SQL Tasks.
- 3) Copy and paste the SQL displayed under the two T- SQL Tasks.
- Confirm the names of your ProjectDox and WorkflowPersistenceStore (if dual workflow) database names are correct.
- 5) Confirm the backup folder name and path is correct.
- 6) The Local server connection should remain for each Task.
- 7) If you are backing up a SQL Server Standard Edition, set compress to N (@Compress = 'N',) for both DatabaseBackup SPs. Only SQL Server Enterprise Edition supports Compression.

#### 5.3 Check Database Integrity Task



- 1) Using the Maintenance Plan Task config Window, select two databases:
- 2) ProjectDox and WorkflowPersistenceStore (if dual workflow).
- 3) Include indexes check box should be checked.

	🔀 Check Database Integ	rity Task
	Connection:	Local server connection 💌 New
	Database(s):	Specific databases
Check Database Integrity Task Check Database integrity on Local Databases: projectdox,WorkflowPy Include indexes Execute IndexOptimize SP Execute TSQL on Local servei Execution time out: 0 Execute TSQL on I Execute TSQL on I Execute TSQL on I Execute TSQL on I Execute TSQL on I	Include indexes     OK     OK     Local server connection     tr	<ul> <li>All databases</li> <li>System databases</li> <li>All user databases (excluding master, model, msdb, tempdb)</li> <li>These databases:</li> <li>projectdox</li> <li>projectdox_old</li> <li>ReportServer</li> <li>ReportServerTempDB</li> </ul>
		$\hfill\square$ Ignore databases where the state is not online
		OK Cancel

5.3.1 Execute the IndexOptimize SP

Use ProjectDox GO EXECUTE dbo.DatabaseBackup @Databases = 'ProjectDox,WorkflowPersistenceStore', @Directory = 'H:\PDOXBACKUP', @BackupType = 'FULL', @Verify = 'Y', @Compress = 'Y', @CheckSum = 'Y', @CleanupTime = 24 GO





#### 5.3.2 Execute Final Database Backup SP

Use ProjectDox GO EXECUTE dbo.DatabaseBackup @Databases = 'ProjectDox,WorkflowPersistenceStore', @Directory = 'H:\PDOXBACKUP', @BackupType = 'FULL', @Verify = 'Y', @Compress = 'Y', @CheckSum = 'Y', @CleanupTime = 24

GO



Check Database Integrity Task Check Database: integrity on Local Databases: projectdox,WorkflowPv Include indexes	Execute T-SQL Statement Task Connection: Local server connection     New Execution time out: T-SQL statement:	× 
Execute IndexOptimize SP Execute TSQL on Local server connection Execution time out: 0	Use ProjectDox GO EXECUTE dbo.DatabaseBackup @Databases = ProjectDox, WorkflowPersistenceStore', @Directory = HNPO08A6KUP', @BackupType = FULL', @Verify = '', @Compress = 'N, @CheckSun = Y', @CheckSun	
Execute Final DatabaseBackup SP Execute TSQL on Local server connection Execution time out: 0	OK Cancel View T-SQL Help	

## 5.4 Schedule Daily

- 1) Return to the ProjectDoxMaintenancePlan and click the Subplan Properties icon.
- 2) Give the Subplan a meaningful Name and Description, then click **OK**.

🛒 Subplan P	roperties
Name:	ProjectDoxDailyBackup
Description:	ProjectDox and WorkflowPersistenceStore
Schedule:	Occurs every day at 8:00:00 PM. Schedule will be used st
	OK Cancel

3) Click the Subplan Schedule icon and schedule the plan to execute daily at a time that will not interfere with operations.



Name:	ProjectDovMaintenancePlan ProjectDovDailuBackup
reality.	Projecte contraction with rejecte cale of provide
Schedule type:	Recurring 🔽 🔽 Enabled
Ine-time occurrence	3/13/2014 Time 4/36/18 PM
- Date.	1000 1000 2
Frequency	
Occurs:	Daily
Recurs every:	1 - day(s)
Daily frequency	
<ul> <li>Occurs once at</li> </ul>	8.00-00 PM
C Occurs every:	1 - hour(s) Y Starting at 8:00:00 PM
Duration -	
Daradon	
Start date:	3/13/2014 🔽 C End date: 3/13/2014 💌
	No end date:
Summary	
Description:	Occurs every day at 8:00:00 PM. Schedule will be used starting on 3/13/2014.
	Y

## 5.5 Reporting and Logging

- 1) Return to the ProjectDoxMaintenancePlan and click the Reporting and Logging icon.
- 2) Choose how and where you would like to manage the log file.
- It is always preferred to select Send report to an email recipient to push the status of the backup.

🜠 Reporting and Loggin	g _ 🗖 🗙
Reporting	
The reporting options spec	ified will be applied to all subplans within this maintenance plan.
Generate a text file re	sport
C Create a new file	
Folder:	
<ul> <li>Append to file</li> </ul>	
File name:	F:\Incoming\MPIan\Log\ProjectDoxMaintenancePIan_ProjectDo
Send report to an ema	ail recipient
SQL Server Agent must operators list contains c	: be configured to use Database Mail in order to send mail. The agent nly operators that have an email address defined.
Agent operator:	Lora Benedict
Logging	
Log extended informa	tion
Log to remote server	
Connection:	Local server connection New
	OK Cancel Help

4) Expand SQL Server Agent, Jobs and double-click on ProjectDoxMaintenancePlan.



5) Choose *Notifications*, check *Email*, select the name of the recipient and the desired condition, and click **OK**.

#### 5.6 Test the Maintenance Plan

- 1) Confirm that the SQL Server Agent is started.
- 2) Right-click on the ProjectDoxMaintenacePlan under Management.
- 3) Choose **Execute** to test the plan and confirm it is configured properly.
- 4) You should receive the following message if successful:

C	1 Total	0 Error		
Success	1 Success	0 Warning		
10S.	1.			
Action	Status	Message		
Execute maintenance plan. ProjectDox	Success			

5) If you receive notice of an error, select **View History** under the job's Maintenance Plan to view the error, and then correct it. In this the case the backup location is not accessible.

Log File Viewer - SQL-U1										
Electiogs	Load Log 👌 Export	🛃 Refresh 🍸 Filter 🔍 Search .	🕘 Stop 🗙 Delete	Help						
ProjectDoxMaintenancePlan	Log file summary: No filter ap	plied								
Remote Maintenance Plans	Date 🗸	Plan Name	SubPlan Name	Task Name	Duration	Log Type	Log Source			
Job History	3/17/2014 9:39:32	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:31	Maintenance Plans	(local)			
SQL Server Agent	3/17/2014 9:33:02	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:01:07	Maintenance Plans	(local)			
🗖 Database Mail	3/17/2014 9.3	13.02			00:00:00	Maintenance Plans	ProjectDo			
	3/17/2014 9:3	13:02			00:00:00	Maintenance Plans	ProjectDo			
	✓ 3/17/2014 9.3	2.12			00:00:50	Maintenance Plans	ProjectDo			
	✓ 3/17/2014 9:3	11:55			00:00:17	Maintenance Plans	ProjectDo			
	3/16/2014 12:00:0	1 AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:00	Maintenance Plans	(local)			
	3/14/2014 6:23:11	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:00	Maintenance Plans	(local)			
	3/14/2014 6:06:51	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:00	Maintenance Plans	(local)			
	3/14/2014 6:04:12	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:00	Maintenance Plans	(local)			
	H 🔕 3/14/2014 6:01:48	AM ProjectDoxMaintenancePlan	ProjectDoxDailyBackup		00:00:00	Maintenance Plans	(local)			
alua										
at Befresh	Server R	01.01								
	Is a second seco	QL-01								
3/17/2014 9:42:53 AM	l ask detait	xecute TSQL on Local server connect	ion							
er. None		Acculor line out o								
View filter settings	L									
	Error number:	1073548784								
gress	Error message:	xecuting the query "EXECUTE dbo.Da	tabaseBackup@Databases	= 'ProjectD''	failed with th	e following error: "The	directory H:\\PDOXBA	CKUP does not exist. TI	e documentation is av	ailable at http://
Done (7 records).	Transact-SQL command	View T- SQL								
										Close