ProVal Batch Server Installation Guide

ProVal®

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Overview

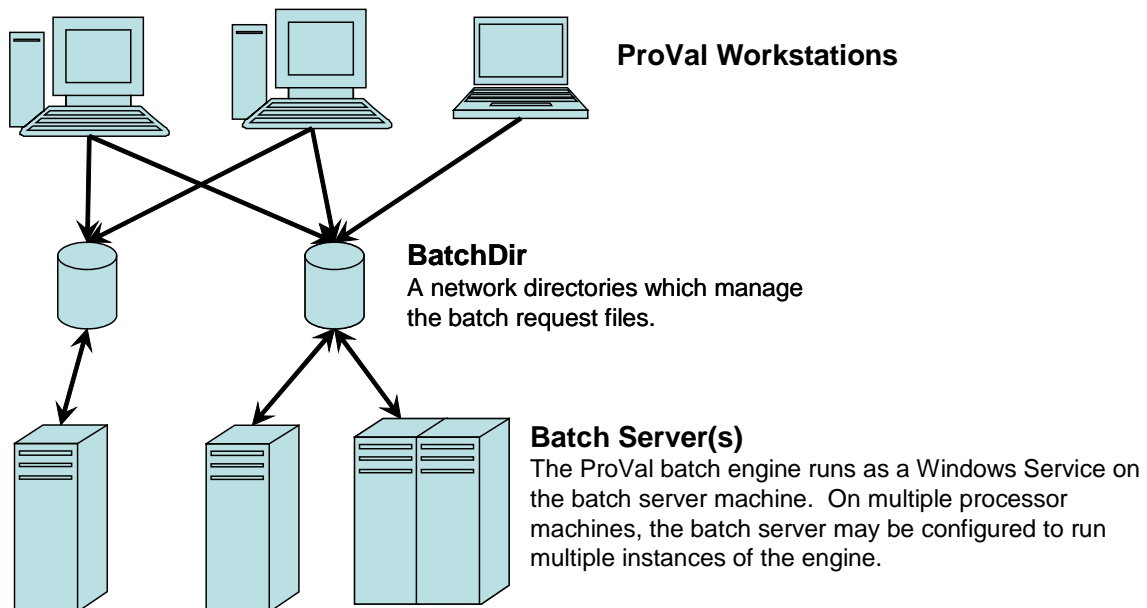ProVal Batch Server can receive, queue and execute ProVal processing jobs from ProVal workstations. The Batch Server runs as either a **Microsoft Windows® Service** or a **Microsoft Windows® application.**

Using the Batch Server, processor intensive jobs may be "shipped" to powerful servers and ProVal users do not have to execute the jobs and tie up their own PC's. The Batch Server is also an excellent option for users frequently on the road, so that they can work remotely and offload jobs to the server, rather than having to leave their laptops on while they grind through voluminous jobs.

How It Works

ProVal Workstations

BatchDir
A network directories which manage the batch request files.

Batch Server(s)
The ProVal batch engine runs as a Windows Service on the batch server machine. On multiple processor machines, the batch server may be configured to run multiple instances of the engine.

The link between each ProVal workstation and the Batch Servers is a directory on a common file share. This directory is specified by the BatchDir parameter in each workstation's and Batch Server's PROVAL.INI file.

The ProVal workstations write their request for a batch job to the BatchDir directory. The servers scan the directory for pending requests. If a request is found, it is then passed to the first available ProVal engine. The ProVal batch engine opens the ProVal client and begins execution of the job. The ProVal engine must wait until it can get exclusive access to the client files.

Each batch server may be configured by the user to run one or more ProVal engines.

Batch requests are processed on a first come basis. If a request successfully completes or aborts, the request file will be removed from the BatchDir and the processing messages will be written to a log file. If the client files needed for the

request are currently in use by another user, the server will not delete the request but wait and try again later.

Pre-Installation Considerations

Before installing the Batch Server, please ensure that the following issues are addressed:

- **Decide whether your Batch Server's installation of ProVal will be a Local Install or a Network Install:** A "Local Install" means that the Batch Server will have its copy of ProVal installed locally, while a "Network Install" uses a shared copy of ProVal (consult the README.DOC supplied with ProVal for more information). For best results, consider using a network installation for Batch Servers, because it greatly simplifies ProVal upgrades and patch management.

- **Decide whether the Batch Server will be run as an application or as a Service:** Running the Batch Server as a Service provides advantages such as being able to run without anyone being logged in to the server. However, certain operating environments such as Novell Netware® have known issues with Windows® Services and in such cases; the Batch Server must be run as an application.

- A ProVal Batch Server and a ProVal License Server should not be installed on and run from the same physical server.

- A ProVal Batch Server should also never be used concurrently as a ProVal workstation.

- A ProVal Batch Server should also not be used as a Grid Agent. However it may be advantageous to Grid Agents available to speed up the Batch Server's runs.

- For best results, ensure that you have sufficient permissions for all the operations that you will need to perform. Consult your network administrator to verify this before the installation.

- Ensure that sufficient ProVal licenses are available for use with the Batch Server. The Batch Server requires one partial ProVal license for each ProVal engine initialized on the server when actively running a job. ProVal licenses for the Batch Server MUST be made available by way of a ProVal License Server or a Site License. Contact WinTech Sales (203-861-5530 or sales@winklevoss.com) for additional licenses.

Installing the Batch Server

1. **Install ProVal on the Batch Server**: Follow the ProVal Installation instructions (readme.doc in the ProVal installation folder) to install ProVal. You may use either the local or network installation method. The network method has the advantage of the Batch Server sharing the same copy of ProVal as the ProVal users are accessing. When updates need to be applied to ProVal, only the network copy must be updated. Also, this is beneficial since both the user copy of ProVal and the Batch Server must be on the same version to operate correctly.

2. **Create the Working directory and copy the Batch Server application files into it:** Whether you have installed ProVal locally on the Batch Server or as a network installation, we recommend creating a "Working directory" directly on the Batch Server machine. The Working directory will hold a few files copied from the ProVal application directory. This Working directory should be different from the ProVal application directory if this uses a local installation of ProVal.

   Copy the following files from the ProVal application directory into the new Working directory:
   - PROVAL.INI
   - WinTechService.exe
   - WinTechService.Batch.ini
   - BatchUnreg.bat
   - BatchReg.bat

3. **Define the Batch Server Inbox directory (BatchDir):** Create a new folder either located physically on the Batch Server or on a common file server to store the Batch Server data files e.g. \\FileServ\Share\Batch_Inbox. All ProVal users as well as the Batch Server login account MUST have write access to this folder. The BatchDir folder MUST be a new folder and never contain anything other than what the Batch Server puts in it.

4. **Edit the following parameters in the PROVAL.INI file in the working directory:**
   - Under the **[Config]** section, comment out the **SplashBitMap** setting using a semicolon (;).

     > **NOTE:** Use only UNC (i.e., of the form \\server\share\) to refer to network paths when installing the Batch Server as a service – mapped drives are not acceptable.

   - A new section **[Batch Server]** must be created to accommodate settings for the Batch Server. This section will typically contain the following settings:

- **BatchDir:** This setting is **mandatory** and contains the BatchDir setting for the Batch Server. Note that the **[Config]** section may also contain a BatchDir setting, which is only relevant to Batch Server clients (there is no harm in leaving this untouched).
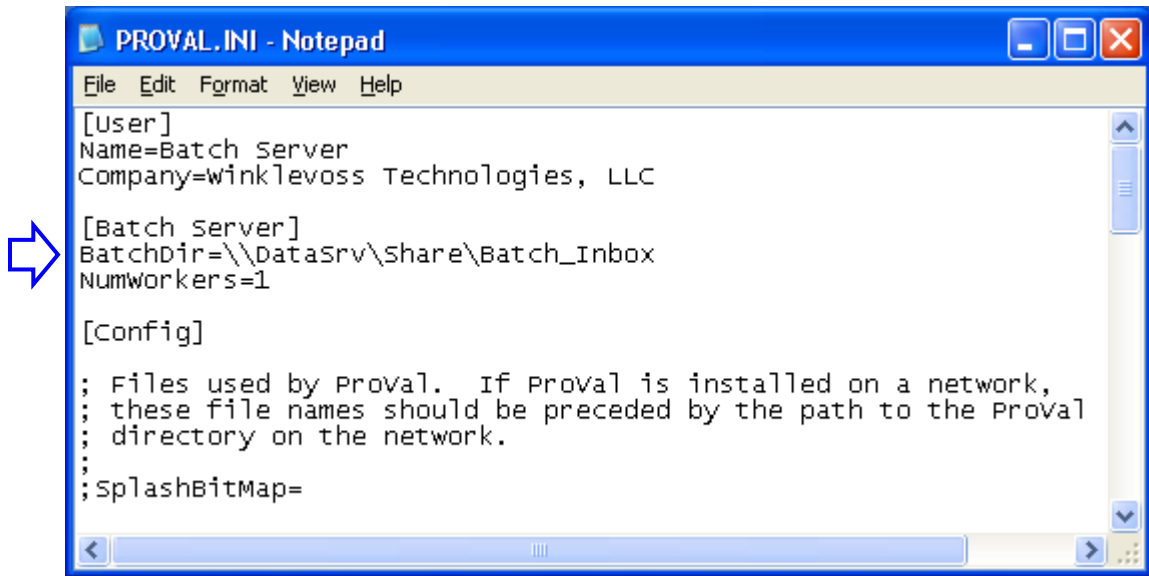

- **NumWorkers (optional):** This setting denotes how many worker instances can simultaneously be run for the Batch Server. This setting is used to optimize processor throughput and denotes the number of worker instances that will simultaneously process batch jobs. Each worker will consume an individual license. Although various factors are usually in play, usually this will be the number of processors in the server e.g. for dual processor servers, this setting may be set to 2. This setting defaults to 1.
- **WorkReadyTimer (optional):** This is the frequency in milliseconds that the Batch Server's controller pings the workers to see if they need work. This setting defaults to 15000.
- **CleanupTimer (optional):** The Batch Server's controller performs a number of housekeeping activities every specified number of milliseconds. This includes chores such as deleting files that are Done or checking to see if any Request files can be moved to Ready. This setting defaults to 10000.
- **DeleteFromDone (optional):** This setting specifies the number of days that the Batch Server's controller will delete from the tasks that are done. A value of 0 indicates that the files will not be automatically deleted. This setting defaults to 0.
- **BatchLogFile (optional):** This setting allows administrators to specify a custom name and location for the Batch Server Log File. By default, the location for the Log File is the Working Directory and the name is BATCHLOG.TXT.

- ▪ **ClientInUseDelay (optional):** This is the amount of time in minutes that the Batch Server waits before attempting to open a client file that may already be in use. This setting defaults to 1.

- ▪ **NoLicenseDelay (optional):** This is the amount of time in minutes that the Batch Server waits before attempting to consume a license (remember that each NumWorker will require one license), if one isn't currently available. This setting defaults to 10.

- ▪ **VerboseMode (optional):** This determines the amount of information that is written to the Batch Log File. When set to 0, no extra information is written – this is the standard mode. When set to 1, additional diagnostic information is written to the batch log file. When set to 2, even more diagnostic information is written to the log file, including high frequency messages that occur every few seconds. This setting defaults to 0.

5. **Edit the following parameters in the WinTechService.Batch.ini file in the working directory:**

- • **CommandLine (mandatory):** The first parameter should have a fully qualified path to the PROVAL.EXE file within the PROVAL installation folder and the second parameter must have a fully qualified path to the PROVAL.INI file.

- • **WorkingDir (mandatory):** This must be set to the working directory (refer to step #2).

- • **Autostart (optional):** This determines whether the Batch Server service should be configured for Automatic Startup when run as a Windows Service. This setting may be modified manually using Windows Service properties. This setting is defaulted to 0 (Manual).

- • **TimeOut (optional):** This is the amount of time in milliseconds that the Batch Server's controller gives each worker before assuming it is dead. The default for this setting is 15000.
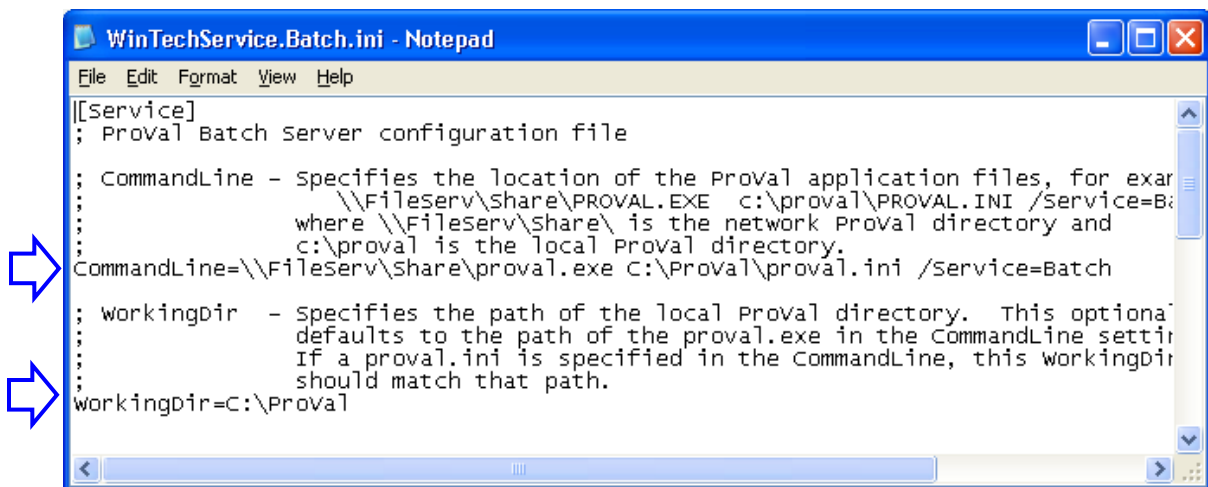
Registering and Starting the Batch Server

Up to this point all setup has been identical whether the Batch Server is to be run as a Windows Service or an Application. The following steps will now vary based on running as a Service or Application.

Registering the Batch Server

The Batch Server must first be registered. The BatchReg.Bat script in the working directory performs the registration function. The contents of this file are very simple. By default it looks like:

```
WinTechService.exe Batch /Reg
```

The value following the /, in this case /Reg, determines whether the Batch Server will be registered as an application, a Service or both. The possible values are:

/Reg	registers both
/RegServ	registers only the Service
/RegApp	registers only the Application

NOTE: This registers, but does not start, the Batch Server.

Running the Batch Server as a Service

1. If the Batch Server is to be run as a Windows Service, navigate to your list of Services and locate the "WinTech Batch Server" service. Ensure that the Startup Type is set to "Automatic", which ensures that the Service is started automatically every time the Batch Server machine restarts.
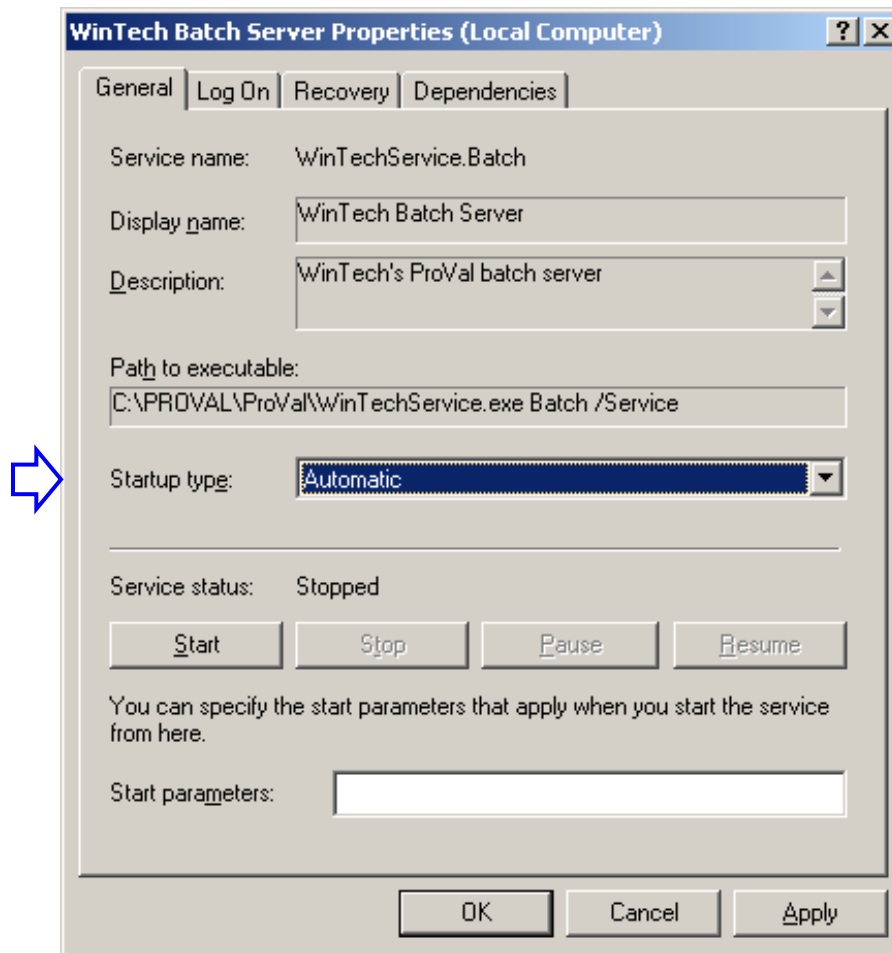
2. In most cases, you will need to configure the Service to use a Log On that has write access to the BatchDir folder. Select the "Log On" tab and modify the "Log On As" setting with a fully-qualified username and password as shown below:
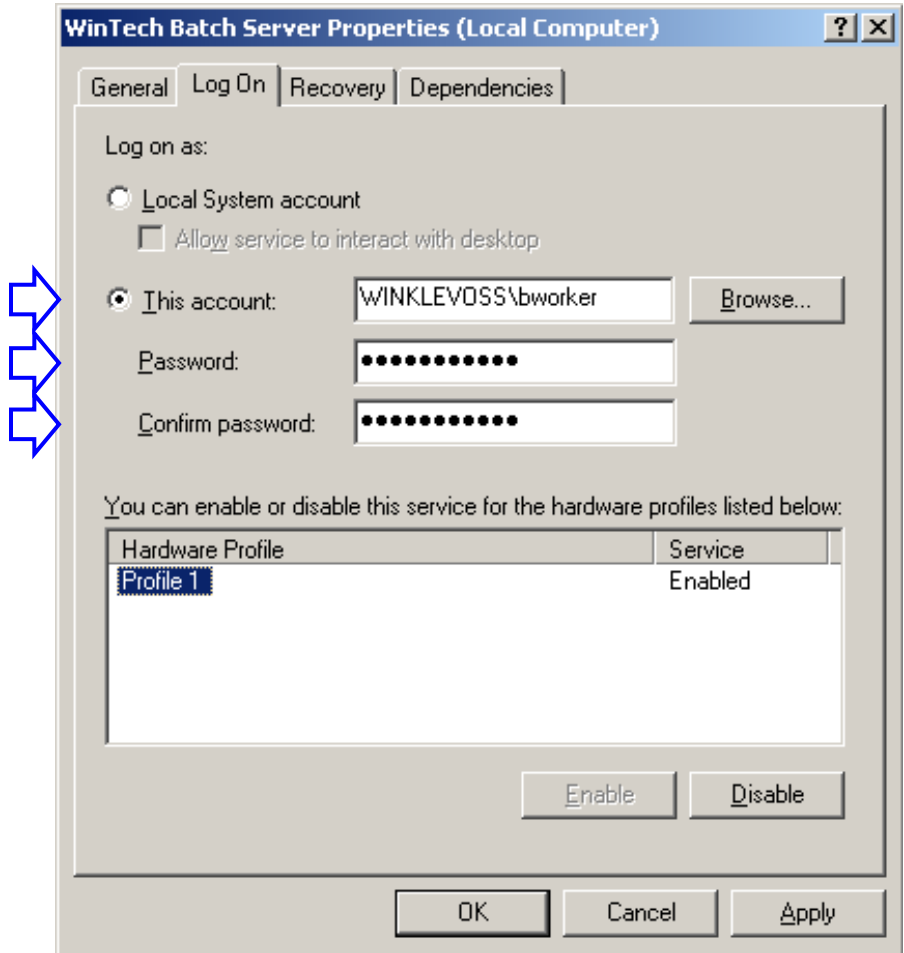
3. To start the Service, select the "General" tab and click the "Start" button. Check the Microsoft Windows Event Viewer to ensure that the service is functional.

NOTE:
   a. Noteworthy events and handy troubleshooting information for the Service may be viewed in the Windows Event Viewer under the Application Log.
   b. Logged information is also available in the batch log file which by default is stored in the folder that contains the PROVAL.INI file and is named BATCHLOG.TXT. The Batch Log File acts akin to an aircraft black box recorder and contains event information both from the client submitting the batch jobs as well as the Batch Server.

Running the Batch Server as an Application

To start the Batch Server (as an Application), click *Start → Programs → WinTech → Batch Server → Start Batch Server.* If everything has been installed correctly, you should see the ProVal Batch Server icon on the system tray, with an information balloon reporting batch server details as shown:
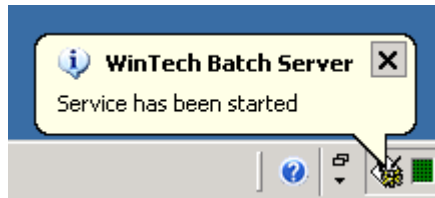
Once the Batch Server has been started, double-clicking on the Batch Server icon on the system tray invokes an information balloon reporting Batch Server status as shown below:

NOTE: You may put the Start Batch Server entry into the StartUp folder, if you wish to ensure that the Batch Server starts automatically every time a user logs in.

Uninstalling the Batch Server

Follow the following steps to uninstall the ProVal Batch Server:

1. Ensure that all ProVal workstations are disconnected from the Batch Server.
2. Stop the Batch Server.
3. Locate the ProVal working directory, (C:\PROVAL\PROVAL for local installs and C:\PROVAL for network installs in the examples above). Run the "BatchUnreg.bat" in the working directory by double-clicking on it.
4. This will uninstall the ProVal Batch Server regardless of whether the Batch Server was set up as a Service or an Application.

Workstation Configuration

1. **If it hasn't been done already, install ProVal on the workstation**: Follow the ProVal Installation instructions (readme.doc) to install ProVal. You may use either the local or network installation method.

2. If it is not already created, create a share to the ProVal Batch Inbox Queue (BatchDir) folder.

NOTE: The Inbox Queue (synonymous with the BatchDir setting) is a folder under which is used as a communication mechanism between ProVal Batch Server users and the Batch Servers. Each Inbox Queue has five subdirectories under it:

- **Admin:** This is used exclusively for administrative tasks. All Batch Inbox Administrators MUST have write access to this subfolder.

- **Cancel:** This is used to store files that contain information about all batch jobs that have been cancelled.

- **Done:** This is used to store files that contain information about all batch jobs that have been completed (successfully or unsuccessfully).

- **Ready:** This is used to store files that contain information about all batch jobs that are ready for processing. The Batch Server "scoops" out pending batch processing jobs as long as they have not been earmarked for processing at a later time.

- **Running:** This is used to store files that contain information about all batch jobs that are currently running.

IMPORTANT: All non-administrative Batch Server users must have write access to all the subfolders within the Inbox Queue other than the Admin folder

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3. In the **PROVAL.INI files for each workstation**, modify the BatchDir parameter (within the **[Config]** section) as shown below.
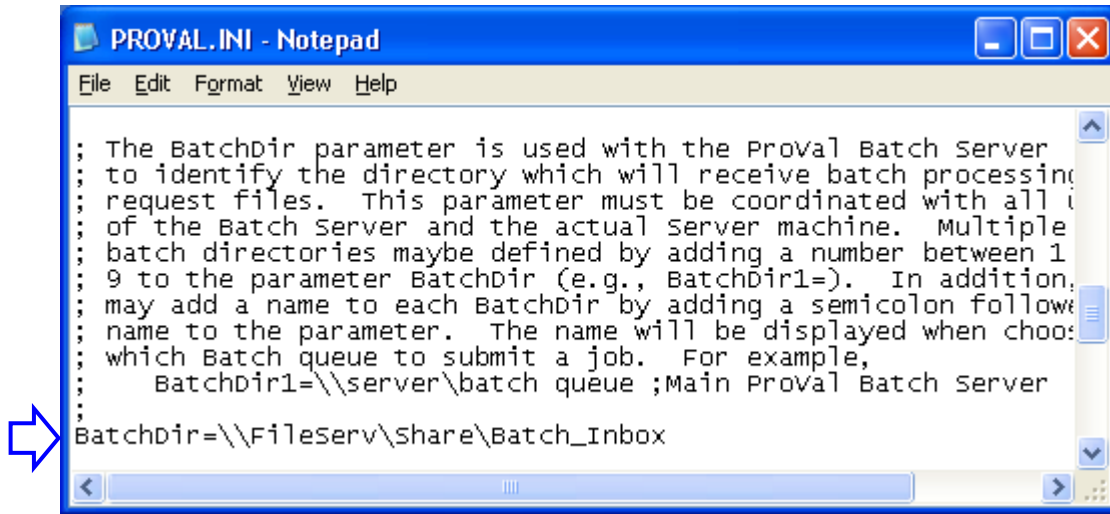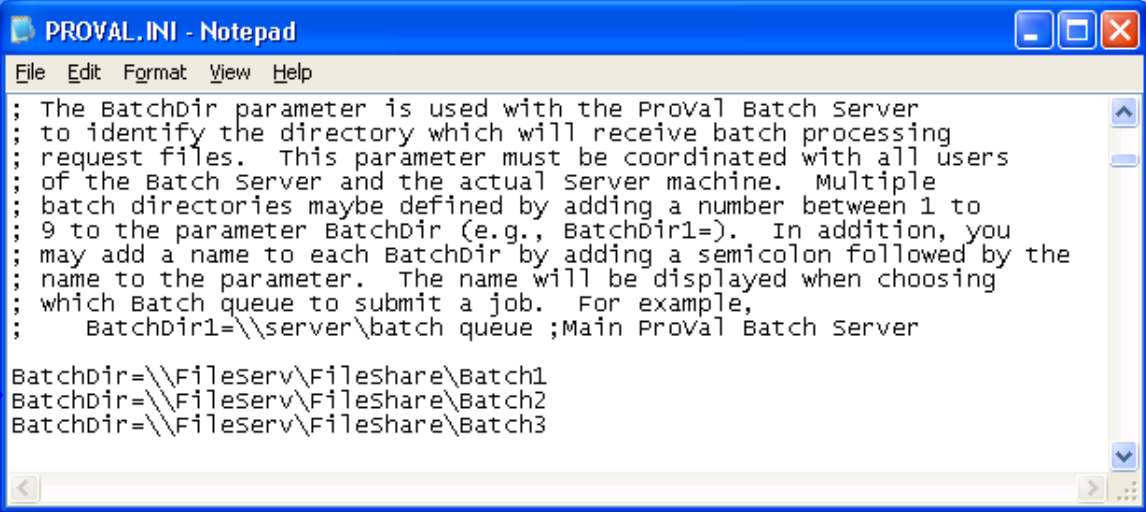
Setting up Multiple Inbox Queues

ProVal is designed to accommodate multiple batch servers in order to distribute workloads in demanding environments. The procedure for setting up each Batch Server is similar, so the procedure laid out above will be followed.

Every Batch Server is associated with an Inbox Queue (synonymous with the BatchDir setting) and multiple Batch Servers may share the same BatchDir in order to scale up. Optionally, ProVal users may submit batch jobs to multiple inboxes queues, which allows for scaling out as well as logical separation of batch processing jobs.

Multiple batch inboxes may be specified using BatchDir1, BatchDir2, etc. (note that the first batch inbox has no number associated with it and is referred to as just BatchDir). Optionally, "friendly" names may be assigned to each inbox, so that users may see more meaningful references to a batch inbox rather than just a path pointing to a folder. Use a semicolon at the end of the BatchDir path and type in the "friendly" name as shown below:

Setting up Inbox Queue Administrators

Select people may be designated Inbox Queue Administrators – these administrators are allowed to shut down the Batch Server Service and cancel running jobs submitted by others.

In order to designate someone as an Inbox Queue Administrator, the **BatchAdmin=Y** setting must be added to the **[Config]** Section in the user's PROVAL.INI file as shown below. Additionally, the user must have write access to the Admin subdirectory in the BatchDir folder. Both conditions *must* be satisfied to ensure that the user gets administrator rights to a particular inbox.

Using the Batch Server

Within ProVal click **Execute | Batch Execution**. Hit the **Add** button to add a job that needs to be processed. Click on the "Submit to the Batch Server" checkbox to send the job to the batch server. If you would like to schedule the job on or after a particular time (as opposed to being immediately placed in the queue), specify the time in the **Start Time** drop-down list
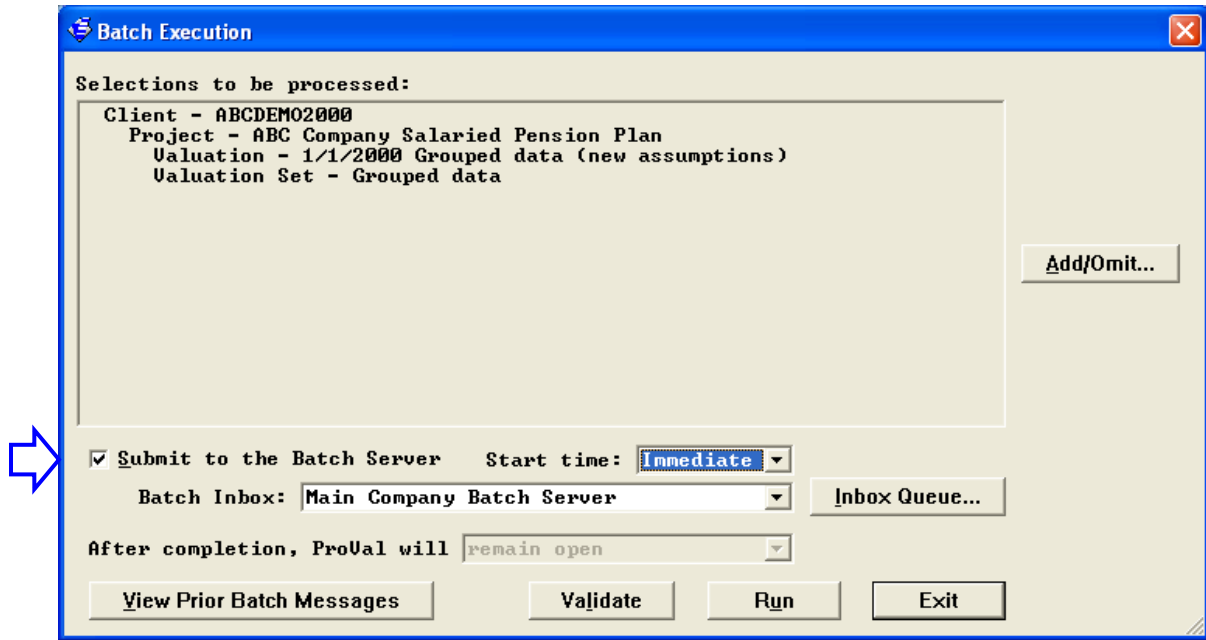
NOTE: The Batch Server must have exclusive access to the client files when it is running. If the Batch Server finds that it can't get exclusive access to the client, it will keep polling the client to see if it can do so at a pre-determined rate.

Click on the Inbox Queue button to see a list of all the batch request files with statuses, submission times, users and other relevant information.
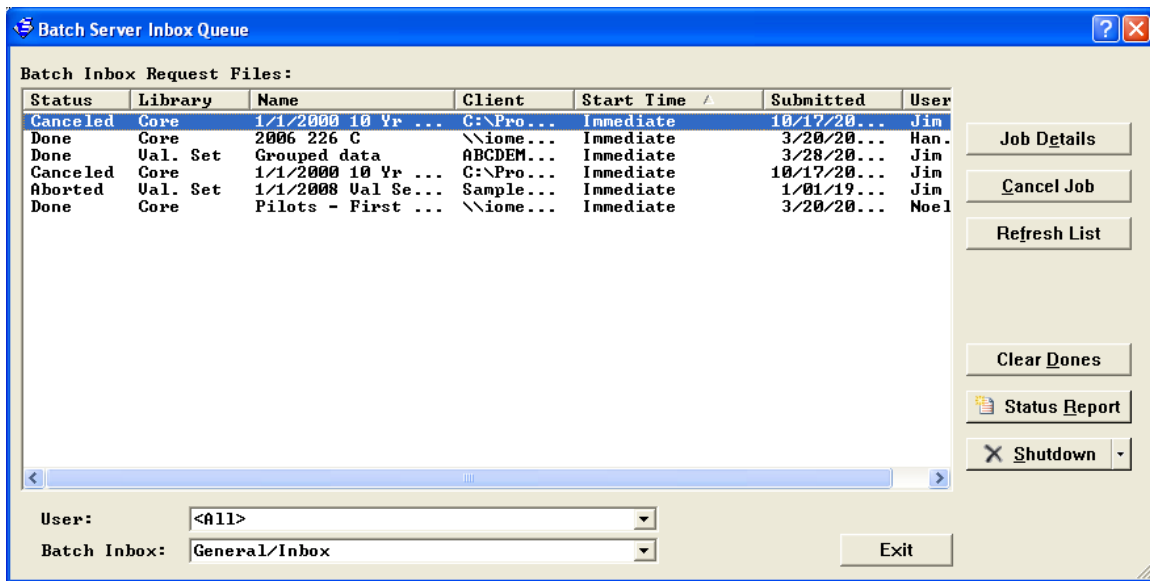
Job Details: This button allows a user to see a list of items relevant to a submitted job.

Cancel Job: This button is used to cancel the selected job.

Refresh List: This button is used to refresh all the information that appears on this screen.

Clear Dones: This button is used to clear all selected jobs that are marked "Done".

Status Report: This button is used to obtain a status report from the Batch Server. If the status report is not made available in 60 seconds, users may assume that the Batch Server is not operational.

Shutdown: This button <u>available only to Batch Server Administrators</u> is used to remotely shut down the Batch Server using the ProVal interface. Two options are available – users may shut the Batch Server after completing all active jobs OR users may force the Batch Server to shut down, interrupting any active jobs.

Updating the Batch Server

Take the following steps:
- All users who may be sharing the ProVal installation (applicable in network installations) must exit ProVal. There is no need to shut down the Batch Server(s).
- Unzip the files from the UPDTnnn.ZIP into the ProVal installation folder.
- Start ProVal (the application) from a user workstation and answer "Yes" to the prompt to apply the system updates.

- Once the updates have been applied, the Batch Server will complete any currently running tasks then automatically restart the Server thereby loading the new version of ProVal into memory.

Appendix A: Batch Server System Requirements

System Requirements	
Operating Environment	Microsoft Windows 7, 8, 8.1, 10 Microsoft Windows Server 2008, 2008R2, 2012, 2012R2
Processor*	Intel Pentium® 4 3.0 Ghz./256K/533 MHz. FSB (min.) Dual Intel Xeon® 3.2 Ghz./2MB/800 MHz. FSB (rec.)
Memory*	512 MB (min.) 2 GB (rec.)
Disk Space	120 MB (for ProVal program files) + space required for batch server data files.
Network Card	10/100/1000 Mbps Network Card.

* **NOTE:** Requirements vary significantly based on usage.