ProVal®
by WinTech

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Grid Platform Installation Guide

For ProVal

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Overview

WinTech's Grid Platform allows ProVal users to distribute certain CPU intensive ProVal runs across a network of computers to achieve faster processing times.

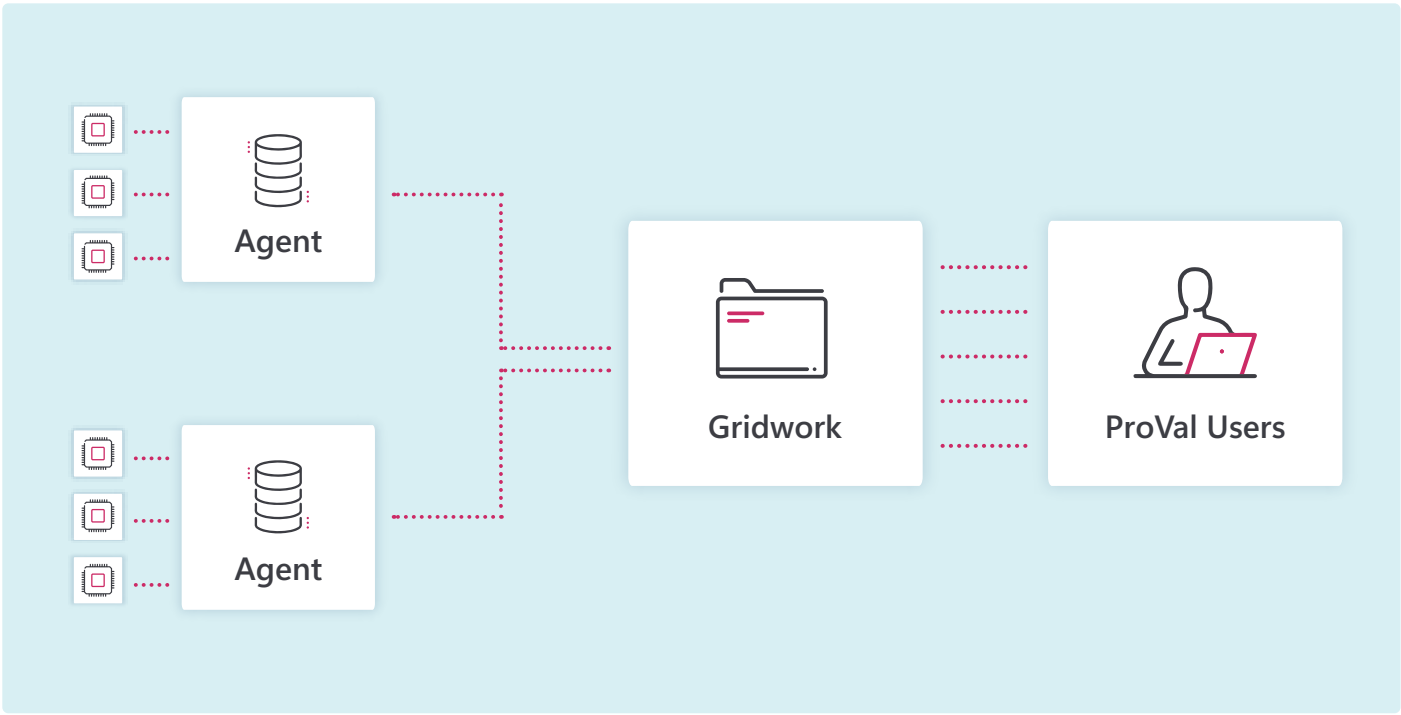
The Grid is created by connecting one or more ProVal users to one or more Grid Agents, using a common network folder to pass data packets back and forth. ProVal can package and ship executable packets to the common folder, where a listening Agent can fetch the packets, execute that small portion of the run, and ship results back to the shared folder. ProVal then fetches all results for a particular run and aggregates them.

By default, the Agent will try to maximize the number of processors it donates to the Grid. This will run the machine's total CPU to close to 100%. Therefore, the Agent is best suited for installation on a dedicated workstation or server computer.

To setup a ProVal user to access the Grid you must edit the .ini settings to point to the common network folder.

To add a computer as a Grid agent, you must (1) install the WinTech Grid Agent and (2) edit the Grid Agent INI file to point to the proper network folder. The Agents may run as a Window's Service or an application.

WinTech Grid Platform



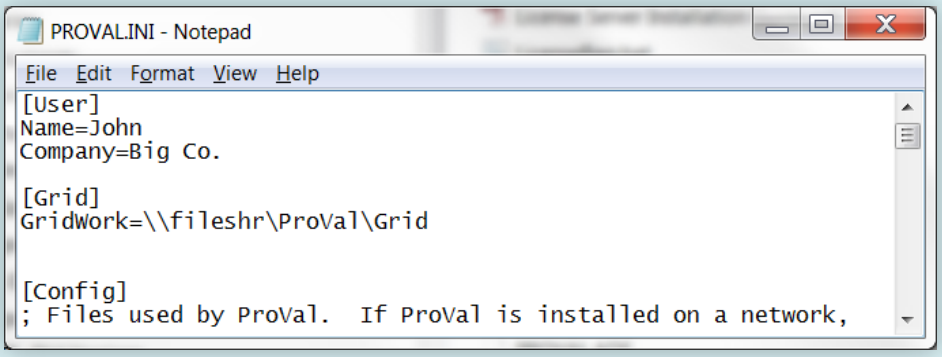
Configuring ProVal to access the Grid

To allow ProVal user's workstations access to the Grid Platform and Grid Agent computers, the following needs to be added to every user's **PROVAL.INI files.**

```
[Grid]
GridWork=
```

The GridWork directory points to a common network location used to coordinate all Grid Agent computers and all ProVal user computers.

NOTE: All computers within the Grid Platform must have read/write/create access to the GridWork directory and must point to the **same directory**. For optimal performance, it is important that the shared GridWork directory have as low of latency and as high of bandwidth as possible.



Creating Grid Agents

NOTE: WinTech's Grid Platform is compatible with ProVal version 3.04 and later. WinTech Grid must be updated when moving to a newer version of ProVal. (e.g. both should be on release 3.10)

1. Obtain and install the Grid Agent Installation Program

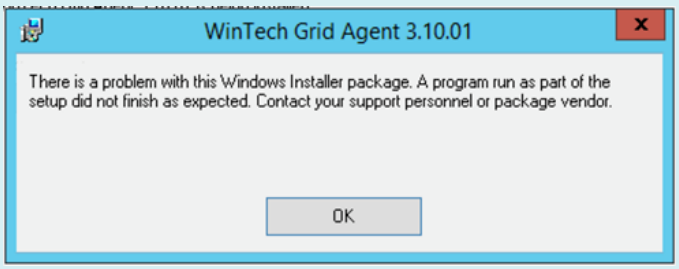
Visit https://www.winklevoss.com/proval/downloads/ and click the "Download Grid Agent Installation" button to download the installation program, WinTechGridAgentSetup.exe. On some systems, the .EXE extension is stripped off for security reasons – in those cases, simply rename the file with an .EXE extension.

Unlike ProVal, there is not an option of installing this program on a network drive. The Grid Agent must be installed on the computer designated to be part of the Grid Platform.

Run the Grid Agent installation program (WinTechGridAgentSetup.exe) and follow the instructions.

By default the installation will install the program in the folder C:\WinTech\Grid. If you choose to override the default directory, be absolutely sure there are no access restrictions to that directory. Do not install under the Program Files folder.

If the install fails with the below error, you will need follow the extra steps below to setup the WinTech Grid Agent.



1. Download and install the vc_redist.x86.exe using the following link (Click download and check vc_redist.x86.exe and click next).

   https://www.microsoft.com/en-us/download/details.aspx?id=53587

2. Download and install WinTechGridAgentSetup.msi using the following link

   http://www.winklevoss.com/downloads/ProVal/WinTechGridAgent.msi

2. Edit the GRID.INI file located in the installation directory.

Within the [Grid] section you must specify the GridWork directory. The GridWork directory points to a common network folder to be used to coordinate all Grid Agent computers and all ProVal user computers.

NOTE: All computers within the Grid Platform must have read/write/create access to the GridWork directory.

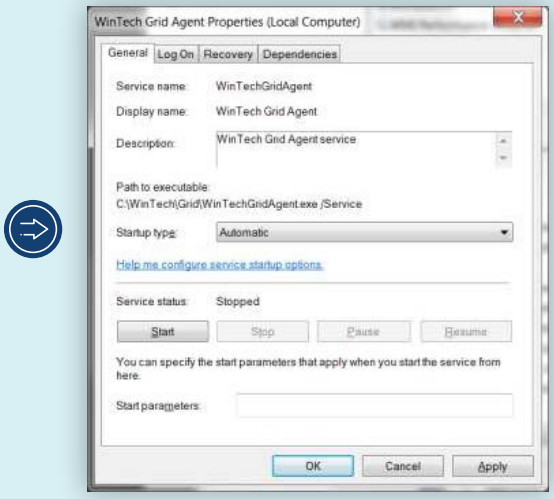
NOTE: When installing the Grid Agent as a service, use only UNC (i.e., of the form \\server\share\) to refer to network paths – mapped drives are not acceptable.

Starting Grid Agents

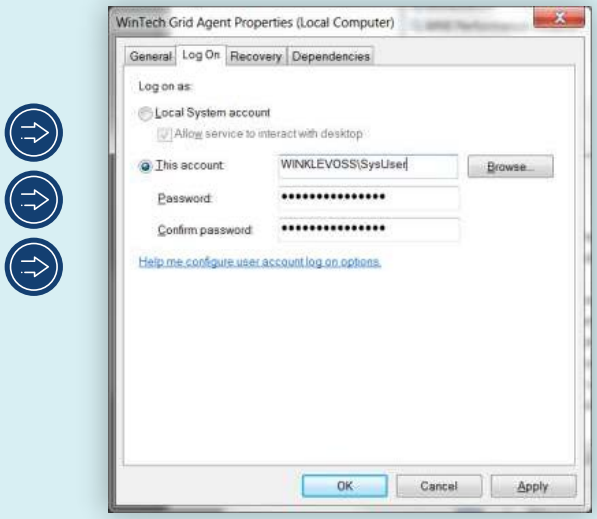
The Grid Agent can be setup to run as a Windows Service or an Application. Running as a Windows Service is the preferred method for deploying production applications. A Service can be setup to automatically start on boot up and saves with it log on credentials to avoid anyone needing to physically log onto the machine.

Running the Grid Agent as a Service

1. Navigate to your list of Services and locate the “WinTech Grid Agent” Service. Ensure that the Startup Type is set to “Automatic”, which ensures that the Service is started automatically every time the Grid Agent machine restarts.



2. In most cases, you will need to configure the Service to use a Log On that has write access to the GridWork 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: Noteworthy events and handy troubleshooting information for the Service may be viewed in the Windows Event Viewer under the Application Log.

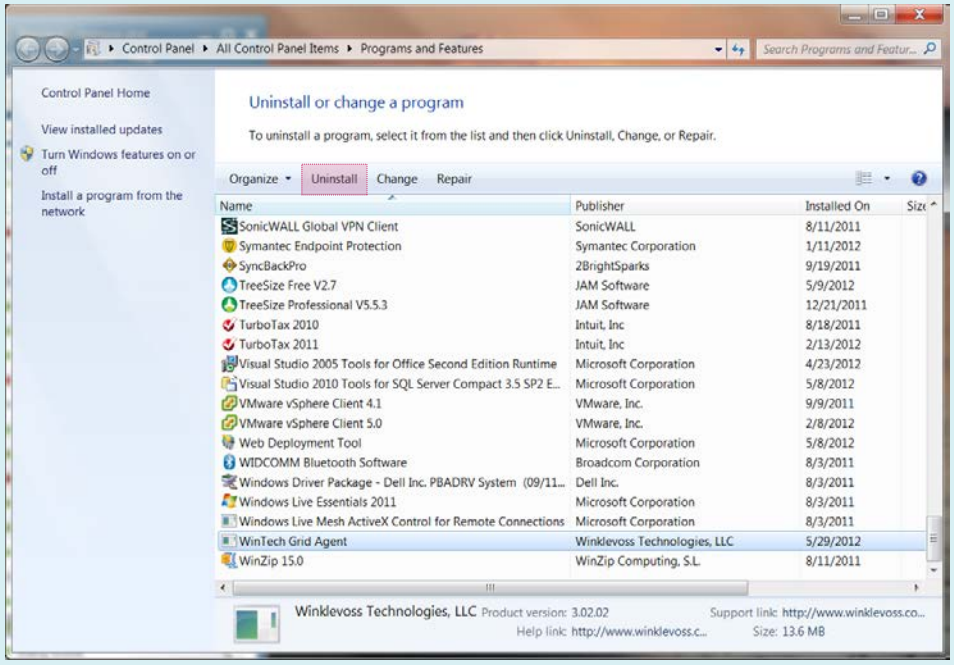
Running the Grid Agent as an Application

To start the Grid Agent to be run as an Application, navigate to the Grid Agent installation directory and double click on WinTechServiceGrid.exe.

Uninstalling Grid Agents

To uninstall the Grid Agent:

1. Click the Start button, point to Settings, and click Control Panel.
2. Double-click the Add/Remove Programs icon.
3. Select WinTech Grid Agent in the list of software and click the Add/Remove button.
4. Note that uninstalling the grid does not remove the Grid.ini and WinTechGridAgent.ini files from the installation folder. This allows uninstall and reinstall the Grid Agent without losing previous settings. But if you have a corrupted or improperly configured ini file, reinstalling will not rectify this because it does not replace these files with new, default versions. So if you want to start over from scratch, you will need to manually eliminate the ini files before reinstalling the Grid Agent to return to a default configuration.



Appendix A: Grid Agent System Requirements

SYSTEM REQUIREMENTS

OPERATING ENVIRONMENT	Microsoft Windows 7 Family. Microsoft Windows 8 Family. Microsoft Windows Server 2008 Family. Microsoft Windows Server 2012 Family. Microsoft Windows Server 2016 Family. Novell Servers and Networks are NOT currently supported.
PROCESSOR*	Intel Pentium® 4 3.0 Ghz./256K/533 MHz. FSB (min.) Dual Intel Xeon® 3.2 Ghz./2MB/800 MHz. FSB (rec.)
MEMORY*	2+ GB of available memory is recommended per processor with a minimum of 4GB.
DISK SPACE	20 MB (for actual Grid program files) If GridWork is located on the Grid Agent machine, then perhaps an additional 5+ GB depending on the volume of activity.
NETWORK CARD	10/100/1000 Mbps Network Card. Producing as low of latency and as high of bandwidth as possible

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

Appendix B: Monitoring Utilization

You can track the varying levels of grid agent utilization over time. By turning on logging, the Grid will record the processors used and available by grid agent in a log file. These are high water marks, that is, the maximum processors used and available during the time interval. The log might look something like this:

```
When (UTC), Interval (secs), Server, Processors Used, Processors
Available 2019-11-20 20:33:40, 10, Agent, 0, 60
2019-11-20 20:33:50, 10, Agent, 5, 60
2019-11-20 20:34:00, 10, Agent, 53, 60
2019-11-20 20:34:10, 10, Agent, 60, 60
2019-11-20 20:34:20, 10, Agent, 60, 60
2019-11-20 20:34:30, 10, Agent, 60, 60
2019-11-20 20:34:40, 10, Agent, 60, 60
2019-11-20 20:34:50, 10, Agent, 60, 60
2019-11-20 20:35:00, 10, Agent, 60, 60
2019-11-20 20:35:10, 10, Agent, 60, 60
2019-11-20 20:35:20, 10, Agent, 0, 60
2019-11-20 20:35:30, 10, Agent, 0, 60
2019-11-20 20:35:40, 10, Agent, 0, 60
```

The log is in .csv format so it is easy to analyze or graph the results using Microsoft Excel.
To turn on logging, edit (or create) the agent.ini file in the GridWork folder and set these items in the [Grid] section:

- AgentUsagePeriod=*seconds*

  This controls the sampling period in seconds at which entries are written to the AgentUsage.csv file. Setting this value > 0 causes agent usage logging to occur every "AgentUsagePeriod" seconds. Setting this value to 0 disables agent usage logging.

- AgentUsageFile=*filename*

  This can be used to override the default agent usage log file name. It can be specified as a filename without folder (in which case the file will be created in the root of the GridWork folder). If the setting is not specified or specified as an empty name, then it defaults to AgentUsage.csv.

  Default is GridWork\AgentUsage.csv.

These settings are only searched for in the Agent.ini file in the GridWork folder. As a result, this setting affects ALL Grid Agent Servers and cannot be overwritten on a per-agent machine basis.