



## Level5.VMS Version Manager Documentation

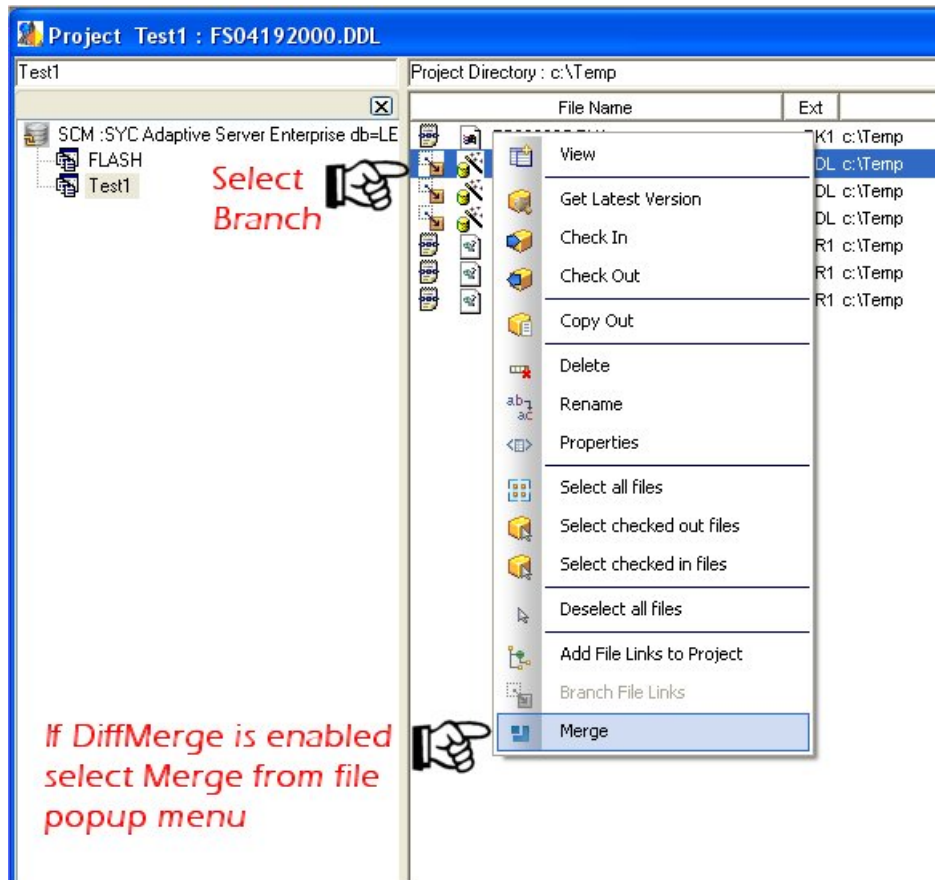
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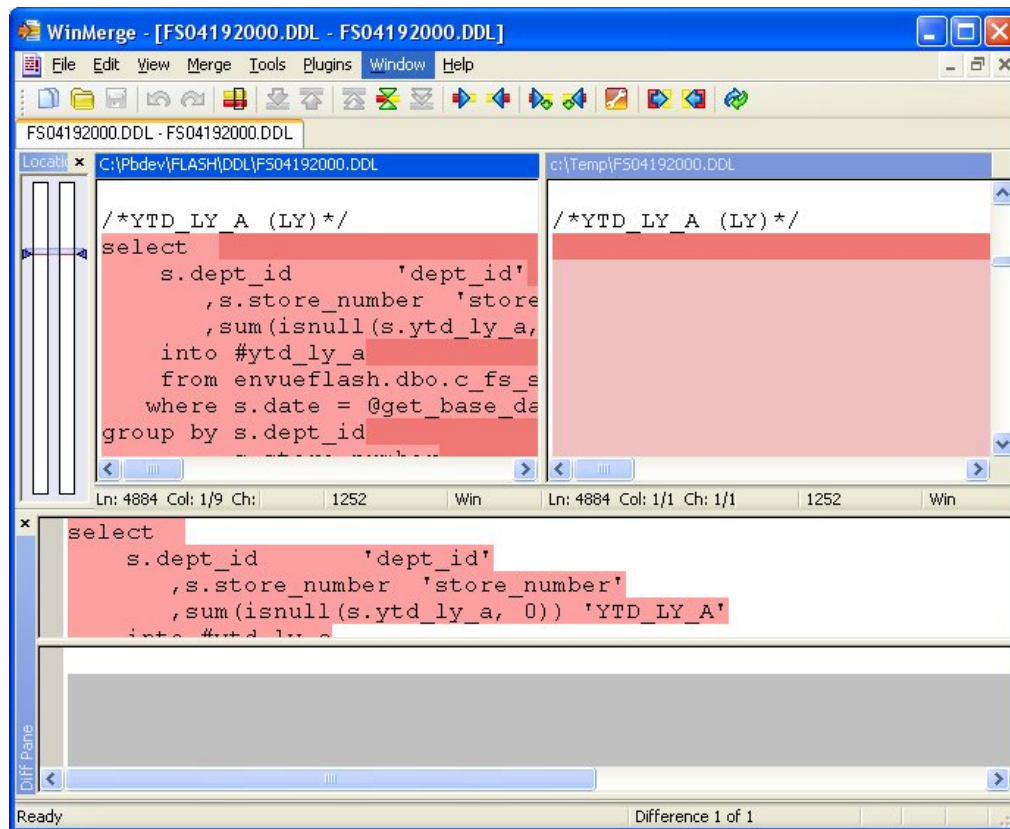
# New Features for Version 4.4

## Merge

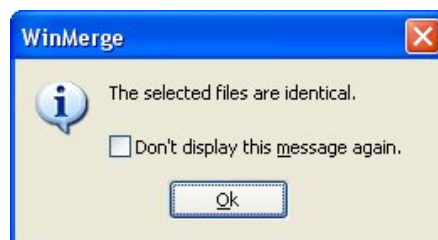
Merging changes between branched files is now supported in this release. Select the branch from the project files screen then from the file popup menu select Merge. Level5.VMS checks out both versions into a DiffMerge utility, which you configure in Global Settings, where you can work out the differences and merge blocks of code in either direction then save the changes.



Merge requires two files. The first file is the Branch and the second file is the Trunk from which the branch was created. Both must be checked in to ensure that you are working with the latest versions ready to be merged with source code ready to be shared. Selecting Merge when Branch, Trunk or both files are already checked out will cause an error and the operation will be aborted. If both the Branch file and Trunk file are checked in, selecting Merge will checkout both files to their corresponding checkout paths then open the DiffMerge utility.

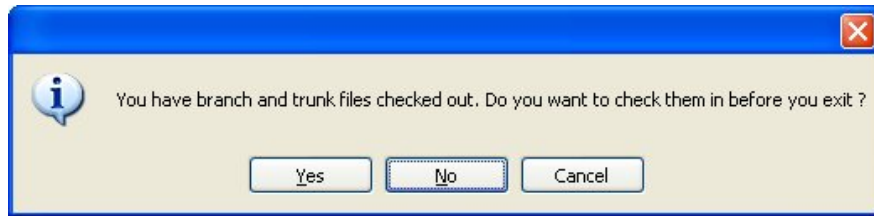


Upon merging all changes to the Branch or Trunk or both WinMerge will notify you that the files are identical.

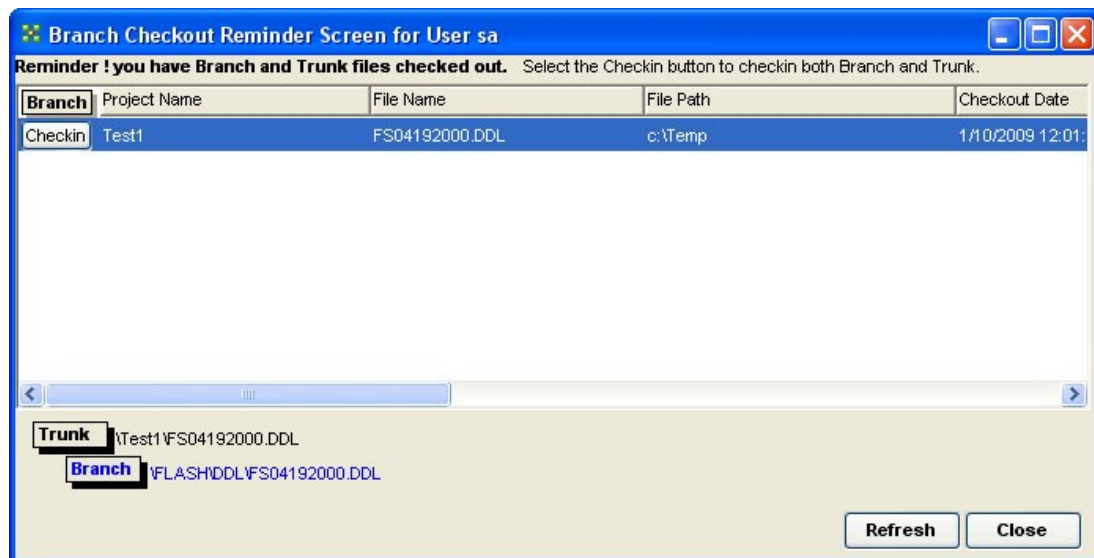


However this may not always be the goal of the merge. You may only need to merge a snippet of code from the Trunk to the Branch file or a block of new logic from the branch back to the trunk file.

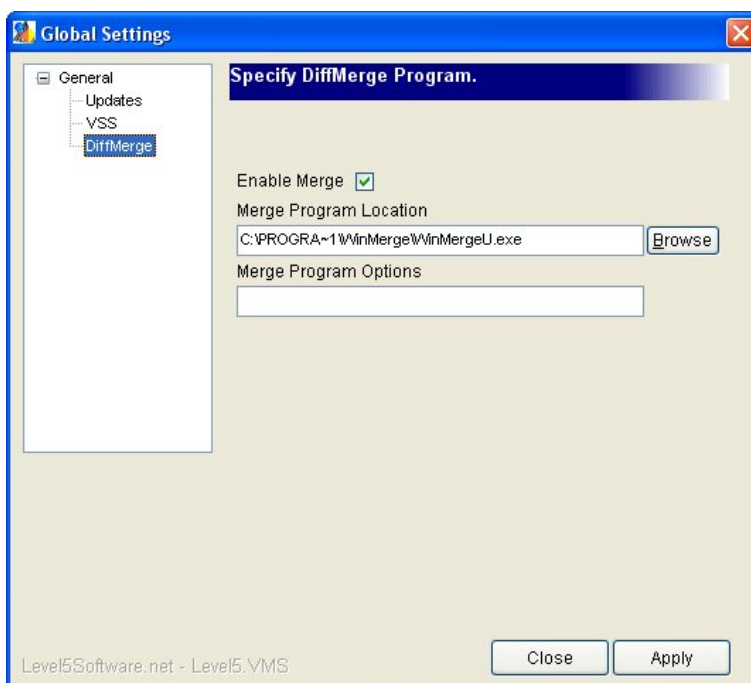
Upon saving your changes and closing WinMerge you are still left with both trunk and branch files checked out. You can either manually navigate to each project and check in the files or simply wait until you are ready to exit the application. Level5.VMS will perform cleanup tasks and also notify you if Branch and Trunk files are checked out.



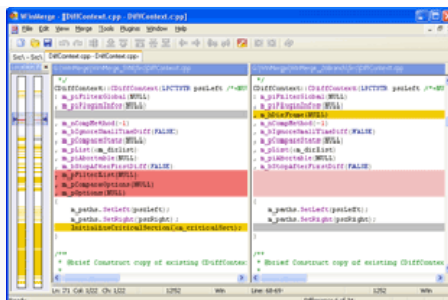
If you choose to checkin the files the Branch Checkout Reminder Screen displays. You can select each row and observe the fully qualified project file path within VSS database. Select Checkin button to check in both branch and trunk files.



Level5.VMS DiffMerge default configuration is based on a program named WinMerge. You can download WinMerge from website <http://winmerge.org/>.



## What is WinMerge?



[More Screenshots...](#)

WinMerge is an [Open Source](#) differencing and merging tool for Windows. WinMerge can compare both folders and files, presenting differences in a visual text format that is easy to understand and handle.

[Learn More](#) or [Download Now!](#)

**WinMerge 2.10.2 - latest stable version**

[WinMerge 2.10.2](#) is the latest stable version, and is recommended for most users.

**Download Now! Version 2.10.2; 3.09 MB**

# New Features for Version 4.3

## Sharing and Branching Files

### Add File Links ...

Add links or shortcuts to files in other SCM projects.

When you add a link to a project you actually create a pointer to the original file therefore any changes made to the link from checkout and checkin will be reflected in the original file and all links to the original file.

Use links to encourage code reuse.

Deleting a link file only removes the pointer to the original file. Deleting the original file does not remove the master copy of the file if links exist. A file can only be deleted if all links to the file are removed first.



File Popup Menu

### Branch File Links ...

Branching separates the link from the original file. A new file is created and is independent of the original.

A record or ancestry is maintained between the branch and the original. The version history of the ancestor stops at the moment of the branching.

Changes made to branched files are not reflected elsewhere and conversely changes made to ancestors are not reflected in branched files.

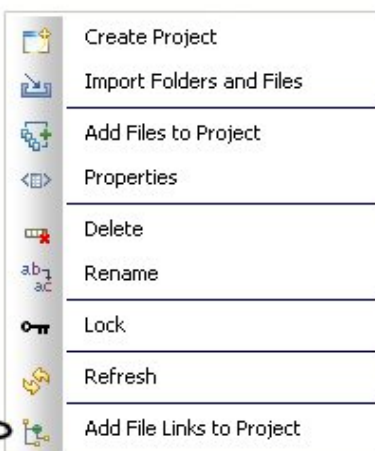
Use branches when you want the history of the new file to diverge from the original.

in project ...

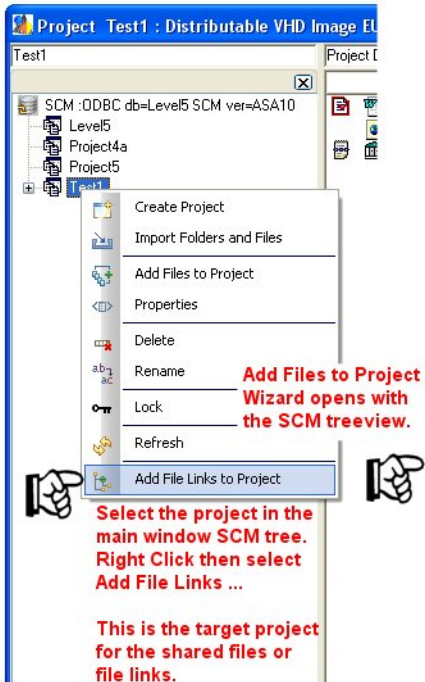
the original  
independent by ...

### Add File Links ...

Add links or shortcuts to files in other SCM projects.  
( To the current project )



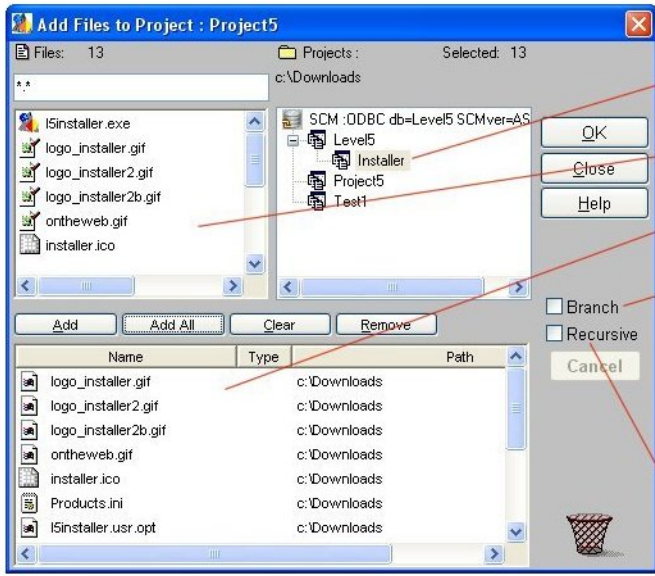
SCM Treeview Popup Menu



**Add Files to Project Wizard opens with the SCM treeview.**

**Select the project in the main window SCM tree. Right Click then select Add File Links ...**

**This is the target project for the shared files or file links.**



**Select the project with files you want to share.**

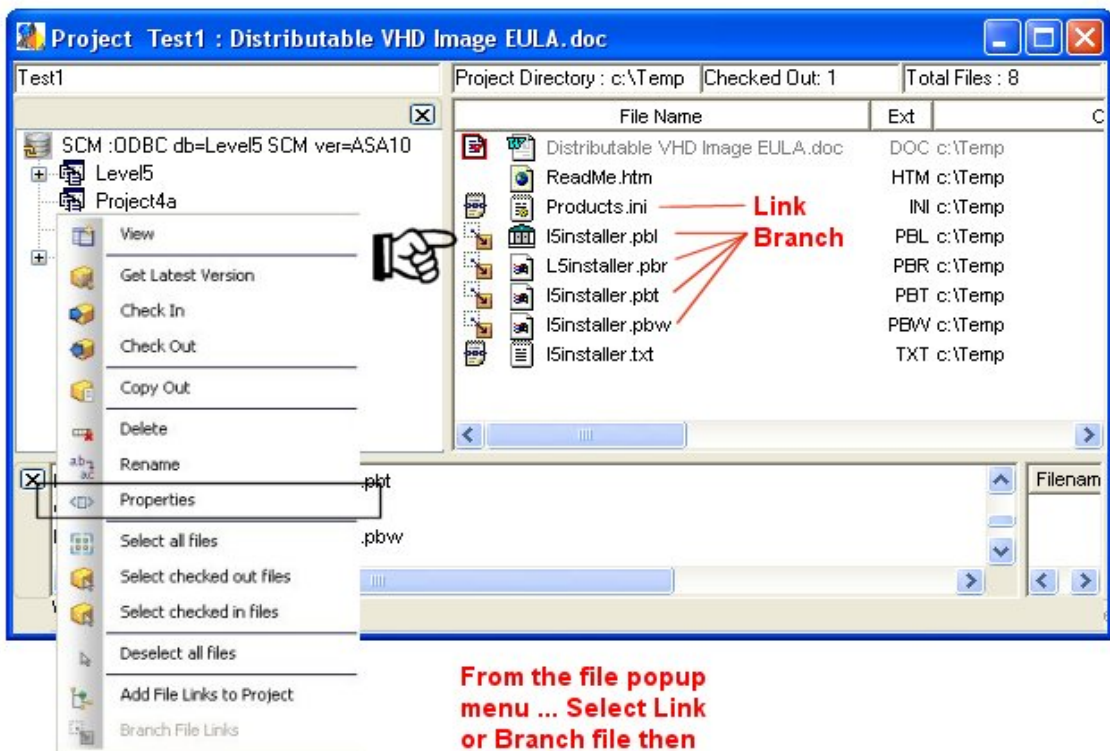
**Project files display here**

**Select files or Add all files**

**Check Branch if you would like to create a new file independent of the original or leave unchecked to create link or shortcut to the original file.**

**Check Recursive to include files in sub-projects. A new project will be generated for each sub project or leave unchecked to add only the files in the selected project. Select OK to add the shared files to the target project.**

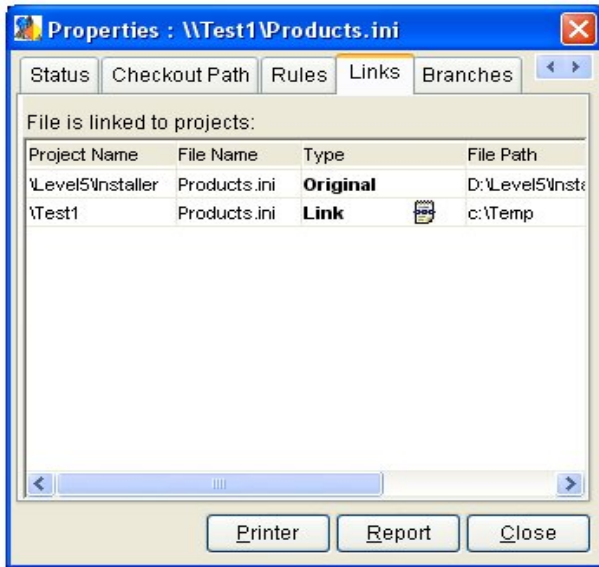
**When you select a project from the SCM treeview files within the project will be available for selection into the target project as shared files or Links to the original file.**



**Link Branch**

**From the file popup menu ... Select Link or Branch file then choose Properties.**

**When you select a shared or link file ...**

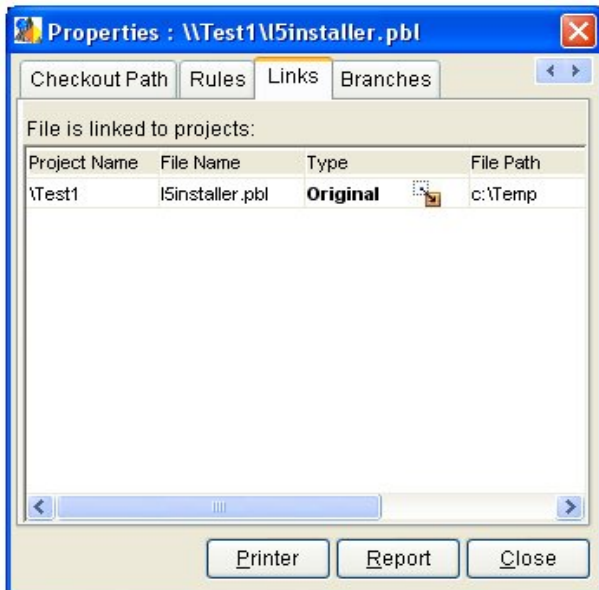


**Links (Shared Files):**  
 This view represents the list of projects which contain the file.  
 In this case the selected file is a link or shortcut to the original file in project \Level5\Installer.



**Branches (Independent Files):**  
 No branch ancestry for links since links are shortcuts to the original file and branches are broken links, created from the original file however made independent by branching.

**When you select a branch file ...**



**Links (Shared Files):**  
 This view represents the list of projects which contain the file.  
 In this case the file I selected is in only one project.



**Branches (Independent Files):**  
 This view represents the branch ancestry of the file.

## Common Practices for Sharing

1. Share to encourage code reuse
2. Only checkin files when you are ready to share the code with other projects.

## Common Practices for Branching

1. Use branches to isolate support releases or versions. For example, I branched the entire project for Level5.VMS at version 4.2 which does not contain the sharing and branching features so that I can support changes in version 4.2 without affecting the new branch release 4.3 and conversely I can continue the lifecycle of release 4.3 without affecting earlier versions.
2. Branch at a high level. For example at the project level which includes all source files, configuration and help files, etc.
3. Don't branch unless it's necessary to do so.

## Release Notes

Checking out shared files can only be performed if all links to the original file including the original file are checked into the VMS. This ensures changes do not get overwritten. Release 4.3 does not support merging which would enable multiple checkouts of the same file however later releases will support this feature so please stay tuned.

Merging changes between branched files is not supported in this release For example if I made changes to release 4.2 to support a bug fix and I wanted to add this change to the branch release 4.3 I would have to manually checkout the source code in release 4.3 and make the change. Future releases will support this by checking out both versions into a DiffMerge utility were you can workout the differences and merge blocks of code in either direction, save then checkin the files.

## Level5.VMS - Version Control Manager

Level5.VMS provides software development managers with a tool and methodology to easily maintain and secure their development team's most valuable development assets. The easy-to-use graphical user interface will allow team members to easily and consistently maintain effective source control management across the enterprise.

### *Secure Version Control*

- Easy-to-use Version Control Manager IDE. Allows single or multiple users to manage development files for any version, while maintaining locks on files that have been previously checked out to avoid code overwrites and lost changes.
- Project structure mirrors LAN or PC directory tree. Checkin and Checkout will store the files according to its location on the LAN or PC avoiding user prompts for checkin or checkout locations.
- Adding files to your project has never been easier. The Add Files wizard enables a user to select and add multiple files from the LAN or PC to a project without file size or number limitations. Proven optimized technology moves data from the LAN or PC to a local or enterprise database server with exceptional speed and reliability. The Add Files wizard is also aware of the files contained within a project and will only display new files that have been added to the development.
- Checkout enables a user to down load all or selected files for a specific version to the LAN or PC and provides managers with valuable information such as checkout date and time, checkout version and checked out by. This feature helps manage team development across the enterprise.
- The Get latest version function will down load the most current version of all or selected files.
- File versioning is automatic. When a file is checked into a project it is compared to the version of the file which was checked out and if differences are found the file is added to the project as a new version. Files that are checked in and have not been modified are either skipped or overwritten. The rules for file checkin are user defined.
- Project versioning is also a feature in Level5.VMS. When a new project is created with the same name as an existing project, the new project will be created as a new version of the existing project. This enables version control at the project level.
- Project working directories can easily be changed enabling a manager to easily move an entire project's contents to another location on the LAN or PC.
- A file's checkout path can easily be changed enabling a user to move a file to a new location on the LAN or PC.
- Easy viewing of project's file and checkout status allows a manager to quickly visualize projects which are active and projects which are archived.
- Open copies of files stored within Level5.VMS for viewing and editing. Level5.VMS lets you select the programs which will open supported file types such as C/C++, Java, VB, PowerbBuilder and many more.

### *Security*

- Project Locking
- Assigned user rights.
- Protects source assets from unauthorized updates and deletions.
- Application Activity Tracing

### *Scalable*

- Level5.VMS ships with Adaptive Server Anywhere and iAnywhere 10.0 personal database servers by Sybase, Inc. These stand-alone DBMS are very reliable and effective for small development shops. The product supports validation, unloading and backups.
- Level5.VMS also supports Sybase SQL Server, Sybase Adaptive Server Enterprise, Microsoft SQL Server 2000 & 2005 and Oracle 8i-10g Enterprise database servers which are faster, scalable and promote team development. Integrating Level5.VMS with these database servers is easy. Level5.VMS ships with all of the necessary procedures and instructions.

### *Compatibility*

- Controls versions of any type of file generated by any development editing tool or application.
- Supports clients on Windows XP SP and Higher.
- Easy to use with a look and feel similar to Windows Explorer.
- Minimize learning time with easy-to-follow on line help.
- Level5.VMS provides an EFFECTIVE, FAST and EASY way to secure and control your development assets

# Quick Start

What this topic covers:

- Connecting to Adaptive Server Anywhere (iAnywhere ASA) personal database server.
- Configuring VMS for Sybase, MSSql Server and Oracle databases.

If you decide to use the out-of-the-box personal database there is nothing for you to configure however in order to connect VMS to Sybase, MS SQL Server or Oracle you will need to have a license for one of these database servers (Not supplied) as also perform the following.

Steps (Simplified):

- 1.) Create a database or use an existing database (optional).
- 2.) Create the VMS tables by compiling the ddl scripts in the target database. (Refer to the DDL scripts located in the VMS installation directory c:\Program Files\Level 5 Software\SourceIt\Utl.
  - a.) syc.ddl (Sybase ASE 12.5 and higher.)
  - b.) orc8i-10g.ddl (Oracle 8i to 10g)
  - c.) mss2000.ddl (MS SQL Server 2000)
  - d.) sql2005.sql (MS SQL Server 2005)
- 3.) Update the configuration file c:\Program Files\Level 5 Software\SourceIt\scmanager.ini, You will need to update the ServerName, database and DbParm sections for the following database profiles. The server and database names can be which ever database you have created in the previous steps.

```
[SYBASE Adaptive Server Enterprise]
DBMS=SYC Adaptive Server Enterprise
ServerName=MYMACHINE_PC
database=LEVEL5VMS
DbParm='PwDialog=1'
```

```
[MICROSOFT SQL Server]
DBMS=MSS MS SQL Server
ServerName= MYMACHINE_PC
database=LEVEL5VMS
DbParm='PwDialog=1'
```

```
[ORACLE 10g]
DBMS=O10 ORACLE 10g
ServerName=//abc-server:1521/orclmgrpt
database=orclmgrpt
DbParm=ConnectAs='SYSDBA',PBCatalogOwner='SYS',DateTime='''mm/dd/yyyy hh:mm:ss''',Date='''mm/dd/yyyy''',Time='''hh:mm:ss'''
```

```
[SQL Server 2005]
DBMS=OLE DB
ServerName=MYMACHINE_PC
database=LEVEL5VMS
Lock=RC
DBParm =
"PROVIDER='SQLNCLI',DATASOURCE='MYMACHINE_PC',DelimitIdentifier='No',PROVIDERSTRING='database=LEVEL5V
MS'"
```

## Using Level5.VMS for the First Time

Once you have configured the Personal Database or Created and configured one of the supported enterprise databases you are ready to start Level5.VMS for the first time.

Before using the products features you will need to add users to the Level5.VMS user database. The users added to this database will have access to the products features.

There are three roles which can be assigned to users:

- 1.) SA (System Administrator) ASA Personal Database Only.
- 2.) Power User
- 3.) Developer

Database Rights are assigned to a user by assigning the user a role.

SA or System Administrator role will allow user full rights to all of Level5.VMS features which include Creating or Deleting projects, Locking projects, Adding files to projects, Deleting files, and Adding new users. The Power User role has full rights with exception to Adding new users. The Developer role has limited rights which include the CHECKOUT feature, properties and printing.

The security provided by assigning roles is not limited to the Level5.VMS environment. It is extended to the database tables outside of Level5.VMS. When users are added to Level5.VMS rights are granted to database tables corresponding to the actions which may be performed by the user. Database users which are not added to Level5.VMS will not be able to access the system tables.

# Start Level5.VMS

Level5.VMS will open with the following options: Log In; Change Database; Help; Quit

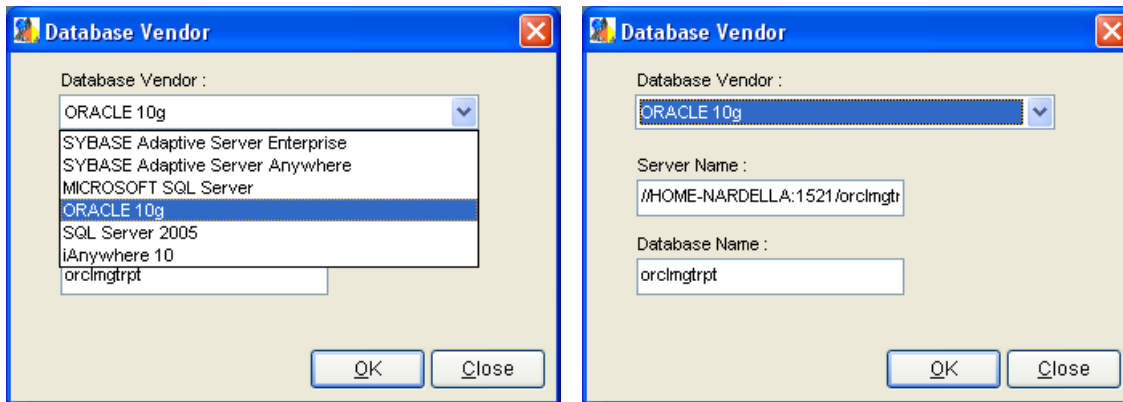


Before logging in you will need to specify the database to use. This will only need to be performed initially; Level5.VMS will remember the database selected for future logins. You may change the database at any time. This feature will allow you to manage multiple source databases as long as they have been properly defined and configured as described previously. Once you have defined the database using 'Change Database' future logins will begin with selecting the 'Log In' button then typing in the login id and password.

## Change Database

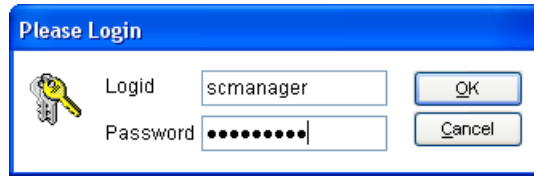
Selecting Change Database will display the Database Vendor dialog.

Select from one of the supported database management systems.



Enter the Server Name (Not required for ASA Personal Database Server). Specify the location of the server application which is the selected database management system. This can be an IP address or a Host Name mapped to an IP address. If the DBMS is installed locally the server name can be 127.0.0.1 or localhost or if using Microsoft SQL Server the server name is simply the machine name. For information on determining the server location consult you DBA and Network Administrators. Enter the Database Name (Not required for ASA Personal Database Server). Specify the name of the database. If one of the supported enterprise DBMS is used, this would be the name of the database created. Select the OK button.

# Log In



If the change database was successful the login dialog will display. If you are using one of the supported enterprise DBMS you will need to use the database system administrator user id and password to add users to Level5.VMS. For Sybase and Microsoft dataservers the DBA is SA. For Oracle dataservers the DBA is SYS. If you are using ASA Personal Database you will use userid/password **scmanager/scmanager** to log in initially then once users are added you can login using the added login ids and passwords however the scmanager login will always remain.

## SCM Methodology

It is recommended to adopt a source control management methodology which is best suited for your development cycle however the following is a simple easy to use method which works well for small to medium sized development. A Level5.VMS project structure is a mirror image of the LAN or PC directory tree. Checkin and Checkout will store the files according to its location on the LAN or PC avoiding user prompts for checkin or checkout location.

Example: Level5Software.net is a small development shop. My development projects are stored under a root storage corresponding to the development tool. ie., Powerbuilder = Pbdev; Visual C++ =VCdev, etc. The above example has been scaled down for simplicity. The root of all Powerbuilder development starts under Pbdev. Our LAN allows developers access to all permissions for this root directory, such has read and write access. This allows our developers to create project folders when necessary. Projects are created as a sub-folder under the root storage Pbdev. Application files such as source code, libraries, dlls, icons, bmps, and graphics are stored in the Project folder.

Folders are created under each project which will hold application specific assets such as:

1. SQL files
2. Web content
3. Images
4. Help
5. Source Documentation
6. Project Documentation
7. Database Designs
8. UML Diagrams

When a new project is created on the LAN or PC the Level5.VMS sysadmin or poweruser will create a project in the application corresponding to the name of the project folder on the LAN or PC. The working directory for the project will be the LAN or PC project directory.

All files added to this project will originate from this project working directory and will either be contained in the working directory or a sub-directory of the working directory. Level5.VMS saves the original path of the file as the CHECKOUT path. Changes to the LAN or PC project structure should not be made once a project has been created within the application. If files need to be added to folders other than those existing, the new folders should be added to the LAN or PC directory tree under the Project root folder. When these files are added by the sysadmin, the Level5.VMS structure will be synchronized again with the LAN or PC structure for the project.

When files are Checked Out, the original LAN or PC structure for the project files is reconstructed on the LAN or PC. The application will maintain locks on files that have been checked out to avoid code overwrites and lost changes. Checkout information is also stored, such as date and time, version and user id enabling the team manager to track files to individual users throughout the development cycle.

File versioning is automatic. When a file is checked into a project it is compared to the version of the file which was checked out and if differences are found the file is added to the project as a new version. Files that are checked in and have not been modified are either skipped or overwritten. The rules for file checkin are user defined. My preference is to Skip files which have not changed from version to version. This improves system performance.

When files have been checked in the latest version stats will be updated within the project.

When all files for a project have been secured for a specific version, the LAN or PC structure is removed. This is performed by selecting the project in Level5.VMS then right-clicking to display the properties. Tab to Path then select Remove. This action will remove the local or remote project.

When a project requires development due to change requests or defects the project files are checked out and the process begins another cycle.

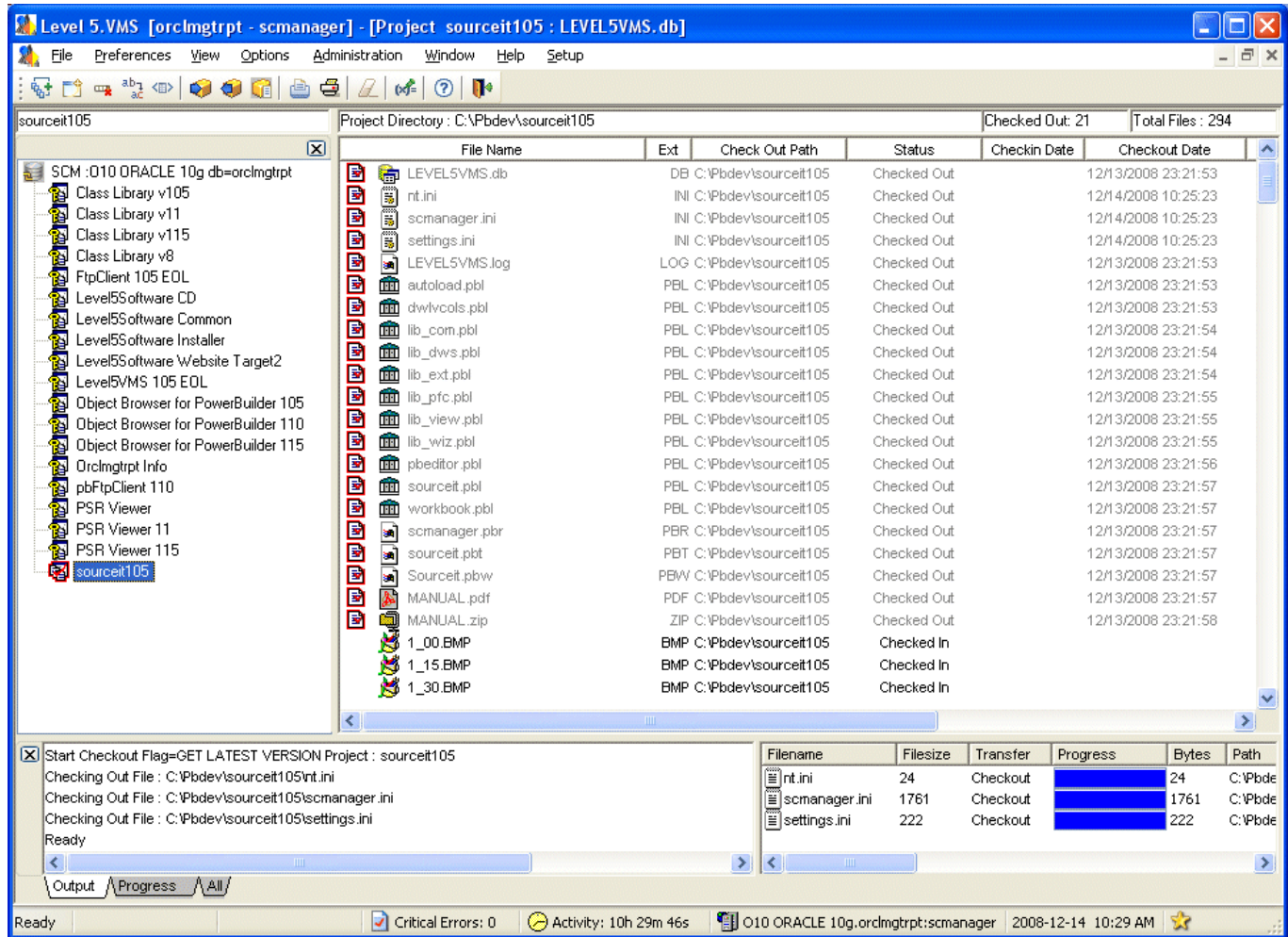
The integration with our LAN development environment and Level5.VMS and this simple methodology has worked extremely well with our development team here at Level 5 Software. We hope it will help you choose a source control management methodology which works well for your development needs.

# Users Guide

Log In  
Main Window  
Creating Projects  
Adding Files to Projects  
Adding Files to Versions  
CHECKOUT  
CHECKIN  
Deleting Files  
Deleting Projects  
Passwords  
Properties  
Project Properties  
File Properties  
Versions  
Security  
External Programs Setup  
Viewing Files  
Database Backups  
Transaction Logs  
Database Locks  
New Features

# Projects Main Window

When you first open the Level5.VMS, you see the application's Main window. The main window contains the menu bar, the toolbar, the status bar and the project and file panes.



The menu bar is where you choose menu commands.

The toolbar displays buttons that are shortcuts for commonly performed tasks. Place the mouse pointer over a toolbar button, without clicking, to see a description of what the button does.

The status bar displays compilation progress and micro help.

The main window is sectioned into two panes.

- Projects Pane
- Files Pane

The projects are displayed in the left pane. The root item in the tree is the datasource currently connected. The above figure reflects the ODBC database management system and the datasource Level5 SCM which is the supplied ASA Personal Database.

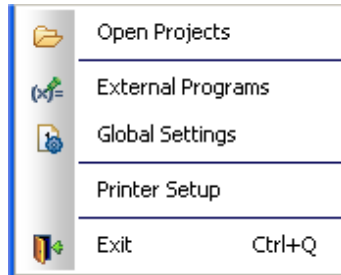
The project's files (assets) are displayed in the right pane when a project is selected.

## The Menu Bar

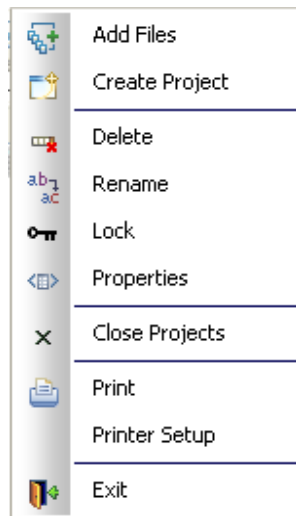
The menu bar is at the top of the Main window. Menu commands are displayed when you select one of the menu bar items. Menu commands are enabled and disabled depending on where the cursor is positioned on the main window.

The following provides brief descriptions of menu commands.

## \*\* File \*\*

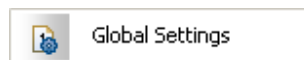


Mdi Frame File Menu



Version Manager File Menu

## \*\* Preferences \*\*

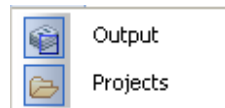


...

- Global Settings

Open global settings window.

## \*\* View \*\*



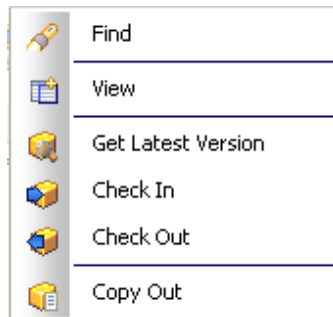
...

- Output
- Projects

Show or hide the output pane

Show or hide the projects pane

## \*\* Options \*\*



If a file or group of files are selected in the File Pane...

- Find
- View
- Get Latest Version
- Check In
- Check Out and Copy Out (New for v3.0)

Find will display the Find Dialog which can be used to find a file from the list of displayed files.

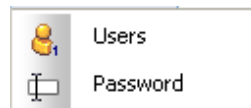
View will enable you to open a copy of a file version for viewing. The file is opened in the default program of programs which you specify. Files which are opened cannot be saved back to the project.

Get latest version function will download the most current version of all or selected files.

Checkin will copy all or selected files from the LAN or PC into the project. File versioning is automatic. When a file is checked into a project it is compared to the version of the file which was checked out and if differences are found the file is added to the project as a new version. Files that are checked in and have not been modified are either skipped or overwritten. The rules for file checkin are user defined.

Checkout enables a user to download all or selected files for a specific version to the LAN or PC and provides managers with valuable information such as checkout date and time, checkout version and checked out by. This feature helps manage team development across the enterprise.

## \*\* Administration \*\*



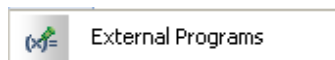
The following menu commands are displayed when you select the Administration menu item...

- Users
- Password ( *Adaptive Server Anywhere Personal Database Only* )

Selected Users will open the Add User dialog. The system administrator must use the Add Users dialog to add users to Level5.VMS.

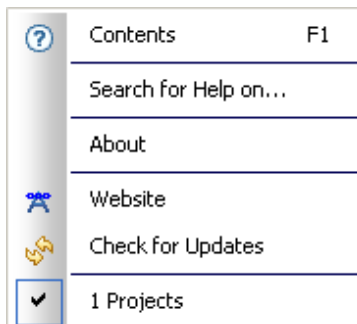
Selecting Password will open the Change Password dialog. Level5.VMS users can change their assigned password using this dialog.

## \*\* Setup \*\*



Level5.VMS enables you to specify the programs which will open files for viewing. Selecting External Programs will open the Source Viewer External Programs Setup dialog.

## \*\* Help \*\*



The following menu commands are displayed when you select the Help menu item...

- Contents
- Search for Help on ...
- About
- Website
- Check for Updates
- Open Projects

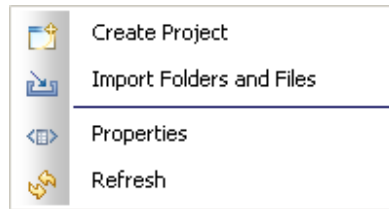
Contents and Search for Help opens IE to [www.level5software.net](http://www.level5software.net) help pages for Level5.VMS.

Check for updates feature enables you to download and install the latest updates for the current version for Level5.VMS.

Website opens IE to [www.level5software.net](http://www.level5software.net)

## \*\* Tree View Menus \*\*

If the cursor is positioned over the root tree item in the Projects Pane ...



- Create Project
- Import Folders and Files
- Properties
- Refresh

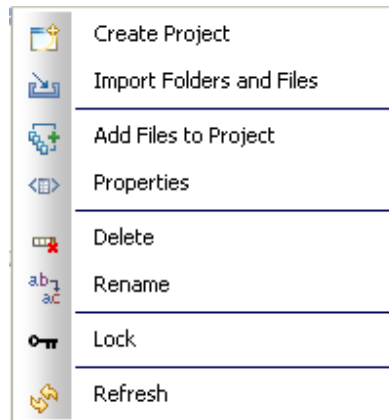
Create Project displays the New Project dialog which provides functions for creating new projects within Level5.VMS.

Import Folders and Files will open a wizard which will enable you to create projects and files based on folders and files from Windows Explorer.

Properties display the Version Manager Properties dialog which displays information on all projects contained within the connected datasource. It also provides features for ASA Personal Database validation and backups and application tracing.

Refresh will re-populate the tree view.

If a project is selected in the Projects Pane ...



- Create Project (New for v.4.1)
- Import Files and Folders (New for v.4.1)
- Add Files to Project
- Delete
- Rename
- Lock / Unlock
- Properties
- Refresh (New for v.4.1)

Create Project under the selected project displays the New Project dialog which provides functions for creating new projects within Level5.VMS.

Import Folders and Files will open a wizard which will enable you to create projects and files based on folders and files from Windows Explorer.

Add Files will display the Add Files Wizard. The Add Files wizard enables a user to select and add multiple files from the LAN or PC to a project.

Delete will delete the selected project and all of its files.

Rename will display the Rename Project dialog which provides functions for changing the project names within Level5.VMS.

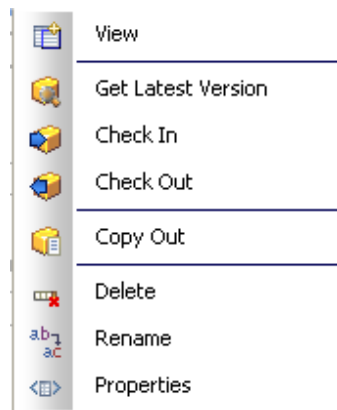
Lock will lock the project. When a project is locked the only option available is to view the files.

Unlock will unlock a project.

Properties displays the Project properties dialog which displays information for the currently selected project such as create and modified dates, file versions, file and checked out counts. The dialog also provides functions to change the working directory for the project and also remove the project locally.

Refresh will re-populate the tree view.

## \*\* Project File popup menu functions \*\*



Selecting a file in the File Pane then right mouse clicking will display the file popup menu options. The version control functions described above can be accessed from this menu along with the following additional functions:

- Delete
- Rename
- Properties

Delete will delete all or selected project files. When deleting a file all versions for the file are removed from the project.

Rename will display the Rename File dialog which provides functions for changing the file names within Level5.VMS.

Properties displays the File properties dialog which displays information for the currently selected file such as create and modified dates, versions, status, checkout path and checkin rules. The dialog also provides functions to change the checkout path for the file and specify checkin rules.

## The Tool Bar (From Left to Right)



- Add Files to project
- Create new project
- Delete
- Rename
- Properties
- Checkin
- Checkout
- Copy Out
- Print
- Printer Setup
- Close Projects Window
- External Programs Setup
- Help
- Exit Application

## Project Status Indicators

|  |                |                          |             |                     |  |
|--|----------------|--------------------------|-------------|---------------------|--|
|  | PSR Viewer 115 |                          |             |                     |  |
|  | sourceit105    | PBT C:\Pbdev\sourceit105 | Checked Out | 12/13/2008 23:21:57 |  |
|  | ASA10          | PBW C:\Pbdev\sourceit105 | Checked Out | 12/13/2008 23:21:57 |  |
|  | ASA9           | PDF C:\Pbdev\sourceit105 | Checked Out | 12/13/2008 23:21:57 |  |
|  | Deploy         | ZIP C:\Pbdev\sourceit105 | Checked Out | 12/13/2008 23:21:58 |  |
|  | Updates        | BMP C:\Pbdev\sourceit105 | Checked In  |                     |  |
|  | sourceit.plt   | BMP C:\Pbdev\sourceit105 | Checked In  |                     |  |
|  | Sourceit.pbw   |                          |             |                     |  |
|  | MANUAL.pdf     |                          |             |                     |  |
|  | MANUAL.zip     |                          |             |                     |  |
|  | 1_00.BMP       |                          |             |                     |  |
|  | 1_15.BMP       |                          |             |                     |  |

Directly above the File Pane are indicators which show the current project working directory, total files contained within the project and total files checked out. Checked out files will be displayed grayed and at the top of the list.

Other project status indicators:



Files are checked out.



Files are checked out and the project is locked.



Project is locked



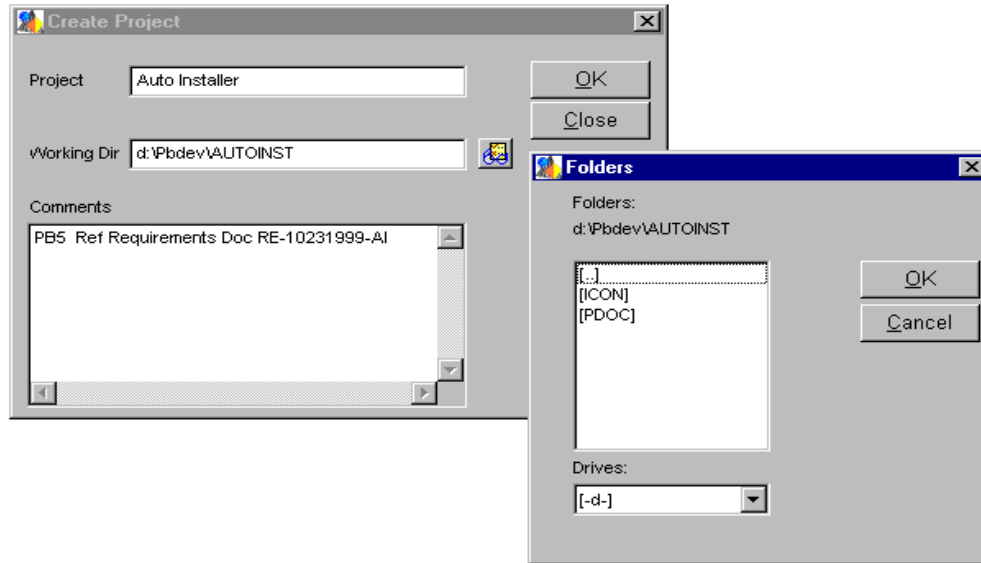
File id Checked Out



File status is not known

## Creating Projects

Selecting the Create Project toolbar menu item will display the Create Project dialog.



Enter the name for the project.

Select the find folder button. This will display the folders dialog. Select the drive and working directory for the project. *Note: This attribute is not edit able for the simple reason 'If the find folder dialog cannot see the working directory then it cant be specified as a project working directory' therefore the project most exist on the LAN or PC prior to creating the project in Level5.VMS.*

Enter the comments for the project. This is used to reference Change Request, Defect Report, or Requirements documents. Select OK to create the project.

Note: The file version increment value will be set to 0.1 by default. If you wish to set this to another value you must open the properties for the project and change it in the File Version Increment drop down list box on the properties General Tab.

## File Versions

File versioning is automatic. When a new file is added to a project it will be given a version number of 1.0 (Unless otherwise specified). When a file is checked into a project it is compared to the version of the file which was checked out and if differences are found the file is added to the project as a new version. Version numbers are incremented by 0.1 by default (This increment value can be changed in the project's properties).

## Project Versions

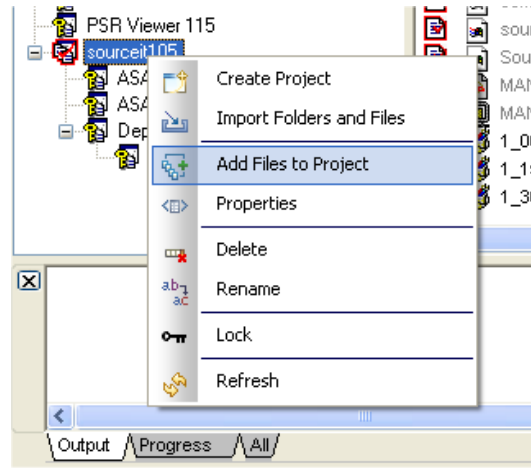
New projects are created as version 1.0. Level5.VMS is a file versioning system which means file versions are managed within a project. However you can implement Project Versioning with Level5.VMS.

If you create a new project with the same name as an existing project the project will be created as a new version.

For example: Auto Installer Project

If a new project is created using the existing Auto Installer project name the new project will be created as version 2.0. This is seldom used in a file versioning system however it is available if required.

# Adding Files to Projects



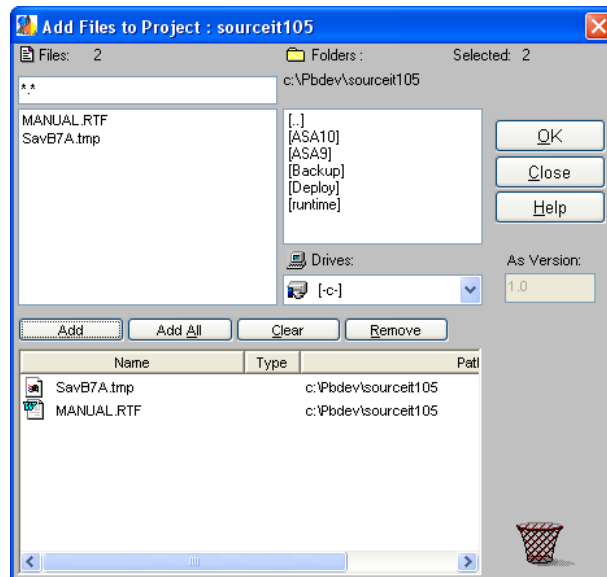
This section describes how to add files to a new project. Adding files to existing versions is described in the topic adding Files to versions.

The Add Files wizard enables a user to select and add multiple files from the LAN or PC to a project. Proven optimized technology moves data from the LAN or PC to a local or enterprise database server with exceptional speed and reliability. The Add Files wizard is also aware of the files contained within a project and will only display new files that have been added to the development cycle.

Selecting the Add Files toolbar menu item will display the Add Files Wizard.

Also;

Selecting the project in the Project Pane then right mouse clicking will display the Project's menu. Selecting the Add Files to Project menu item will also open the Add Files Wizard.



The wizard is very easy to use.

Select the drive of the working directory for the project located on the LAN or PC.

Next, select the root folder for the project in the folders list box directly above Drives. In the above example the [AUTOINST] folder is the root directory for the project. Below this directory are two sub directories [ICON] and [PDOC].

Files will be displayed in the Files list box to the left of Folders. Add specific files to the selected list by selecting the files then clicking the Add button. Add all files to the selected list by clicking the Add All button to select all of the files.

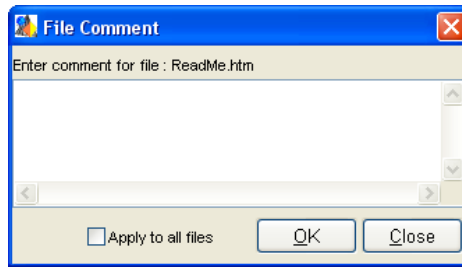
When you have finished selecting the files for the root directory for the project you begin selecting files from the sub directories under the project root directory.

Click the sub-directory in the Folders list box. Files will be displayed in the Files list box to the left of Folders. Add the files to the selected list as previously described.

Repeat the process of selecting files until you have selected files from the project folder and all sub folders for the project.

Note: The file version will be added to the project as 1.0 by default. If you wish to set this to another value you must change it in the As Version edit box.

Click OK...



For each file which is added to the project the File Comment dialog will display. Enter the comment for the file. If you wish to apply the comment to all files select the Apply to all files checkbox. The dialog will not display for the remaining files.

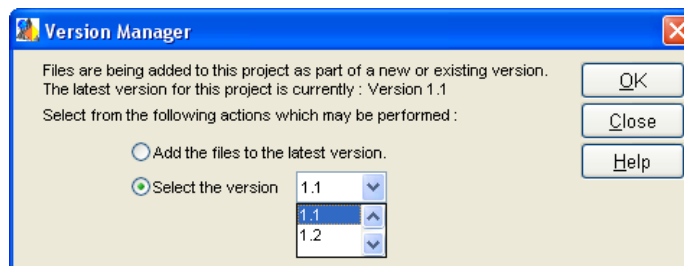
The file comment is a good place to list references to hard copy documents such as requirements, change requests and defect reports just to name a few.

## Adding Files to Versions

This section describes how files are added to new or existing versions.

Open the Add Files Wizard and select the files to be added to the project as described in topic Adding Files to Projects.

If the project has existing file versions a Version Manager dialog will display...



Several options are available when files are added to a project which contains existing file versions.

### ***Option A - Adding the files to the latest version***

When files are checked out of a project no files may be added to the project until all files have been checked in. When all of the files have been checked in, any new files added to the development cycle can then be added to the project. The version manager will display the current version for the project and selecting the Add files to latest version radio button will add the new files to the latest version.

### Option B - Selecting the version

Clicking the Select version radio button will display a list of available versions for which files may be added. The default version is always the latest version. The next highest version may also be selected. This version is calculated as the latest version plus the version increment value. The version increment value is set in the project's properties. Any earlier versions will also be available.

This option is used most when new files are the only modifications to an existing project; therefore need to be added as the next highest version.

## Checkout

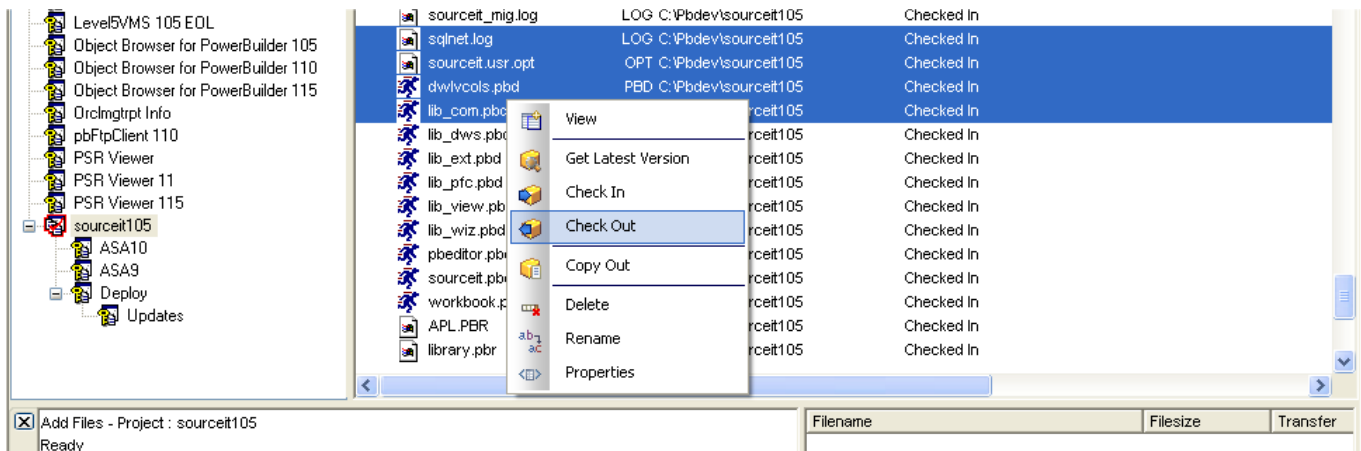
Checkout enables a user to download all or selected files for a specific version to the LAN or PC and provides managers with valuable information such as checkout date and time, checkout version and checked out by. This feature helps manage team development across the enterprise.

The Get latest version function will download the most current version of all or selected files.

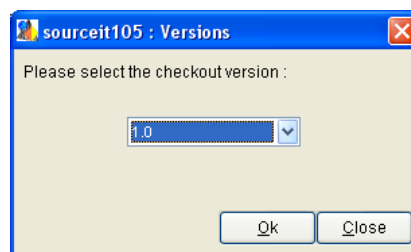
Selecting the Checkout toolbar menu item will download all or selected files for a project.

Also;

Selecting the files in the File Pane then right mouse clicking will display the File Options menu.



Selecting the Checkout menu item will start display the file versions which are available for checkout.



Select the version then click OK.

The files which are checked out will display in the top portion of the File Pane. The files will be grayed and the bit map image will change to a checked out state. The project's image will also display a checkmark designating files which are currently checked out.

The checked out indicator above the File Pane will display the current checked out file count.

Note: Files which are checked out are locked by the version manager until the files are checked back in. Locks are maintained on files which are checked out to avoid code overwrites and lost changes.

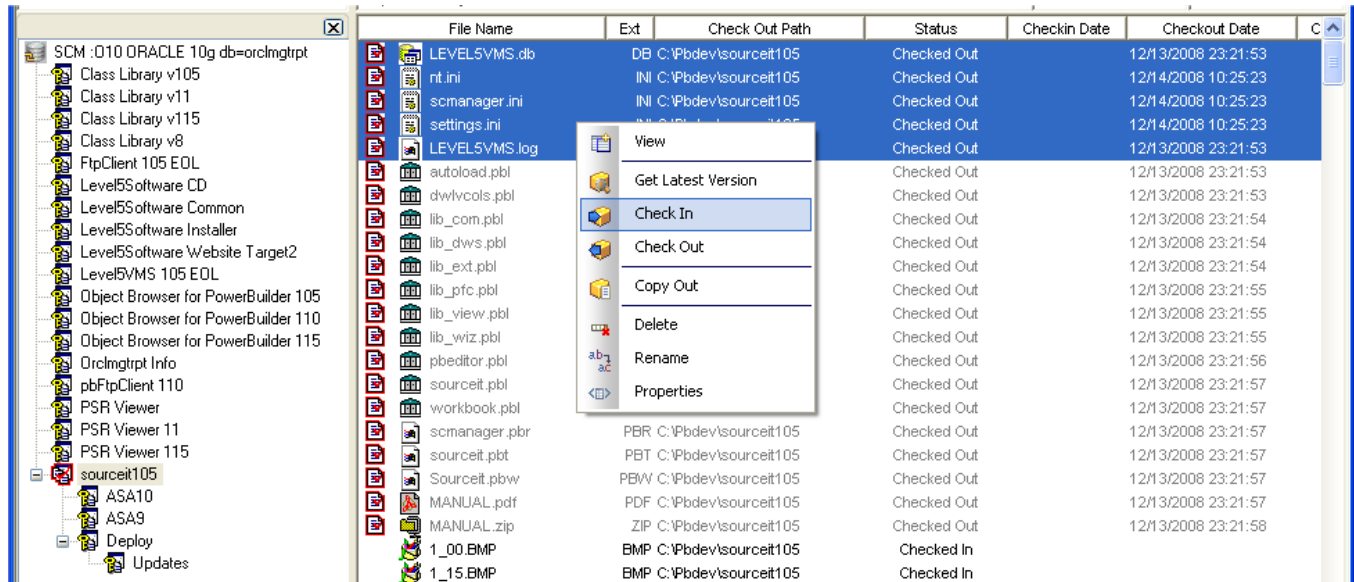
# Check In

Checkin will copy all or selected files from the LAN or PC into the project. The local or remote files are compared to the version of the files which were checked out and if differences are found the files are added to the project as a new version.

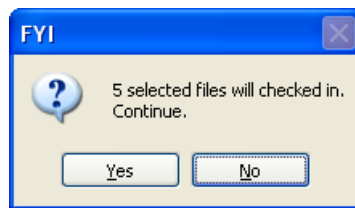
Selecting the Check In toolbar menu item will copy all or selected files from the LAN or PC into the project.

Also;

Selecting the files in the File Pane then right mouse clicking will display the File Options menu.

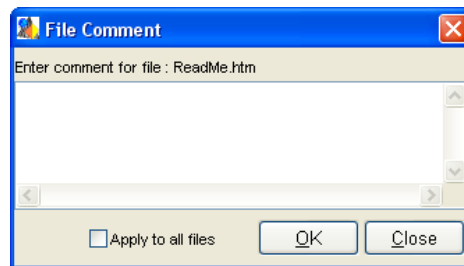


Selecting the Checkin menu item will display a message box with information on the pending checkin and prompt you to



continue...

If you wish to continue choose Yes.



For each file which is checked in the File Comment dialog will display. Enter the comment for the file. If you wish to apply the comment to all files select the Apply to all files checkbox. The dialog will not display for the remaining files.

The file comment is a good place to list references to hard copy documents such as requirements, change requests and

defect reports just to name a few.

*Note: The comment will only be applied to files which are added to the project as a new version. Files which have not changed will retain the original comment.*

The files which are checked in will display in their normal position in the File Pane and the grayed out status will be disabled. If there are checked out files the project's image will display a checkmark designating files which are currently checked out, however if all files are checked in the project's checked out image will return to it's normal state.

The checked out indicator above the File Pane will display the current checked out file count. It will display zero if all files have been checked in.

Note: Files which are checked in are unlocked by the version manager.

## Deleting Files

Selecting the Delete toolbar menu item will delete all or selected files in the File Pane.

To delete one or more files first select the files in the File Pane. Select delete to delete the selected files.

To delete all files in the File Pane:

Select one file then select the file again this time depressing the Ctrl key. This will deselect the file leaving the focus on the File Pane. Select the delete toolbar menu item to delete all files.

Or select all the files in the File Pane. Select delete to delete the selected files.

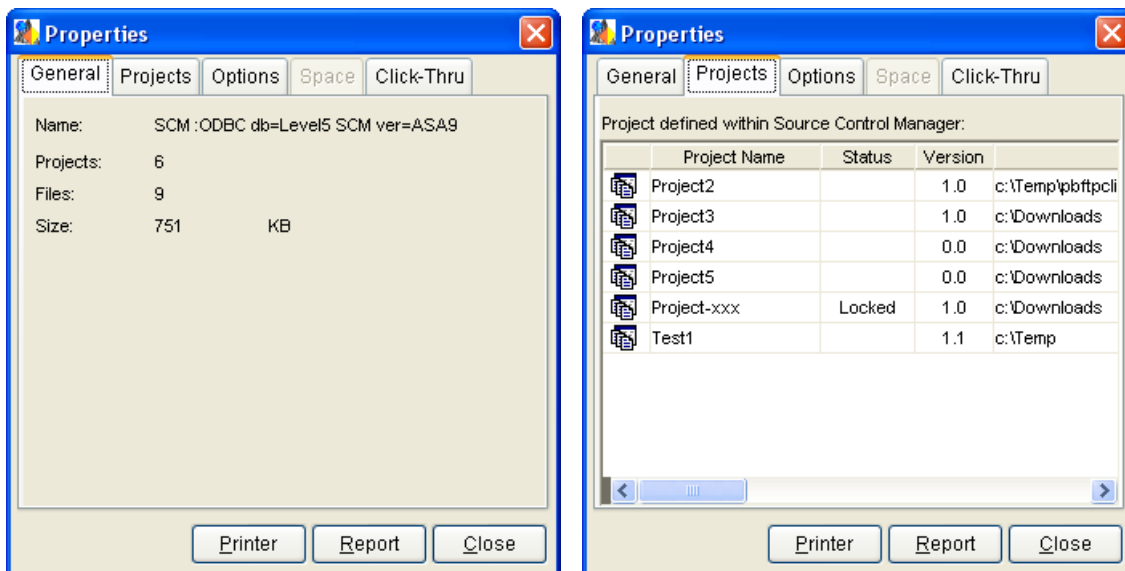
Deleting a file will remove the file and its versions from the project. This action is not reversible.

## Deleting Projects

Selecting the Delete toolbar menu item will delete the project which is selected in the Project Pane. Deleting a project will remove all files for the project. This action is not reversible.

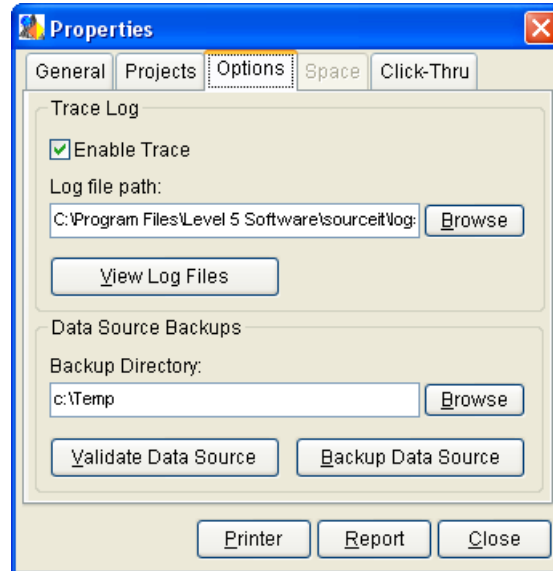
## Properties Dialog

Selecting the Properties toolbar menu item when the root item in the Project Pane is selected will open the Properties dialog.



The general tab displays the DBMS and database name, the number of projects, the number of files and total space used for data.

The projects tab displays a list of projects with version information, date created and project size.

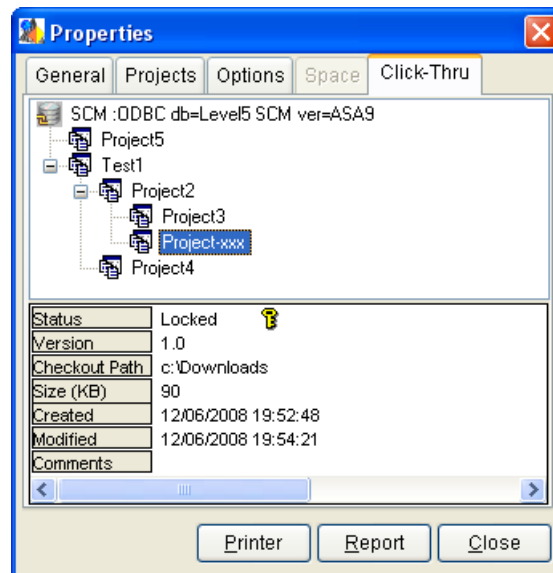


The Options tab features:

Enable or disable tracing and specify the trace log file path.

- View trace log files
- Validate and backup the ASA Personal Database.
- Specify the location for ASA Personal Database backup files.

For more information on these features refer to Trace Log and Validation and Backup topics.



The Click-Thru tab features:

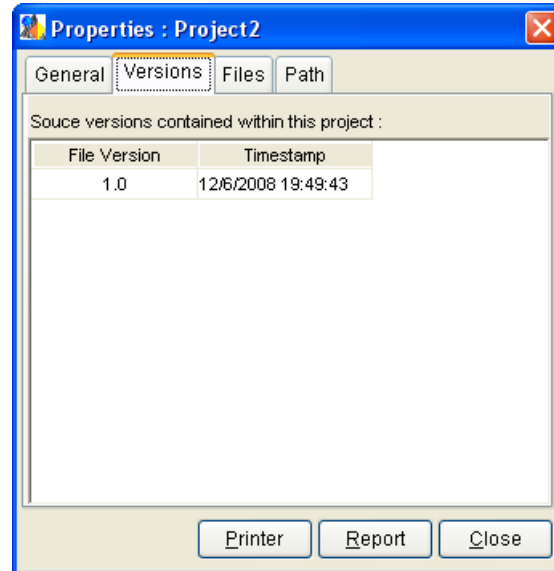
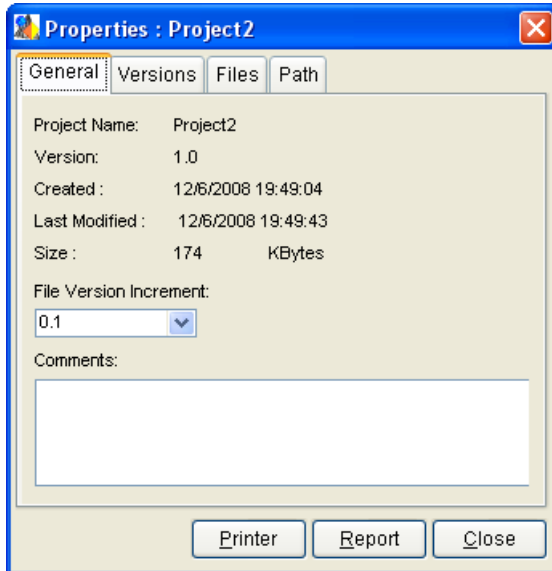
Click-Thru projects tree displays properties for each project selected.

# Project Properties Dialog

This topic covers:

- Project header information
- File versions
- Total files and checked out counts
- Changing the project's working directory
- Removing the local or remote project
- 

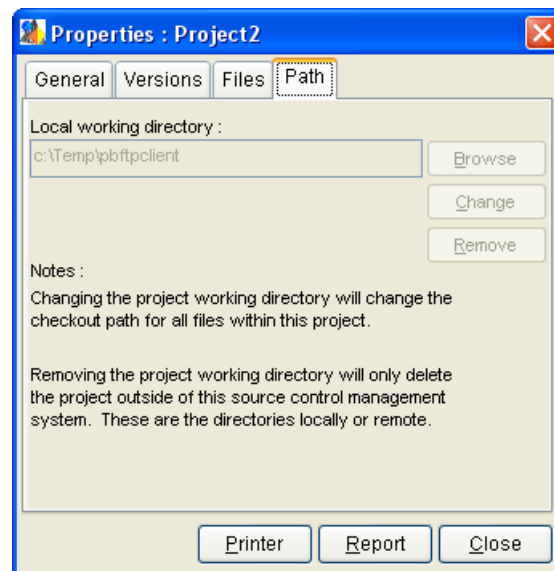
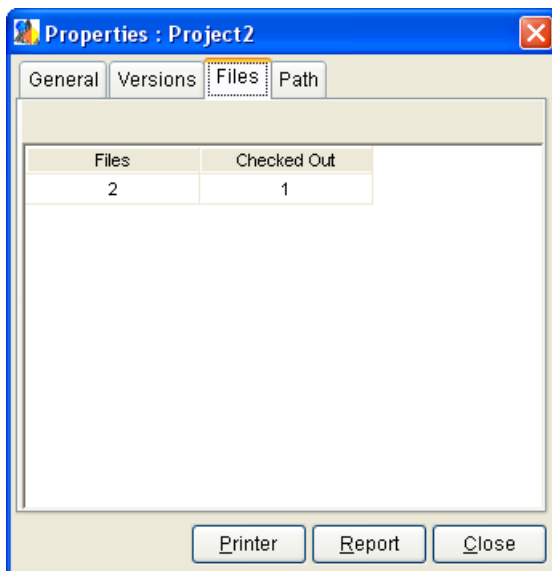
Selecting the Properties toolbar menu item when a project is selected in the Project Pane will open the Project



Properties dialog.

The general tab displays the project header information. You can also change the file version increment value. This is the value at which files are incremented when a new version is added.

The versions tab lists the file versions contained within the project.



The Files tab displays the total files and total checked out count.

The Path tab features:

- Change the project working directory.
- Removing the local or remote project.

## Changing the project working directory

Project working directories can easily be changed enabling a manager to easily move an entire project's contents to another location on the LAN or PC. To change the path, select the Change button. This will open the find folder dialog. Find the folder then select OK. The new path will display in the edit box and the checkout paths for all files within the project will be changed to reflect the new working directory.

## Removing the local or remote project

To remove the local or remote project select the Remove button.

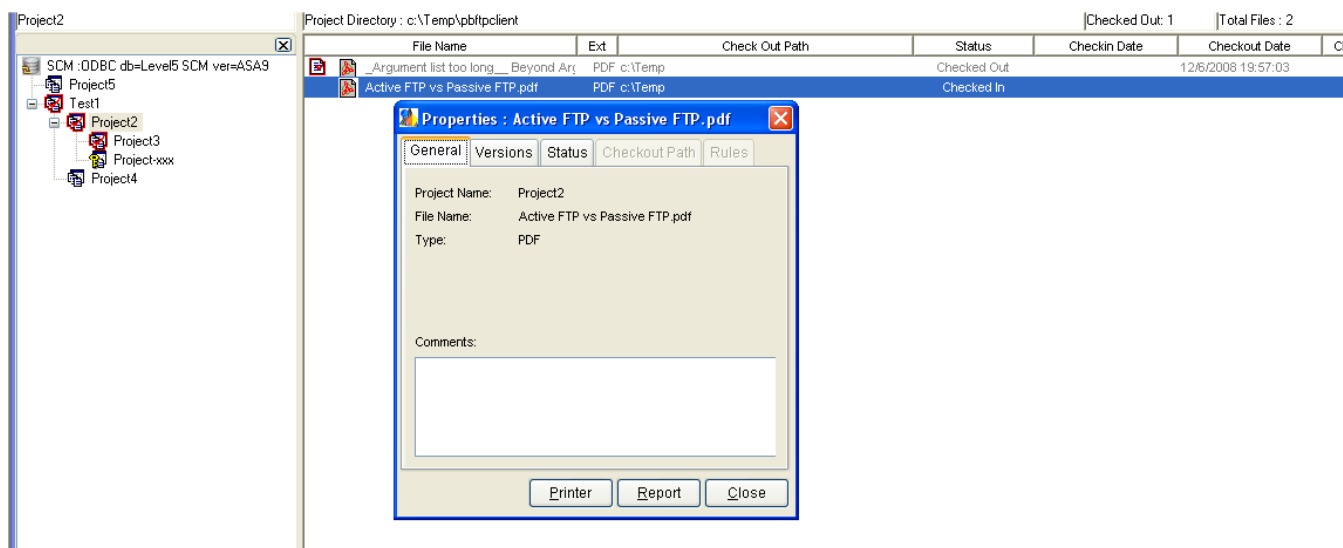
*Note: The change working directory and remove local project functions are disabled if one or more project files are checked out.*

## File Properties Dialog

This topic covers:

- File header information
- File versions
- File status
- Changing the file's checkout directory
- Checkin rules

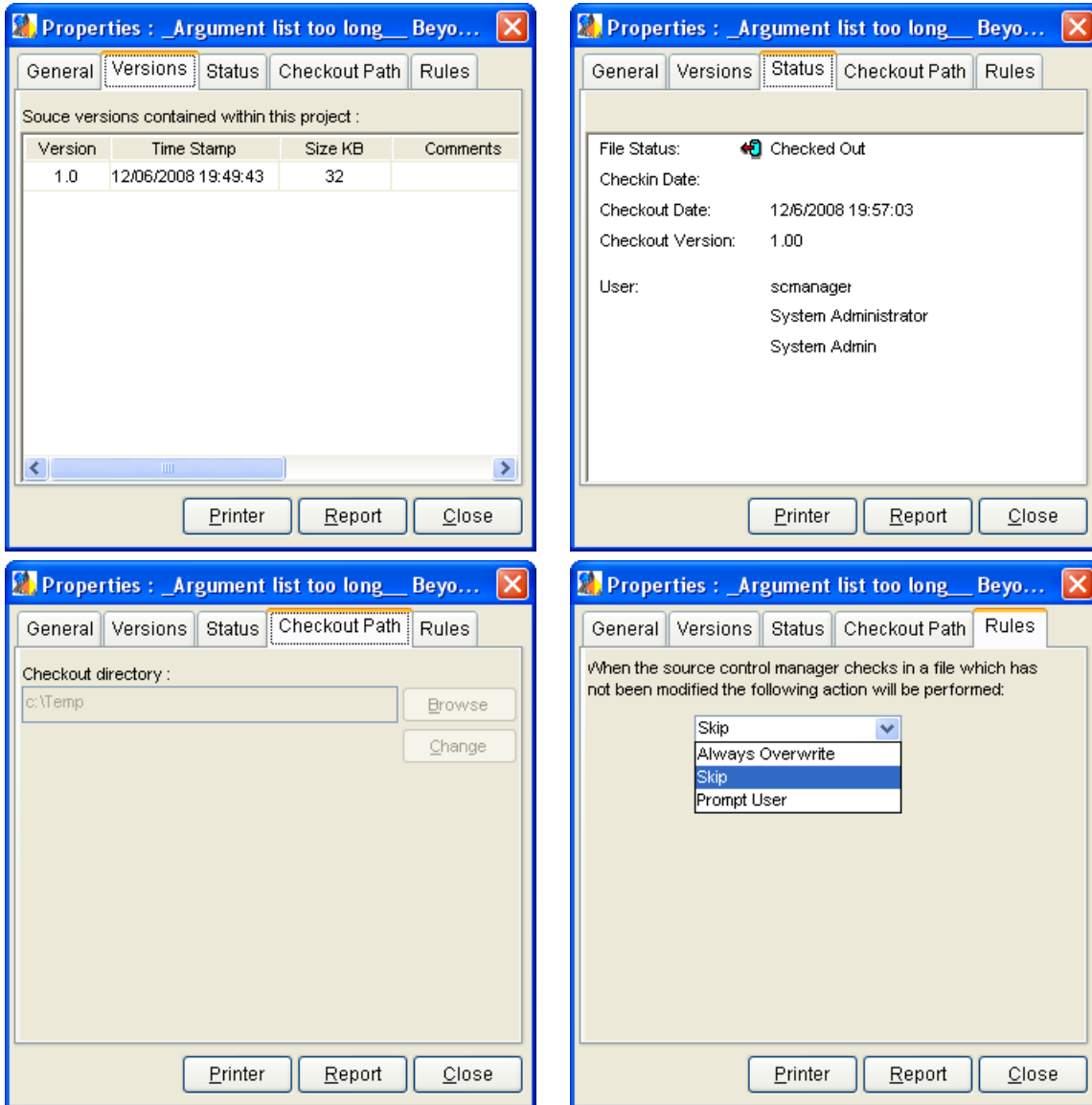
Selecting the Properties toolbar menu item when a file is selected in the File Pane will open the File Properties dialog. The general tab displays the file header information.



The versions tab lists the versions for the file.

The Status tab displays the current file status:

- Checked In
- Checked Out
- Additional information such as checked out date, version and user is also displayed.



The Checkout Path tab features:

- Change the file checkout directory.
- 

## Changing the file checkout directory

A file's checkout path can easily be changed enabling a user to move a file to a new location on the LAN or PC. To change the path, select the Change button. This will open the find folder dialog. Find the folder then select OK. The new path will display in the edit box and the checkout paths for all versions of the file will be changed to reflect the new checkout path.

*Note: The change checkout path function is disabled if the file is currently checked out.*

The following checkin rules are actions performed on files which are being checked in yet have not be modified in development.

ALWAYS OVERWRITE FILE      SKIP CHECK IN      PROMPT USER FOR OVERWRITE

The default rule assigned to files when they are added to a project is SKIP CHECK IN.

The following topics describe how version control works within Level5.VMS

## Security

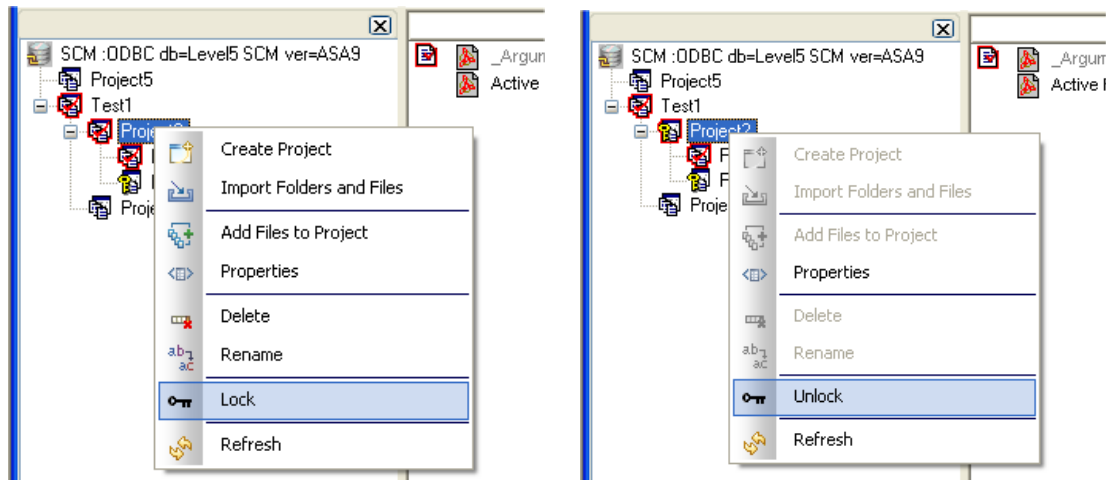
Security features for Level5.VMS include project locking, user roles and application events tracing.

[Locking Projects](#)    [User Roles](#)    [Tracing](#)

## Locking Projects

Locking projects does not automatically lock out users presently logged in. The VMS administrator should ask users to quit Level5.VMS before locking projects.

Locking a project will prohibit all users, including administrators, from accessing the project files. Only users with administrative rights (Power Users) can administer locks.



To lock a project select the project then right click. This will display the project menu.

Click the Lock menu item.

## Unlock

The Unlock command will release a project lock. Only users with administrative rights (Power Users) can administer this command. To unlock a project select the project then right click. This will display the project menu.

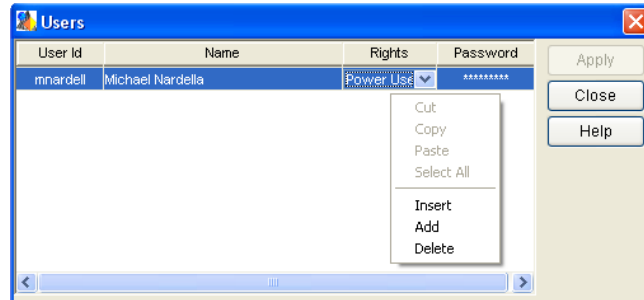
Click the Unlock menu item.

## Users / Roles

The system administrator must use the Add Users dialog to add users to Level5.VMS.

To add users to Level5.VMS:

Select the Administration: Users pull down menu item. This will display the Add user dialog.



If ASA Personal Database is the designated data server the system administrator will need to add user ids and passwords. The password will initially correspond to the user id. i.e., User Id : joeuser Password: joeuser.

*Once the user ids and passwords are assigned the individual users will then have the opportunity to change the assigned password at any time using the Administration: Password dialog.*

*If one of the supported enterprise DBMS is the designated data server, the password attribute is not supported. Passwords are managed by the database vendor.*

## Adding Users

### User Id and Name

To add a user to the system right -mouse click to display the popup menu options dialog. Select 'Add' then type in the user id and name. Remember the user id, when using one of the supported enterprise DBMS, will be the database login id. When using ASA Personal Database the user id can be anything you wish.

### Roles

Next select a role for the user. This is performed by selecting from the dropdown list under the heading 'Rights'.

There are three roles which can be assigned to users:

- 1 SA (System Administrator) *ASA Personal Database Only.*
- 2 Power Users
- 3 Developers

Rights are assigned to a user by assigning the user a role.

SA or System Administrator role will allow user full rights to all of Level5.VMS features which include Creating or Deleting projects, Locking projects, Adding files to projects, Deleting files, and Adding new users. The Power User role has full rights with exception to Adding new users. The Developer role has limited rights which include CHECKOUT, viewing files, properties and printing.

The security provided by assigning roles is not limited to the Level5.VMS environment. It is extended to the database tables outside of Level5.VMS. When users are added to Level5.VMS rights are granted to database tables corresponding to the actions which may be performed by the user. Database users which are not added to Level5.VMS will not be able to access the system tables.

### Password (ASA Personal Database Only)

If you are using the ASA Personal Database type in the password for the user id. This can be alpha-numeric containing up to 10 characters.

Click Apply to add the user.

## Modifying Roles

To modify a users role select from the dropdown list under the heading 'Rights'.

Click Apply to update the user.

When a user's role has changed the database rights are also changed.

## Removing Users

To remove a user, right click on the selected user to display the menu options.

Select the Delete menu item

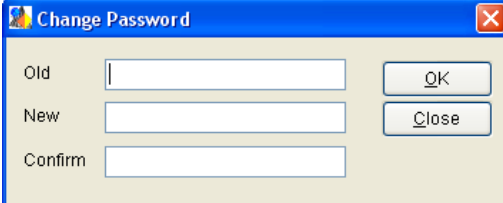
When the user is removed from Level5.VMS the rights to the database tables are REVOKED.

## Passwords

ASA Personal Database Only

Once users have been added to the system by the system administrator the individual users can change the assigned password at any time.

Select the Administration: Password pull down menu item. This will display the Change Password dialog.



The image shows a 'Change Password' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog contains three text input fields labeled 'Old', 'New', and 'Confirm'. To the right of the 'Old' field is an 'OK' button, and to the right of the 'New' field is a 'Close' button. The 'Confirm' field does not have a corresponding button.

Simply enter the old password and new password. You must confirm the new password before selecting OK which will complete the password change. If a user forgets a password, the system administrator will have to assign a new password to the user.

*Note: scmanager and sysadmin user ids and passwords cannot be changed.*

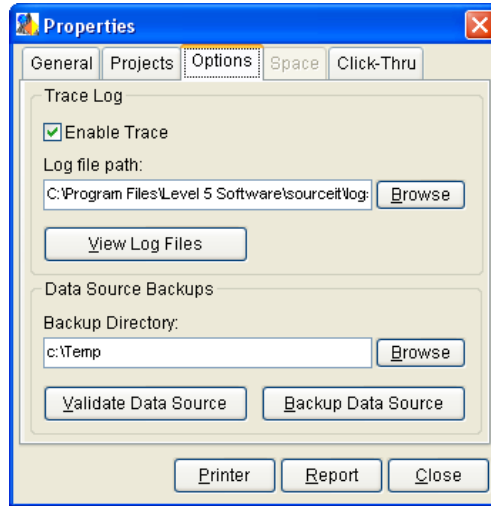
# Trace Log

Level5.VMS supports logging of all application activity. Some of the traced activities are:

- CREATE PROJECT
- ADD FILES
- CHECKIN
- CHECKOUT
- DELETE PROJECT
- DELETE FILES
- VIEW FILES
- LOGIN
- ADD USERS
- ENABLE TRACE
- DISABLE TRACE
- RENAME

This feature will enable the administrator to review user activity.

When a user logs on for the first time a log file with the name SCMuserid.Log is created. Subsequent application usage will append to the user's log. It is recommended for each client machine to direct tracing to a common location on the LAN. The administrator will need access to all user logs. Selecting the Properties toolbar menu item when the root item in the Project Pane is selected will open the Properties dialog.

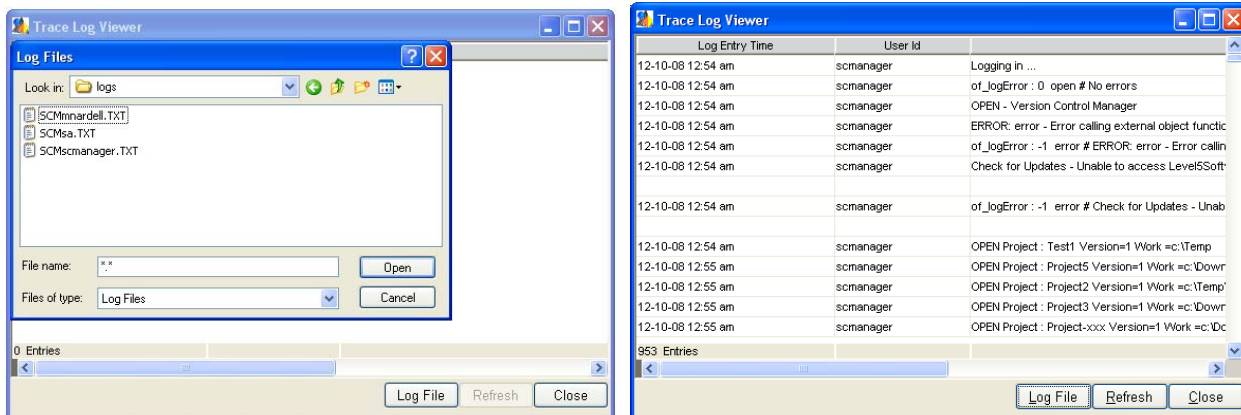


Tab to Options.

This screen will enable the system administrator to:

- Enable or disable tracing and specify the trace log file path.
- View trace log files

Checking the enable trace box will open the specified trace file and enable logging of application trace activities. The location of the log is specified in the Log File path edit box.



The View Log Files button will open the Trace Log Viewer.

Select the Log File button. This will open the Log Files dialog. The location of the log is specified in the Log File path edit box. Select this path in the Look in drop down list box. Select the log file and click Open.

The file will be loaded into the viewer as shown below.

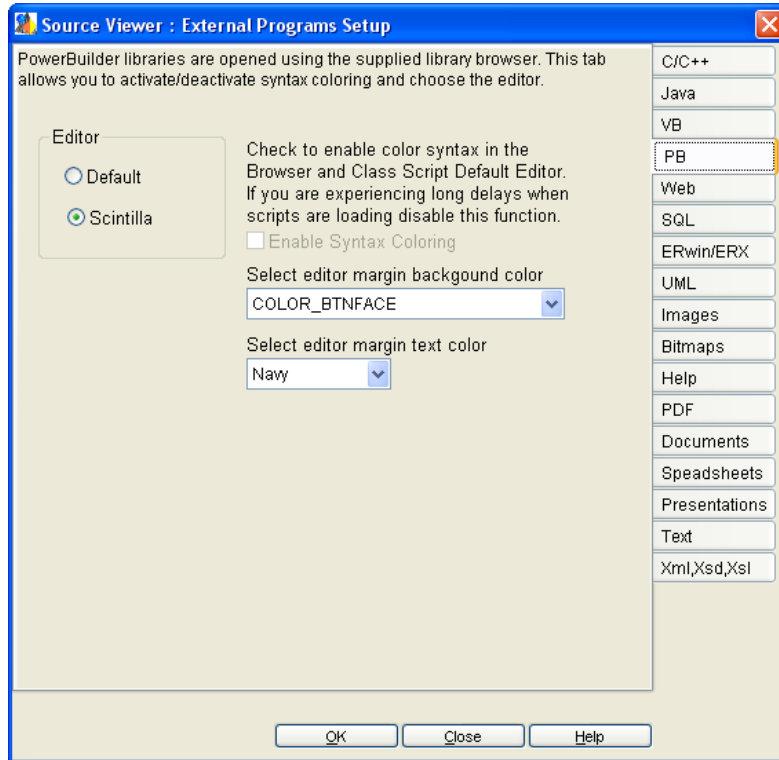
# External Programs Setup

Most files saved within Level5.VMS can be opened for viewing and editing. Level5.VMS includes a special browser for opening the following file types:

- \*.PBL (PowerBuilder Libraries ver. 10.5 and Higher)

By default Level5.VMS will open other file types using the Windows Notepad program.

Level5.VMS also enables you to specify the programs which will open files. From the main menu select the Setup: External Programs item. This will open the Source Viewer External Programs Setup dialog.



Select the tab for the type of files.

Enter the full path and program name or click the Browse button to open the file open dialog. Once you have located the program select it in the file open dialog and click OPEN.

The program and path will display in the edit box.

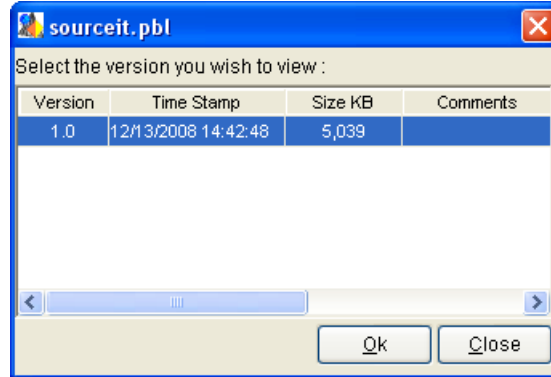
Click OK when you have finished.

## Viewing Files

All valid users can open files stored with Level5.VMS for viewing and editing. This feature allows managers and developers access to the source code without affecting the files stored within the source control database

From the main menu bar select the Files: View menu item. This will display the Select File Version dialog.

You can also right click on a file in the file pane of the main window and select the View menu item from the popup menu to display the dialog.



Select the version of the file you wish to open then click OK.

Level5.VMS will open a copy of the file in either the default program or the program which has been specified in External Programs Setup.

Files which are opened can also be edited if the program which opened the file permits editing. The browser included with level5.VMS for viewing PowerBuilder libraries will allow search, find, replace and editing. The default program *Windows Notepad* also allows these features.

Files which are opened cannot be saved to the source control database.

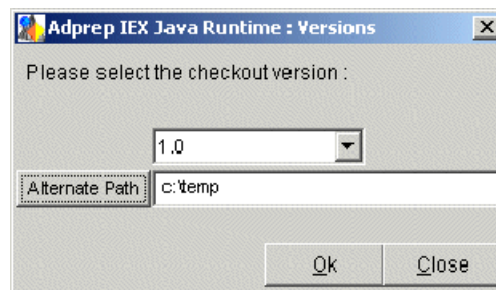
## New Features for v.3.0

### Copy Out

Files can be Checked Out, Checked In, and Viewed and now files can also be Copied Out of the VMS to the project folder or alternate folder. When a file is copied out the Version Manager is disabled. No change processing or checking will be performed. The files are simply copied to the project folder (By Default) or to the folder you specify.

In order to copy out files all files must be checked. The version manager will not allow multiple copies of files to be outside of the source control at any one instance.

If all files are checked in copy files out by ...Selecting Options-Copy Out menu item or toolbar button. You can also select files then right click to display the Options Popup Menu where you can then select the Copy Out menu item. All methods will open the Select Version and Alt Path dialog box.



Simply select the version of the file(s) and the alternate path (Destination folder) for the file(s) then click OK.  
Note: If you do not specify an Alternate Path the files will be copied out to the original file location when it was added to the project.

#### Possible Usage:

**Need to copy files in order to check if any changes are required prior to checking the files out.**

If you where to check the files out then open the files, and if any changes where made such as spaces or chars added by mistake, the Version Manager would recognize the files as new versions of the file(s) and would apply source control management to the files. Simply copy out the files first to make the necessary checks, if changes need to be made check out the files. If no changes need to be made, delete the files which where copied out.

**Developers required files for other projects.**

If you're working on a project and you need to reuse objects stored in Level5.VMS. Simply copy out the files you require. NO VERSION MANAGEMENT IS PERFORMED and the original files are stored safe within the VMS.

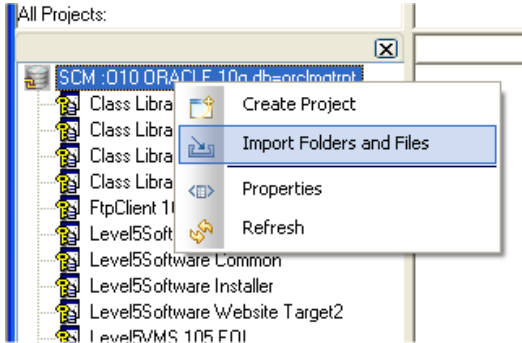
#### Security Access:

All users have access to copy out files.

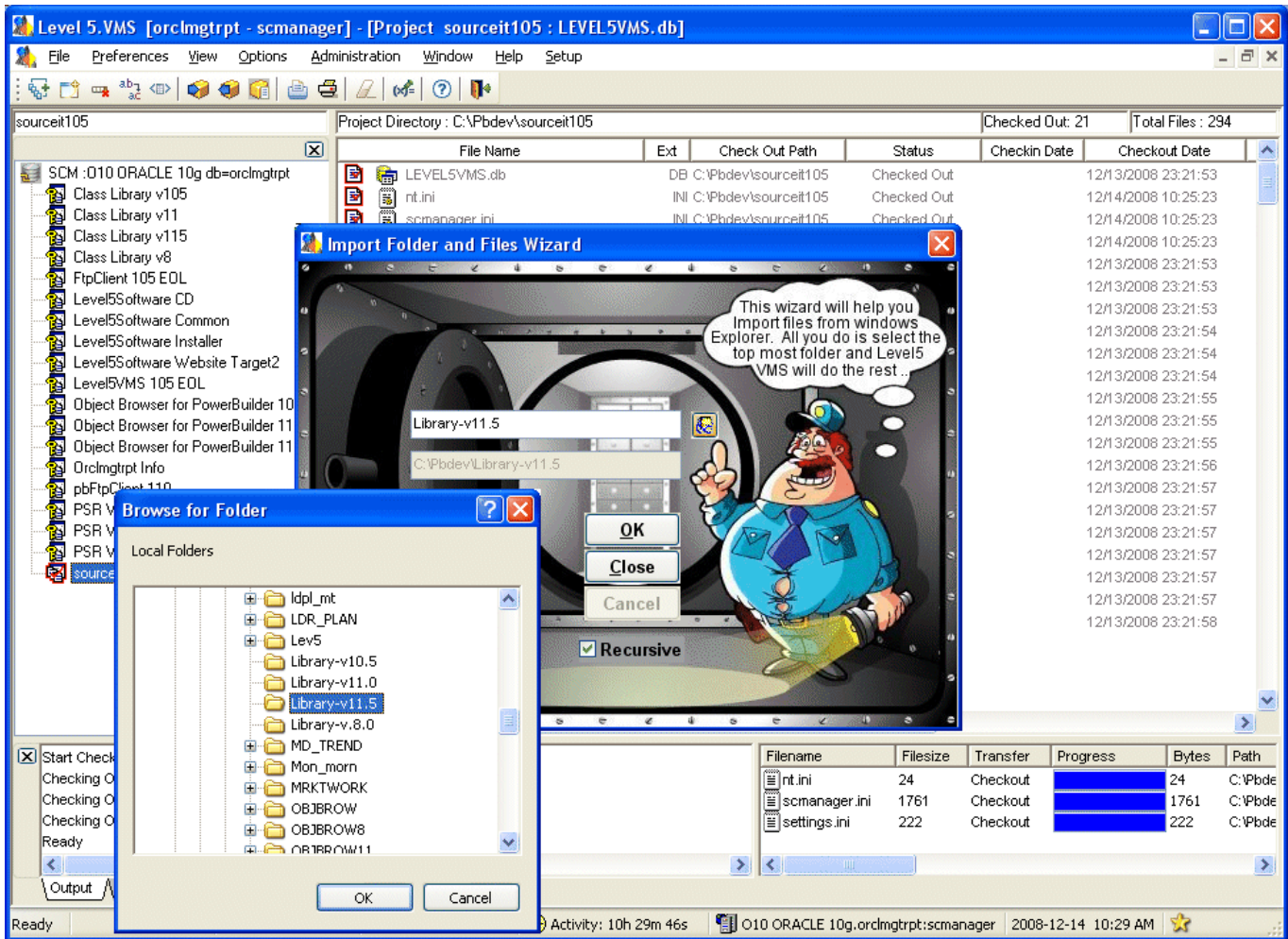
## New Features for v.4.1

### Import Folder and Files Wizard

Now you can perform recursive imports to create projects and add files.



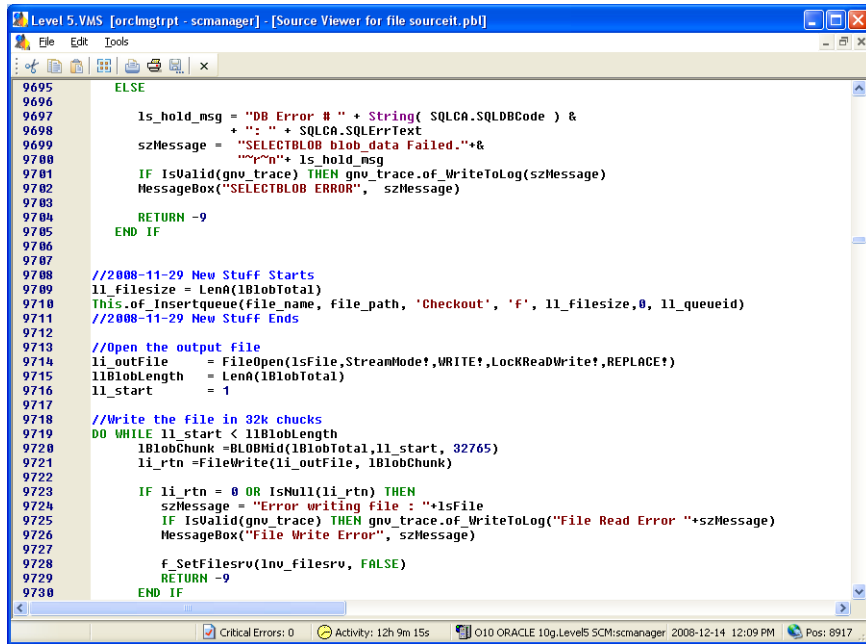
Select the root tree view item or a specific project in the tree structure. Right click popup menu item Import Folders and Files.



Select the browse button pointed out by the security guard image. Browse for your folder in the Folder explorer and click ok. Level5.vms will create projects and add files based on the Windows file structure. If you checked the Recursive checkbox all subfolders will be included.

## Source Code Editing Component

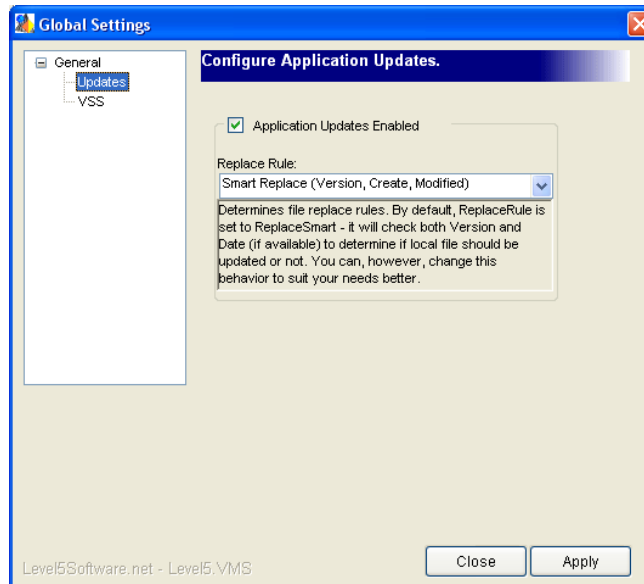
Added Scintilla: Source Code Editing Component. Copyright 1998-2003 by Neil Hodgson neilh@scintilla.org All Rights Reserved. The component adds the true PowerBuilder editor look and feel to the file viewer when downloading and viewing PowerBuilder PBLs.



```
Level 5.VMS [orcimgtpt - scmanger] - [Source Viewer for file sourceit.pbl]
File Edit Tools
9695 ELSE
9696     Is_hold_msg = "DB Error # " + String( SQLCA.SQLDBCode ) &
9697               + " : " + SQLCA.SQLErrText
9698     szMessage = "SELECTLOB blob_data Failed." + &
9699               "\n" + Is_hold_msg
9700     IF IsValid(gnv_trace) THEN gnv_trace.of_WriteToLog(szMessage)
9701     MessageBox("SELECTLOB ERROR", szMessage)
9702
9703     RETURN -9
9704 END IF
9705
9706
9707 //2008-11-29 New Stuff Starts
9708 ll_filesize = LenA(lBlobTotal)
9709 This.of_Insertqueue(file_name, file_path, 'Checkout', 'F', ll_filesize, 0, ll_queueid)
9710 //2008-11-29 New Stuff Ends
9711
9712 //Open the output file
9713 li_outFile = FileOpen(lsFile, StreamMode?, WRITE?, LockReadWrite?, REPLACE?)
9714 lBlobLength = LenA(lBlobTotal)
9715 ll_start = 1
9716
9717 //Write the file in 32k chunks
9718 DO WHILE ll_start < lBlobLength
9719     lBlobChunk = lBlobMid(lBlobTotal, ll_start, 32765)
9720     li_rtn = FileWrite(li_outFile, lBlobChunk)
9721
9722     IF li_rtn = 0 OR IsNull(li_rtn) THEN
9723         szMessage = "Error writing file : " + lsFile
9724         IF IsValid(gnv_trace) THEN gnv_trace.of_WriteToLog("File Read Error " + szMessage)
9725         MessageBox("File Write Error", szMessage)
9726     END IF
9727     ll_start = ll_start + lBlobChunk
9728     f_SetFilesrv(lnv_filesrv, FALSE)
9729     RETURN -9
9730 END IF
```

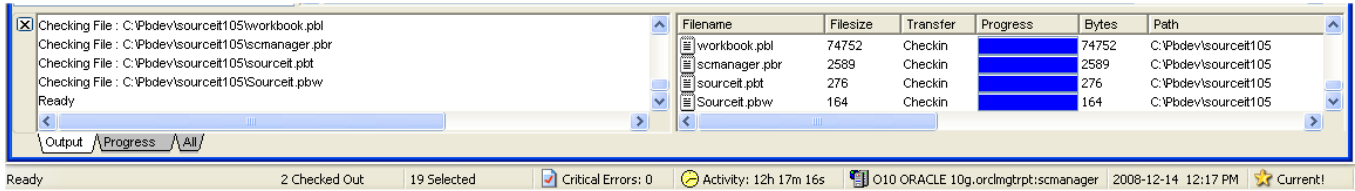
## Global Settings

Included is check for Updates and VSS global settings.



## Improved progress status and output monitoring

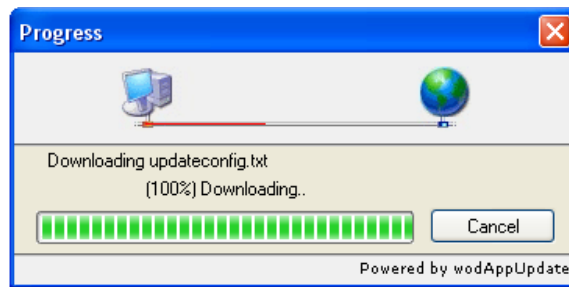
Progress status and output monitoring is displayed for every download and upload operation. Status bar has been enhanced to show checked out count, files selected count and database server connected.



## Check for Updates

If updates are available the Star indicator in the lower right corner of the screen will display Update! Double-click the Star indicator to download updates. An application restart may be necessary depending on the impact of the updates. If

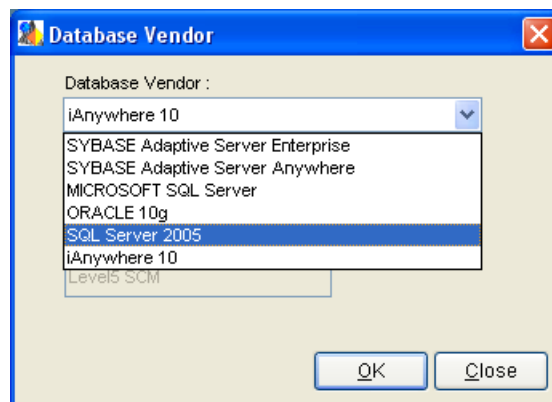
Updates are not available the Star indicator in the lower right corner of the screen will display Current!



Check for Updates Dialog Box

## MS SQL Server 2005 Database

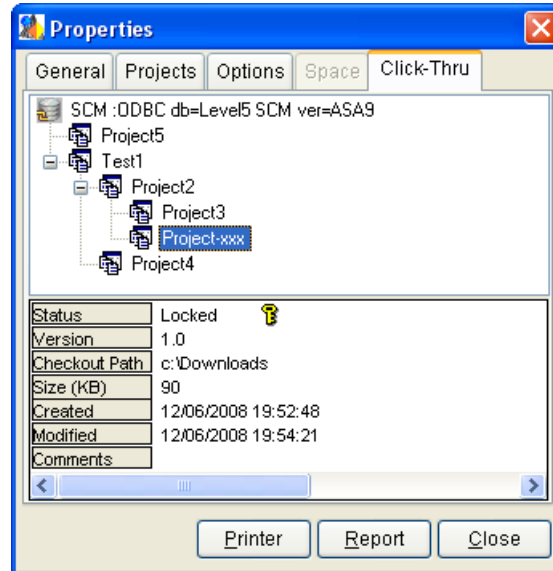
Level5.VMS supports Microsoft SQL Server 2005 database server.



## New Features for v.4.2

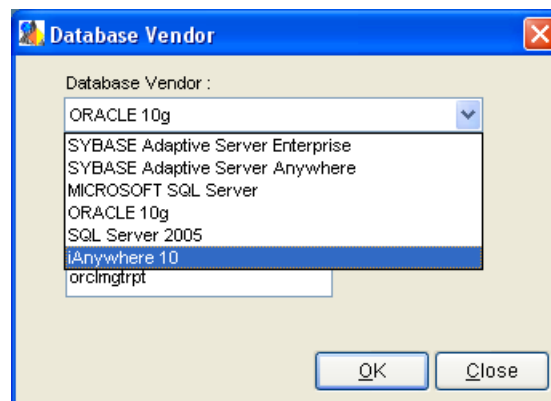
### Click-Thru Project Properties

The new Click-Thru projects tree displays properties for each project selected.



### Sybase iAnywhere 10.0 Personal Database

Level5.VMS supports and ships with Sybase iAnywhere 10.0 database.



# Product Support

Product Support for Level5.VMS is available to users through my website. Please note Level5.vms Technical Support some where at the beginning of your message. Please be sure to include the following items when contacting Product Support:

Product version you are using (See Help-About Menu)

Your full name

A brief description of the problem or request.

Website : <http://www.level5software.net/>

Please direct your technical support questions to: [support@level5software.net](mailto:support@level5software.net)

Please direct your customer service questions to : [service@level5software.net](mailto:service@level5software.net)

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wodAppUp.OCX (AppUpdate component used for downloading and installing updates.)

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