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SERENA[®] **PVCS[®] VERSION MANAGER[™] 8.2**

WebDAV Server Implementation Guide

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Welcome to Version Manager

Thank you for choosing Serena PVCS Version Manager, a powerful and versatile version control system that will revolutionize the way you develop software. Version Manager helps you organize, manage, and protect your software development projects on every level—from storing and tracking changes to individual files, to managing and monitoring an entire development cycle.

Purpose of this manual This manual provides an overview of Serena PVCS Version Manager WebDAV Server and shows you how to configure and administer WebDAV Server for use with Version Manager. The manual also describes how to configure supported WebDAV clients.

See the *Serena PVCS Version Manager Installation Guide* for instructions on installing WebDAV Server and configuring supported web servers.


For more information Refer to the *Serena PVCS Version Manager Getting Started Guide* for a description of the Version Manager documentation set, a summary of the ways to work with Version Manager, and instructions for accessing the online help.

Edition status The information in this edition applies to *Release 1.2 of Serena PVCS Version Manager WebDAV Server* or later.

Typographical Conventions

The following typographical conventions are used in the online manuals and online help. These typographical conventions are used to assist you when using the documentation; they are not meant to contradict or change any standard use of typographical conventions in the various product components or the host operating system.

Convention	Explanation
italics	Introduces new terms that you may not be familiar with and occasionally indicates emphasis.
bold	Emphasizes important information and field names.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press the ENTER key.
monospace	Indicates syntax examples, values that you specify, or results that you receive.
monospaced italics	Indicates names that are placeholders for values you specify; for example, <i>filename</i> .
monospace bold	Indicates the results of an executed command.
vertical rule	Separates menus and their associated commands. For example, select File Copy means to select Copy from the File menu. Also, indicates mutually exclusive choices in a command syntax line.
brackets []	Indicates optional items. For example, in the following statement: SELECT [DISTINCT] , DISTINCT is an optional keyword.

Convention	Explanation
. . .	Indicates command arguments that can have more than one value.
	Shows you which shortcut button to click. Shortcut buttons are placed in the margin.

Contacting Technical Support

Registered customers can log in at <http://support.serena.com/>.

Chapter 1

WebDAV Server Basics

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About WebDAV

What Is WebDAV?

The WebDAV (Web Distributed Authoring and Versioning) protocol is an open standard (RFC 2518) developed by the working group of the Internet Engineering Task Force. An extension of the HTTP protocol, the WebDAV protocol enables distributed authoring through a locking mechanism. The locking mechanism allows a user to lock a file and make changes to it, limiting other users to read-only access while the lock is in place. However, WebDAV does not support versioning. When the user is finished editing the file, the old version of the file is replaced by the new version and cannot be retrieved.

What Problems Does WebDAV Solve?

The World Wide Web allows global communication and sharing of information, but has traditionally been restricted to being a read-only medium. The WebDAV protocol enables the Web to be a collaborative environment that supports both the reading and writing of information.

The WebDAV protocol can be used to solve many problems, and not all the potential uses have been fully explored. An example of an implementation that demonstrates the benefits of WebDAV is Microsoft Network Places. Microsoft Network Places use WebDAV to provide a web-based network file system, sometimes termed a global area network file system.

Many of the original goals in creating the WebDAV protocol were to solve the problems associated with collaborative authoring. Collaborative authoring and development in a distributed and efficient manner has been extremely difficult in the past. WebDAV solves these problems and enables collaborative authoring of any type of resource, allowing WebDAV to be used effectively for distributed software engineering and other collaborative work in a distributed environment.

What Is Version Manager WebDAV Server?

Version Manager WebDAV Server implements the WebDAV protocol and also extends the protocol to enable automatic versioning from WebDAV clients. WebDAV Server works without requiring changes to WebDAV clients; if a client implements WebDAV, then that client will work with Version Manager WebDAV Server.

Instead of allowing old versions of files to be overwritten, WebDAV Server saves each new version as a revision in Version Manager. No work is lost and previous revisions can be accessed through the Version Manager desktop client or any of the other Version Manager interfaces.

WebDAV server is extended even further with Serena Meritage. Meritage is an integrated tool available from within Microsoft Office that works with Version Manager through the WebDAV server to keep track of different document versions and helps to create a collaborative working environment.

Benefits of WebDAV and WebDAV Server

Some benefits of WebDAV and WebDAV Server include:

- Integrated access to files in the repository from the client via WebDAV Server, which can be located anywhere around the world and available via a simple HTTP protocol.
- The ability to drag and drop files into and out of the repository, just as easily as using Windows Explorer to manage a local file system.
- With Microsoft Office and Network Places, the ability to easily edit resources as if they were in a local directory.
- The ability to use Meritage as a tool from within Microsoft Office. Meritage allows versioning, viewing document version history, and easy notification about the documents from within Microsoft Office applications

Use the WebDAV API As a Partner

Open standards promote cross-product communication and inter operability, which in turn leads to increased efficiency, effectiveness, and decreased dependence on a particular vendor.

WebDAV provides a standard for third-party applications and integrations. For Serena, WebDAV provides an additional method for integrated development environments (IDEs) to interface to Serena products.

Version Manager WebDAV Server enables partners to begin incorporating the WebDAV standard into their products.

WebDAV References

For more information on WebDAV, see:

- Internet Engineering Task Force
<http://www.ietf.org>
- WebDAV Distributed Authoring Protocol (RFC 2518)
<http://www.ietf.org/rfc/rfc2518.txt>
- WebDAV Resources
<http://www.webdav.org>

About WebDAV Server and Version Manager

WebDAV Server allows you to access a Version Manager project database from within a supported WebDAV client using Meritage and other supported WebDAV clients. You can perform common Version Manager tasks on the projects and versioned files in that project database.

By connecting from a WebDAV client via HTTP, WebDAV Server enables you to access a Version Manager project database from any connected point on the Internet or intranet. WebDAV Server is ideally suited for users in collaborative and/or web-intensive environments who need simple, integrated access to the default versions of their work.

Example: Checking the Document History from Microsoft Word with Meritage

Robert can't remember if he checked in the changes he made to a document he is authoring. To check, he completes the following steps:

Step	Action	Result
1	From Microsoft Word, Robert opens a read only copy of the file in the project database repository located from My Meritage.	The default version of the file opens but is not locked so others can continue to work on it if necessary.
2	Robert goes to the History command on the Meritage menu.	The History dialog box opens.
3	Robert scrolls through the list of versions.	He sees the date and time he checked in the file and the brief comment he used to describe the change.

Example: Editing an HTML File in Microsoft Word Without Meritage

Joe needs to add some steps to the requisition procedure on the Intranet. The procedure is in an HTML file that is accessible by WebDAV Server. To create the new version of the file, he completes the following steps:

Step	Action	Result
1	From Microsoft Word, Joe opens the file from the Intranet Web Folder.	The default version of the file is checked out and locked.
2	Joe adds the steps to the procedure, saves the file, and closes the file.	When Joe closes the file, a new revision is checked in.
3	Joe's Project Manager, Brad, later gets the file in Dreamweaver to review the changes.	The default version of the file is copied from Version Manager.

WebDAV Server Features

WebDAV Server supports a subset of Version Manager features for these WebDAV clients: Microsoft Network Places, Microsoft Office, Macromedia Dreamweaver, Adobe Acrobat, and Adobe Photoshop. Note that you may access these features through the WebDAV clients in different ways. See the client documentation for details.

Meritage supports more Version Manager features from within Microsoft Office.

Using a supported WebDAV client, you can perform these features on files and projects in the project database:

- **Get files.** You can get a copy of the default version of a file from Version Manager.

- **Check out files.** You can check out the default version of a file from Version Manager. WebDAV Server supports exclusive lock, which means that only a single user can check out the default version via WebDAV.



NOTE Although Version Manager may be configured to support multiple locks, you will not be able to check out a file from a WebDAV client if it is already locked outside of WebDAV.

- **Check in files.** You can create a new revision of a versioned file in Version Manager.



NOTE WebDAV Server does not create a new revision if the file is unchanged.

- **Add files.** You can add a workfile to Version Manager. If the workspace has a default version defined, the new versioned file is given a floating label with the same value.
- **Create new projects.** You can create a new project in Version Manager.
- **Delete.** You can delete versioned files as long as they are not locked by another user from a WebDAV client. This feature does not delete the corresponding archives. You can also delete projects.
- **Copy.** You can copy versioned files to a new location in the project database. If the versioned file already exists in the new location, and is not locked by another user from a WebDAV client, then a new revision of that versioned file is created. If the versioned file does not exist in the new location, a new archive is created. The archive will contain only the default version of the source archive, and is applied a floating label with the same value as the default version.

You can also copy projects.

- **Move.** You can move versioned files to a new location as long as they are not locked by another user from a WebDAV client. This feature does not move the corresponding archives. You can also move projects.
- **Rename.** You can rename versioned files as long as they are not locked by another user from a WebDAV client. This feature does not rename the corresponding archives. You can also rename projects.
- **History.** (Meritage only) You can view the version history of the file through Meritage. This will tell you who checked it in, when they checked it in, a description of the change, and any promotion groups or labels associated with the file. You also have the option of opening an older version of the document to view and can roll back to use that version as the latest if necessary.
- **Undo Check Out.** (Meritage only) You can undo your check out through Meritage in a Microsoft Office application. When you undo the check out, the file is unlocked and returned to the repository unchanged.
- **Subscribe.** (Meritage only) You can subscribe to be notified through e-mail of changes to files from within Meritage. Subscribe alerts you when new versions of files are available.

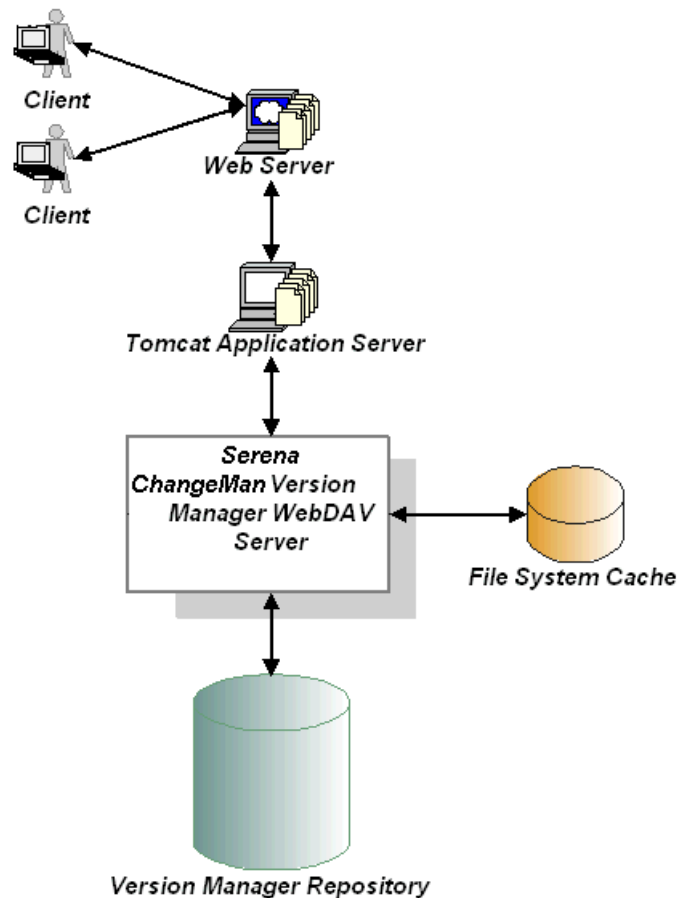


NOTE The public workspace specified for WebDAV Server determines the default version of a file (a label). If the workspace does not have a default version specified, then the default is the tip revision of the trunk. If a default version is specified, then only files with a matching label are visible from a WebDAV client.

WebDAV Server Components

The combined services of the WebDAV Server, the servlet engine, the web server, and the WebDAV client enable you to work with files from Version Manager. Each component is described below:

- **WebDAV Server:** Receives requests from the web server, processes them according to the WebDAV protocol, and sends back responses. Delegates file operations to the Version Manager repository.
- **File system cache:** A holding area on the server that stores temporary files during check out, check in, and get operations. The cache also holds WebDAV resource properties.
- **Tomcat:** Application server that enables WebDAV Server to run. It can be used standalone for evaluation purposes or in conjunction with any of the supported web servers.
- **Web server:** Enables information to be passed between WebDAV Server and the WebDAV client via HTTP. You can configure a supported web server to use in conjunction with the Tomcat application server.
- **WebDAV client:** A WebDAV-compliant software tool that provides access to common Version Manager tasks.



Overview of WebDAV Server Installation

To set up WebDAV, perform the following steps. Each step is described in more detail in later sections.

- 1 Install WebDAV Server.** See the *Serena PVCS Version Manager Installation Guide* for instructions.
- 2 Install and configure a web server (optional).** You can use a supported web server in conjunction with the Tomcat application server, which is installed with WebDAV Server. See the web server's documentation for installation instructions.

You must configure the web server to work with Tomcat and WebDAV Server. See the *Serena PVCS Version Manager Installation Guide* for instructions.
- 3 Configure Version Manager.** To enable users to work with WebDAV Server, you must perform certain tasks in Version Manager. See "[Configuring Version Manager to Work with WebDAV Server](#)" on page 16.
- 4 Administer WebDAV Server (optional).** You can modify various WebDAV and Version Manager properties after you install WebDAV Server. See "[Administering WebDAV Server](#)" on page 19.
- 5 Start WebDAV Server and any other configured web server.** See "[Starting and Stopping WebDAV Server](#)" on page 27. To start a configured web server, see the web server documentation.
- 6 Configure WebDAV clients.** See "[Getting Started with WebDAV Clients](#)" on page 29 for instructions on configuring Microsoft Network Places and Office, Macromedia Dreamweaver, Adobe Acrobat, and Adobe Photoshop.
- 7 Use Meritage.** See "[Using WebDAV Server with Meritage](#)" on page 30 for instruction on configuring WebDAV to work with Meritage.

Chapter 2

Configuring Version Manager

[Configuring Version Manager to Work with WebDAV Server](#)

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Configuring Version Manager to Work with WebDAV Server

To grant users access to Serena PVCS Version Manager through WebDAV Server, you must perform the following tasks:

- Assign privileges.
- Specify workspace settings.
- Determine subproject access.
- Understand the WebDAV login source.

Assigning Privileges

Users accessing Version Manager through WebDAV Server will have the same set of privileges as they do in Version Manager. Use the Version Manager desktop client to assign or change privileges for existing Version Manager users.



NOTE To be able to create new archives through WebDAV Server, users must be assigned the Add Version Label privilege in addition to the Create Archive privilege.

See the *Serena PVCS Version Manager Administrator's Guide* for instructions.

Specifying Workspace Settings

All users accessing Version Manager through WebDAV Server will use the public workspace specified in the `vm.properties` file. See ["Working with Version Manager Properties" on page 26](#) for details on specifying the workspace.

Workspace settings that apply to WebDAV Server include the default version and the default promotion group. If you change the default workspace settings in the Version Manager desktop client or any of the other Version Manager interfaces, the user will not see the change immediately from the WebDAV client. The user needs to allow the session to time out or you must restart Tomcat and any configured web server for the default workspace to change.

Default Version

WebDAV Server will use the default version setting (a label) defined in the workspace, which determines which versioned files can be accessed through a WebDAV client. If a versioned file does not contain the specified default version, it will not appear in WebDAV. Note the following:

- You are not required to set a default version. If you do not set one, then the default version is the tip revision of the trunk. In this case, only these tip revisions will be visible through WebDAV Server.
- When you add or copy files through WebDAV, those files are automatically labeled with the default version defined for the workspace, so they will be visible in WebDAV.
- If the default version is set to a floating label on a tip of a branch or trunk, then check in and check out occurs on that tip.

Default Promotion Group

If a promotion model is in effect, you can only check out or lock revisions to a lowest-level promotion group reserved for development. WebDAV Server will use the default promotion group setting in the workspace, which determines which lowest-level promotion group should be used if multiple lowest-level promotion groups exist for a revision.

Be sure to define the default promotion group if you plan to work with revisions with multiple lowest-level promotion groups. Otherwise, you will receive an error when trying to check out or lock those revisions if a default promotion is not set.

Determining Subproject Access

Users can access subprojects through WebDAV Server if the subproject:

- Does not have a separate access control database, or
- Has an access control database in which the user has the same user ID and password as the project database.

Users will not be able to access a subproject if they must enter a different user ID and password than for the project database.

Use the Version Manager desktop client to specify whether subprojects require an access control database. See the *Serena PVCS Version Manager Administrator's Guide* for details.

Understanding the WebDAV Login Source

In Version Manager, the login source determines how Version Manager obtains user identification—from the host operating system, network, or login utility. Version Manager uses this ID as the author for archive operations.

For WebDAV Server, the login source is always obtained through the login utility (Login dialog box), regardless of the Version Manager login source setting. The Login dialog box establishes security on the project database when users access it through WebDAV Server.

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Administering WebDAV Server

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About WebDAV Notification and Version Manager Properties

Once WebDAV Server is installed, you can define or change various properties as needed. WebDAV and Version Manager properties include:

- The location of the file system cache.
- Digest authentication.
- Logging options and behavior.
- The MIME type and application associated with each system resource.
- The default session time-out value.
- The notification interval, logging options, and behavior.
- The SMTP server information.
- Version Manager project database and workspace information.

Notes About Changing Properties

- If you modify any properties, you must restart WebDAV Server and any configured web server for the changes to take effect.
- Windows paths are used in the following procedures. The same paths can be used for UNIX, substituting forward slashes for the backslashes shown.

Notes About Project_DB.dav

During the installation the WebDAV server is configured to use the SampleDB project database. The default http address is: `http://<host>:8080/SampleDB.dav`. Since the WebDAV server can be configured to talk to other project databases, throughout the documentation we use `<Project_DB.dav>` in place of `SampleDB.dav`.

Working with the File System Cache

What Is the File System Cache?

The file system cache is a location on the WebDAV Server machine that stores temporary files during client/server operations, such as get and check out. Temporary files may include:

- Files checked out or copied from Version Manager. These files are staged to the WebDAV client and then deleted from the cache.
- Files saved in a WebDAV client but not checked back into Version Manager. These files are held in the cache until they are checked in, and then they are deleted. If a user

tries to get a file that is checked out and saved in the cache, then WebDAV Server gets the copy from the cache instead of Version Manager.



NOTE Microsoft Office and Adobe Photoshop are examples of clients that allow you to save a checked out file without checking it back into Version Manager.

The file system cache also stores XML documents that contain resource properties (*.wdp). These files contain locking information for each resource and should not be modified by any user, as they are crucial for WebDAV Server to operate correctly.

Changing the Cache Location

By default, the WebDAV Server installation creates a cache directory beneath the webdav directory. After the installation, you can change that location if necessary.



CAUTION! If you change the cache location while WebDAV Server is running, all locks and resource properties will be lost. We recommend that you:

- Shut down WebDAV Server before you make the change.
- Back up the cache directory to preserve any existing locks and resource properties.

To change the cache location:

- 1 Open webdav.properties from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes`.
- 2 Locate the Cache.Root line and modify the path.



NOTE The directory that you specify for the Cache.Root property must exist. If the directory does not exist, WebDAV Server will not function properly.

- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Using Basic and Digest Authentication

What Are Basic and Digest Authentication?

Basic authentication provides some security by encoding the user's password as it is sent between WebDAV Server and the client. Digest authentication provides a more secure authentication method by encrypting the password. Encryption is accomplished by computing a digest that contains a "nonce". The nonce is a server-specified data string that is uniquely generated upon an authentication request. Using digest authentication, you can specify the level of security by adjusting the nonce values.

By default, WebDAV Server uses both authentication methods. If a client supports both authentication methods as well, digest authentication will automatically be used.

Using Digest Authentication Only

You can enable only digest authentication to be used by turning off basic authentication. You can also modify the nonce values in order to change the level of security.

To use digest authentication only:

- 1 Open `webdav.properties` from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes`.
- 2 Uncomment the line `Dav.Authentication.Basic=true` and change the value to `false`.
- 3 Modify the values of the following lines as needed:
 - `Dav.Authentication.Digest.Nonce.UseCount`: The number of times the nonce can be used. Once this number is reached, a new nonce must be generated.
 - `Dav.Authentication.Digest.Nonce.Inactive Interval`: The amount of time in milliseconds in which a user can respond to an authentication request before the nonce is discarded and a new nonce is generated.



NOTE Lower these values to achieve higher security. You may see an effect on performance because the server has to regenerate the nonce more frequently.

- 4 Save and close the file.
- 5 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Using Basic Authentication Only

You can enable only basic authentication to be used by turning off digest authentication.

To use basic authentication only:

- 1 Open `webdav.properties` from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes`.
- 2 Uncomment the line `Dav.Authentication.Digest=true` and change the value to `false`.
- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Working with Logging Options

What Is the WebDAV Server Log?

The WebDAV Server log monitors the status and activity of the server as it runs. A logging thread automatically starts when the server is initialized and captures messages issued by the server in a log file. When the log file grows too large, a new file is created so that previous log data is not lost. Each module of the code can be tracked separately by setting the desired log levels for the modules.

Setting Logging Options

You can set various logging options in the `webdav.properties` file, such as the maximum number and size of log files.

To set log options:

- 1 Open `webdav.properties` from `<VM_Install_Dir>\vm\common\tomcat\webapps\<Project_DB.dav>\WEB-INF\classes`.
- 2 Locate and modify the properties as necessary:

Property	Description
<code>Dav.Logger.Log.MaxRevisions</code>	The number of log files to be stored before deleting the oldest files.
<code>Dav.Logger.Log.MaxSize</code>	The approximate maximum size a log file can grow to, in KB.
<code>Dav.Logger.Log.Stdout</code>	If set to true, duplicates log messages to the console window of the Tomcat servlet engine.
<code>Dav.Logger.NormalPriority</code>	If set to true, the logger thread runs at normal priority. If set to false, the logger thread runs at low priority.

- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the changes to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Working with MIME Types

What Is a MIME Type?

A Multipurpose Internet Mail Extension (MIME) type identifies the content type of a file. It is used to determine how to display a file in a web browser.

Common examples of MIME types are "text/plain", "text/html", "application/msword" and "application/pdf".

Registering a New MIME Type

For WebDAV Server, you must identify a MIME type for each kind of file you intend to work with on the server.

To register a new MIME type:

- 1 Open `webdav.properties` from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes`.
- 2 In the Default Mime Type section, add MIME types as necessary. Follow the format:
`<file extension>=<Type>/<Subtype>`
For example: `xml=text/xml`
- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the changes to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Setting the Session Time-Out

What is the Session Time-Out?

The session time-out value determines how long a client session can be inactive before the session is discarded by the server. By default, the server times out after 15 minutes of inactivity. You may want to adjust this value to meet your working environment.

Changing the Session Time-Out

To change the default time-out:

- 1 Open `webdav.properties` from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes`.
- 2 Locate the `Dav.Session.Inactive.Timeout` line and modify the value. The value is in milliseconds.
- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Configuring the Notification Settings

Setting Up E-mail Information

In order for users to receive notification in Meritage, you need to enter SMTP server.

To configure notification:

- 1 Open notification.properties from `<VM_Install_Dir>\vm\common\tomcat\webapps\<Project_DB.dav>\WEB-INF\classes\serena\adm\notification.`
- 2 Locate the email information section and un-comment the SMTP information and enter the location of the SMPT host, user name, and password, if any.
- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27.](#)

Setting Up Notification Frequency

You can set up how often the notification server will send e-mail to Meritage users that subscribe for notification of changes to files. The default is set to send notification every 10 minutes.

To change the notification frequency:

- 1 Open notification.properties from `<VM_Install_Dir>\vm\common\tomcat\webapps\<Project_DB.dav>\WEB-INF\classes\serena\adm\notification.`
- 2 Locate the notification frequency section and change `Dav.notification.interval` to a new time value using milliseconds.
- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the change to take effect. See ["Starting and Stopping WebDAV Server" on page 27.](#)

Setting Up Notification Logging

You can also set up the location of the notification log and set some logging options. The notification logging works the same as the WebDAV server logging.

To set notification log options:

- 1 Open notification.properties from `<VM_Install_Dir>\vm\common\tomcat\webapps\<Project_DB.dav>\WEB-INF\classes\serena\adm\notification.`
- 2 Locate and modify the properties as necessary:

Property	Description
<code>Dav.Logger.Log.MaxRevisions</code>	The number of log files to be stored before deleting the oldest files.
<code>Dav.Logger.Log.MaxSize</code>	The approximate maximum size a log file can grow to, in KB.

Property	Description
Dav.Logger.Log.Stdout	If set to true, duplicates log messages to the console window of the Tomcat servlet engine.
Dav.Logger.NormalPriority	If set to true, the logger thread runs at normal priority. If set to false, the logger thread runs at low priority.

- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the changes to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Working with Version Manager Properties

Modifying Version Manager Properties

During installation the WebDAV server was configured to use the SampleDB project database and "dev" workspace. You may need to adjust these properties later to fit the needs of your working environment. To make other project databases available through the WebDAV server see ["Creating Access to Another Project Database" on page 27](#).

To modify Version Manager properties:

- 1 Open vm.properties from `<VM_Install_Dir>\vm\common\tomcat\webapps\
<Project_DB.dav>\WEB-INF\classes\serena\
adm\dav\vm`.
- 2 Locate and modify the properties as necessary.

Property	Description
ProjectDB	The path to the Version Manager project database that will be accessible through WebDAV Server. This path should include the name of the project database. For example: C:\Program Files\Serena\Version Manager\common\SampleDb
Workspace	The public workspace that will be used by all WebDAV users. If no workspace is specified or the entry is incorrect, the Root workspace will be used. You can enter a nested workspace by separating the workspaces with a forward slash (/). For example: devWorkspace/testWorkspace

- 3 Save and close the file.
- 4 Stop and restart WebDAV Server and any configured web server for the changes to take effect. See ["Starting and Stopping WebDAV Server" on page 27](#).

Creating Access to Another Project Database

When using Meritage, you can create access to as many new project databases from the WebDAV server as you need.

To create access to another project database through WebDAV:

- 1 Copy the SampleDB.dav directory from:
`VM_Install_Dir\vm\common\tomcat\webapps`
into another directory named after the new project database directory.

- 2 Set up the location of the cache for the new project database in the `webdav.properties` file located in:

```
VM_Install_Dir\vm\common\tomcat\webapps\New_DB.dav\WEB-INF\classes
```

The `Cache.Root` entry needs to point to an existing directory. For example you can create a `New_DB.dav` directory cache under `VM_Install_Dir\vm\webdav` directory and then `Cache.Root` entry would be set to this directory:

```
Cache.Root=VM_Install_Dir\vm\webdav\New_DB.dav.cache
```

- 3 Set up the location of the log file in the `webdav.properties` file to a file in an existing directory. The `Dav.Logger.Log.Filename` entry needs to be set the name of the log file. For example you can set it to:

```
Dav.Logger.Log.Filename=VM_Install_Dir\vm\webdav\logs\New_DB.dav.log
```

- 4 Set up the location of the log file for the notification servlet in the `notification.properties` file located in:

```
VM_Install_Dir\vm\common\tomcat\webapps\New_DB.dav\WEB-INF\classes\serena\adm\notification
```

The `Dav.Logger.Log.Filename` entry needs to be set the name of the log file. For example you can set it to:

```
Dav.Logger.Log.Filename=VM_Install_Dir\vm\webdav\logs\New_DB.dav\notify.log
```

- 5 Set up the Version Manager project database location in the `vm.properties` file located in:

```
VM_Install_Dir\vm\common\tomcat\webapps\New_DB.dav\WEB-INF\classes\serena\adm\dav\vm
```

- 6 Restart the server. The http address for the new project database is now:
`http://host:8080/New_DB.dav`

Starting and Stopping WebDAV Server

To start WebDAV Server, you start Tomcat, the application server. For evaluation purposes, you can use Tomcat standalone and access it at port number 8080, or you can configure one of the supported web servers to work in conjunction with Tomcat. See the *Serena PVCS Version Manager Installation Guide* for instructions on how to configure the web servers.

For information on Tomcat, go to <http://jakarta.apache.org/tomcat>.

You must start Tomcat (along with any configured web server) on the server machine before WebDAV Server can be accessed by a WebDAV client. Once you have started Tomcat, it will continue to run until you shut it down manually or shut down the machine on which it is installed.

NOTE WebDAV Server, the Version Manager File Server, and the Version Manager web server use the same installation of Tomcat. If you start or stop one feature, then the other features automatically start or stop.

To start Tomcat on Windows:

- 1 Go to Start | Programs | Serena | ChangeMan Version Manager | Version Manager Application Server. The Version Manager Application Server Admin appears.
- 2 Click the **Start** button.

To start Tomcat on UNIX:

- 1 Log in as the user ID who performed the WebDAV Server installation.
- 2 Change directory to:
`<VM_Install_Dir>/vm/common/bin`
- 3 Enter `./pvcsstart.sh`

To stop Tomcat on Windows:

- 1 Go to Start | Programs | Serena | ChangeMan Version Manager | Version Manager Application Server. The Version Manager Application Server Admin appears.
- 2 Click the Stop button.

To stop Tomcat on UNIX:

- 1 Log in as the user ID who performed the WebDAV Server installation.
- 2 Change directory to:
`<VM_Install_Dir>/vm/common/bin`
- 3 Enter `./pvcsstop.sh`

Running Tomcat As a Service

- 1 Go to Start | Programs | Serena | ChangeMan Version Manager | Version Manager Application Server. The Version Manager Application Server Admin appears.
- 2 Click the **Install NT Service** button.

To subsequently stop running Tomcat as a service, click the **Remove NT Service** button.



NOTE Since WebDAV Server, Version Manager File Server, and the Version Manager web server use the same installation of Tomcat, if you install or uninstall Tomcat as a service for one feature, this takes effect for the other features as well.

Chapter 4

Getting Started with WebDAV Clients

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Using WebDAV Server with Meritage

Serena Meritage is a tool that works from within Microsoft Office. Meritage uses WebDAV to host the project databases and to extend Version Manager into Microsoft Office. Meritage gives you more Version Manager features than if you just use WebDAV with Microsoft office. When using Meritage, you can:

- Keep track of document versions.
- Collaborate between team members. For example, when users check out a document to make changes, team members know others are working on it.
- View the history of when a document is checked in, who checked it in, what comment they entered when they checked it in, and any promotion groups or labels associated with it.

WebDAV is set to work with Meritage by default at the time of installation. When using Meritage, the Microsoft Office applications have to be disabled from acting as WebDAV clients by themselves. Make sure that the following is set in the `webdav.properties` file:

```
Dav.NoLockAgent.Microsoft_Office=Microsoft Data Access Internet
Publishing Provider DAV
```

Using WebDAV Server with Other Supported Clients

Integrating supported clients with WebDAV Server is a simple process. The following table describes the general stages of the processes that apply to all clients. Specific steps or differences are called out in each client section.

Stage	Description	Example
1	Identify the URL of WebDAV Server. The URL is: <code>http://<hostname>: <port>/<Project_DB.dav></code> where <code><hostname></code> is the name of the system hosting WebDAV server, <code><port></code> is the web server port number (8080 by default), and <code><Project_DB.dav></code> is the location of your project database.	<code>http://Test1:10070/ <Project_DB.dav></code>

Stage	Description	Example
2	Enter your login credentials for Version Manager. NOTE Some WebDAV clients may require you to enter a password for authentication. We recommend that you have a Version Manager password so that the WebDAV clients will work properly.	Username: jane_smith Password: anon
3	Use the client's capabilities to add, get, check out, check in, delete, rename, copy, and move files.	Using Microsoft Network Places, open a document in Microsoft Word. The file is checked out from Version Manager. It is checked back in to Version Manager when you close the document.

See the sections [Integrating with Microsoft Network Places When Not Using Meritage](#), ["Integrating with Macromedia Dreamweaver" on page 33](#), ["Integrating with Adobe Acrobat" on page 34](#), and ["Integrating with Adobe Photoshop" on page 36](#) for specific instructions on setting up and working with the client.

Integrating with Microsoft Network Places When Not Using Meritage

About Integration with Network Places

Network Places are used to integrate Microsoft Office programs with WebDAV Server. Supported Microsoft Office programs include:

- Microsoft Word 2000, 2002, and 2003
- Microsoft Excel 2000, 2002, and 2003
- Microsoft PowerPoint 2000, 2002, and 2003
- Microsoft Access 2000, 2002, and 2003



NOTE When using Meritage, Microsoft Office and Network Places are disabled from locking files. If you don't use Meritage, make sure `Dav.NoLockAgent.Microsoft_Office=Microsoft Data Access Internet Publishing Provider DAV` is commented out.

What are Network Places?

A web folder, also known as a network place, is a list of files and directories on a web server. A web folder is displayed in Microsoft Windows Explorer, which allows you to navigate the contents of a web server in the same way that you navigate any other files or directories in a file system.

Windows Explorer distinguishes Network Places from other file system directories with this icon:



By integrating Version Manager with Network Places via the WebDAV Server, you can interact with files in the repository from Microsoft Windows Explorer. You can check out and check in files simply by opening and closing them from Windows Explorer or any other program that can interact with Network Places.

Setting up Network Places Integration

Before you can work with the Version Manager project database from Microsoft Office programs, you must connect your local system to the WebDAV Server. Once you do this, Version Manager projects are visible as Network Places with which you can interact in your authoring environment.

When you use Meritage, the Network Places are created automatically.

To integrate with Network Places in Windows:

- 1 Open Windows Explorer.
- 2 Select My Network Places.
- 3 Double-click the Add Network Place icon.
- 4 Enter the following location:
`http://<hostname>:<port>/<Project_DB.dav>`

where *<hostname>* is the name of the system hosting WebDAV server, *<port>* is the web server port number (8080 by default), and *<Project_DB.dav>* is the location of your project database.

- 5 Click the Next button. When prompted for a user name and password, enter your Version Manager login credentials.
- 6 Enter a name for the location and click Finish.

Editing Files via Network Places

Once you have set up your system to integrate with Version Manager via Network Places, Version Manager projects are visible from Office applications just like any other folder. You can open files for editing just as you would any other file.

To edit files in Office applications when not using Meritage:

- 1 Do one of the following to check out a file:
 - From Windows Explorer, double-click a file from Network Places or Network Places.
 - From an Office application, open the file using the application.



NOTE If the file is already checked out by another user, then a read-only copy of the file (from the cache) opens.

- 2 Edit the file, saving changes as frequently as necessary. During this time, the file is saved in the cache directory on the server and is not checked in to Version Manager.
- 3 Close the file to check a new revision into Version Manager.



NOTE Microsoft Access does not allow you to edit project files (*.mdb) from within Network Places. You can only edit and save Data Access Pages via Network Places.

Working with Files and Projects

Use standard Windows commands to work with files and projects under Network Places.

To...	Do this...
Add a workfile	Copy or save a new file to the desired directory under Network Places.
Create a new project	Create a new folder in the desired parent directory under Network Places.
Delete, copy, move, or rename versioned files or projects	Use corresponding Explorer commands.

Integrating with Macromedia Dreamweaver

About Dreamweaver Integration

All integration tasks take place in Macromedia Dreamweaver. You must first define a new site in Dreamweaver that points to WebDAV Server. Once you've defined the site and connected to it, you can use Dreamweaver's built-in functionality to work with Version Manager files and projects.

Setting up Dreamweaver Integration


To integrate with Dreamweaver:

- 1 In Dreamweaver, select Site | New Site, then select Local Info from the **Category** list.
- 2 Enter a name for your web site in the **Site Name** field.
- 3 In the **Local Root Folder** field, enter a working location on your machine or click the folder icon and browse to the location.
- 4 Enter your web site address in the **HTTP Address** field.
- 5 Select Remote Info from the **Category** list.
- 6 Select WebDAV from the **Access** list.
- 7 Make sure that the **Check Out Files when Opening** option is checked.
- 8 Click the Settings button.

- 9 Enter the following URL in the **URL** field:
`http://<hostname>:<port>/<Project_DB.dav>`
where *<hostname>* is the name of the system hosting WebDAV server and *<port>* is the web server port number (8080 by default), and *<Project_DB.dav>* is the location of your project database.
- 10 Enter your Version Manager user ID and password in the **Username** and **Password** fields.
- 11 Enter an e-mail address in **Email** field and click OK.
- 12 You can leave the default settings unchanged for the rest of the items under the **Category** list.
- 13 Click **OK**.

Working with Files in Dreamweaver

To work with files in Dreamweaver:

- 1 From the Site | Site Files window, select the site from the **Site** list. This displays the contents of your working location under Local Folder.
- 2 Click the **Connect** button  to open the remote site.

You can now check out, check in, and get copies of Version Manager file revisions from the Site window. You can also create, delete, move, copy, and rename versioned files or projects.

Consult the Dreamweaver documentation for more information on using version control via the Site window.

Integrating with Adobe Acrobat

About Adobe Acrobat Integration

Adobe Acrobat supports two integration scenarios:

- **Editing PDF files from Acrobat.** On Windows, you can edit a PDF file and check in your changes to Version Manager from Acrobat. You can also modify versioned files and projects from within Acrobat using Network Places functionality.
- **Online collaboration through a web browser.** Multiple users can simultaneously review and share comments on the same PDF file using the web browser plug-in. The web browser plug-in is installed with Acrobat and can be used with Internet Explorer 4.5 and above and Netscape Navigator 4.0 and above (except version 6.0). As users add and upload comments, each user's comments are stored in Version Manager as a separate file, leaving the PDF file unchanged.

How Acrobat Integrates with Version Manager

The following table describes how Windows users can automatically version their work through Acrobat and WebDAV:

Stage	Description	Version Manager
1	A writer opens a PDF file from Network Places in Adobe Acrobat.	Gets a read-only copy of the PDF.
2	The writer inserts pages into the PDF and changes the rotation of some of the pages.	
3	The writer saves the PDF file.	Locks the file, creates a new revision, and unlocks the file.

This table describes how all Windows users can share comments on a PDF file through Internet Explorer or Netscape Navigator:

Stage	Description	Version Manager
1	Multiple reviewers open a PDF file from Network Places. The PDF file displays in Internet Explorer or Netscape Navigator using the Acrobat web browser plug-in.	Gets a read-only copy of the PDF.
2	The reviewers add comments to the file.	
3	The reviewers click Upload Comments to make the comments available to other reviewers.	Adds a comments file per O/S user ID to an Acrobat project in Version Manager. Subsequent uploads by each user are stored in that user's comments file as new revisions.
4	The reviewers click Download Comments to see comments submitted by other reviewers.	Gets a copy of other users' comments files and displays the comments in the PDF file.

Setting Up Acrobat Integration

To integrate with Acrobat on Windows:

- 1 On Windows, set up a web folder following the steps in "[Setting up Network Places Integration](#)" on page 32.
- 2 Open Acrobat and select File | Open.
- 3 Click Network Places and locate the PDF file you wish to edit.
- 4 When prompted for a user name and password, enter your Version Manager login credentials.
- 5 Make changes to the document as necessary.

- 6 Select File | Save to create a new revision in Version Manager.



NOTE You can also create, delete, move, copy, and rename versioned files or projects using Network Places. You can access these features from the Acrobat File menu commands. Consult the Acrobat documentation for more information on using these features.

To integrate with Acrobat via the Web browser plug-in:

- 1 On any supported Windows platform, set up a web folder following the steps in "[Setting up Network Places Integration](#)" on page 32.
- 2 Open Acrobat and select Edit | Preferences | General.
- 3 Select Online Comments from the list.
- 4 Select WebDAV from the **Server Type** list.
- 5 Under **Server Settings**, enter the following URL:
`http://<hostname>:<port>/<Project_DB.dav>/<PDF directory>`
where *<hostname>* is the name of the system hosting WebDAV server, *<port>* is the web server port number (8080 by default), *<Project_DB.dav>* is the location of your project database, and *<PDF directory>* is the path to the directory containing your PDF file.
- 6 Click OK and exit Acrobat.
- 7 From Windows Explorer, double-click the PDF file from the web folder directory.
- 8 When prompted for a user name and password, enter your Version Manager login credentials.
- 9 The PDF file opens in your web browser. Add comments as necessary by clicking the Note Tool icon:
- 10 Click:
 - The Upload Comments icon
 - The Download Comments icon
 - The Upload and Download Comments icon
- 11 When you are finished, close the file.

Integrating with Adobe Photoshop

About Photoshop Integration

All integration tasks take place in Adobe Photoshop. In Photoshop, you specify the WebDAV server URL and a working location. After you are authenticated, you can use Photoshop's built-in functionality to get, check out, check in, and unlock the file.

Setting Up Photoshop Integration

To integrate with Photoshop:

- 1 In Photoshop, select File | Workgroup | Workgroup Servers.
- 2 Click the New Server button.
- 3 In the New Server dialog box, specify a name for the server in the **Server Nickname** field and enter the following URL in the **Server URL** field:
`http://<hostname>:<port>/dav`
 where *<hostname>* is the name of the system hosting WebDAV server, *<port>* is the web server port number (8080 by default), and *<Project_DB.dav>* is the location of your project database.
- 4 Click OK.
- 5 Click the Choose button and specify the location where you want to work with versioned files.



NOTE The Workgroup Files Location displays the same location even when you change servers. To see the actual location for each server, click Edit Server, click Advanced Options, and then click Show.

- 6 Click Done.

To open a file:

- 1 Select File | Workgroup | Open.
- 2 Photoshop prompts you for your user name and password for the last server. Enter your Version Manager login credentials, or click Cancel to choose a different server.
- 3 Select the file you wish to open and do one of the following:
 - Click Check Out if you want to check out the file.
 - Click Open if you want to get a copy of the file.

You can now use the File | Workgroup menu commands to work with the file. See the table below to understand what action WebDAV performs for each Photoshop command.

Photoshop Command	WebDAV...
Check Out	Checks out a revision from Version Manager
Check In	Checks in a revision to Version Manager
Cancel Check Out	Unlocks a revision in Version Manager
Save	Saves the revision to the server cache
Save As	Adds a workfile to Version Manager
Revert	Replaces a checked out file with the latest version from Version Manager
Update	Replaces a non-checked out file with the latest version from Version Manager

For more information on using version control, search the Photoshop online help for "WebDAV."

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