

AccuRev

The TimeSafe[®] Configuration Management System

AccuBridge for Visual Studio PE

User's Guide

Version 2009.1

June, 2009

AccuBridge for Visual Studio PE User's Guide

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Introduction

AccuBridge for Visual Studio PE is a package that integrates AccuRev's source control management capabilities with Visual Studio 2005 or 2008. It enables you to execute AccuRev commands from within Visual Studio.

This document describes how to use AccuBridge for Visual Studio PE. For system requirements, installation/upgrading instructions, and release notes, please see the *Installation and Release Notes* document.

For a short introduction to AccuRev source control concepts, see *Appendix: The AccuRev Usage Model* on page 31. For news on this product, visit the AccuBridge download page on the AccuRev, Inc. Web site: <http://www.accurev.com>.

Changes to the Visual Studio Interface

AccuBridge for Visual Studio PE extends Visual Studio's user interface in several ways:

- an AccuRev toolbar
- an **AccuRev** submenu on the Visual Studio main menu (also available under **File > AccuRev**)
- an **AccuRev** submenu on Solution Explorer context menus
- an **AccuRev** submenu on the Visual Studio editor context menu (when editing source and text files)
- AccuRev status indicators and tooltips available in the Solution Explorer
- an AccuRev window, containing History, Searches, and Synchronize tabs
- an AccuRev pane in Visual Studio's Output window

AccuRev Toolbar

AccuBridge for Visual Studio PE provides an AccuRev toolbar, which you can display with the **View > Toolbars > AccuRev** command.



Add or Remove buttons

Commands that are not applicable to the currently selected item(s) in the Solution Explorer are disabled. The **Toolbar Options** control (down-arrow) at the end of the toolbar lets you add or remove buttons.

The AccuRev toolbar includes buttons for these AccuRev commands:

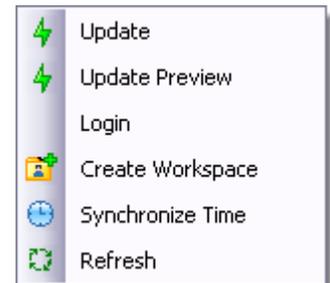
<i>Add to Depot</i>	<i>Revert to Most Recent Version</i>
<i>Keep</i>	<i>Revert to Backed Version</i>
<i>Anchor</i>	<i>Diff Against Most Recent Version</i>
<i>Promote</i>	<i>Diff Against Backed Version</i>
<i>Merge</i>	<i>Diff Against Basis Version</i>
<i>History</i>	<i>Diff Against File on Disk</i>
<i>Annotate</i>	
<i>Populate</i>	
<i>Workspace Information</i>	

AccuRev Menu

AccuBridge for Visual Studio PE adds an **AccuRev** submenu to Visual Studio’s main menu. This submenu is also accessible through **File > AccuRev**. The menu contains “global” AccuRev commands, which are not specific to any file selection.

The **AccuRev** submenu contains these commands:

Update
Update Preview
Login
Create Workspace
Synchronize Time
Refresh

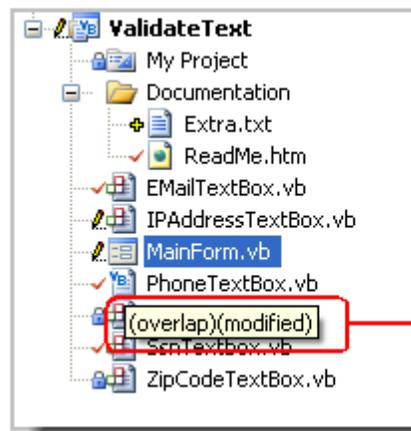


If some commands on this menu are disabled, either you need to log in to an AccuRev server, or your solution is not in an AccuRev workspace. If **Login** fails, check your connection to the AccuRev Server process.

AccuRev Status Indicators

When you are working on a project located in an AccuRev workspace that belongs to you, AccuBridge for Visual Studio PE adds a decoration to each item’s icon in the Solution Explorer, according to its AccuRev status. An AccuRev element can have several status indicators; if you hold the cursor over an item’s icon, the complete set of AccuRev status indicators appears in a tooltip.

If your project is not within an AccuRev workspace that belongs to you, no icon decorations appear, and the tooltip **Not in a workspace** appears when you hold the mouse over an item’s icon.



tooltip shows complete AccuRev status of selected item

This table shows the icon decoration scheme:

Icon Decoration	AccuRev Status
 blue lock	(backed)
 yellow pencil	(modified)
 red checkmark	(kept), (missing), or (member)
 yellow cross	(external)
none	No AccuRev user is logged in or item not in a workspace

Directory (folder) items do not have icon decorations. Project and solution items *do* have icon decorations, indicating the status of the project file and the solution file.

Getting Started

This chapter describes tasks that get you up and running with AccuBridge for Visual Studio PE.

Establishing Your Identity

All AccuRev commands must be executed by an AccuRev user. Before you can begin using AccuBridge for Visual Studio PE, you must establish your identity to AccuRev. Your AccuRev installation can use either of these user-authentication methods:

- In *traditional* authentication mode, AccuBridge for Visual Studio PE defaults to using your operating system username as your AccuRev username, and stores authentication information, user preferences and other information in the **.accurev** subdirectory of your home directory.

To customize that behavior, set these two user-level (not system-level) environment variables before starting Visual Studio:

- To use a different username, set `ACCUREV_PRINCIPAL` to that username.
- To place your **.accurev** directory elsewhere, set `ACCUREV_HOME` to the new location.
- In *accurev_login* authentication mode, you must explicitly log in to an AccuRev Server. You can do so using Visual Studio's **File > AccuRev > Login** command.

See the *AccuRev Administrator's Guide* for complete information on AccuRev user management.

Establishing AccuRev Source Control

The commands executed by AccuBridge for Visual Studio PE move data between the central source-code repository (a depot) and a personal AccuRev work area (a workspace). To establish AccuRev source control over your Visual Studio project, it must be contained in a workspace, and the project's files must be explicitly placed under source control with the *Add to Depot* command.

If you have been working with a previous version of AccuBridge for Visual Studio PE, installing the new version automatically updates existing Visual Studio projects or solutions already under AccuRev source control to use the new version. The sections below describe how to initialize AccuRev source control for new and existing projects. The instructions assume that any needed depots and/or streams have already been created and properly configured.

Placing an Existing Project Under Source Control

Method 1:

1. Create a new workspace in the project's location using the instructions in *Creating an AccuRev Workspace*. The name of the new workspace should be the Visual Studio project name. Its location on disk should be the location of the project files.
2. Execute the command **File > AccuRev > Refresh**.

3. Right-click the solution name in the Solution Explorer, and invoke the command **AccuRev > Add to Depot**.

Method 2:

1. Shut down Visual Studio.
2. Move the project folder to an existing AccuRev workspace.
3. Restart Visual Studio.
4. Load the project from its new location.
5. Right-click the solution name in the Solution Explorer, and invoke the command **AccuRev > Add to Depot**.

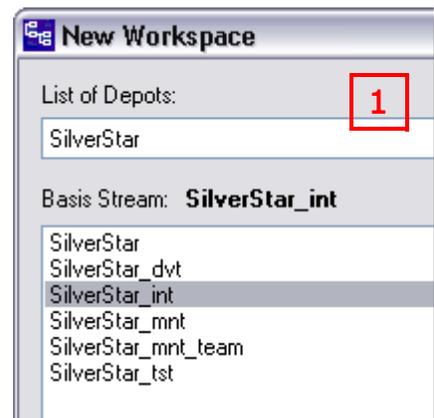
Placing a New Project Under Source Control

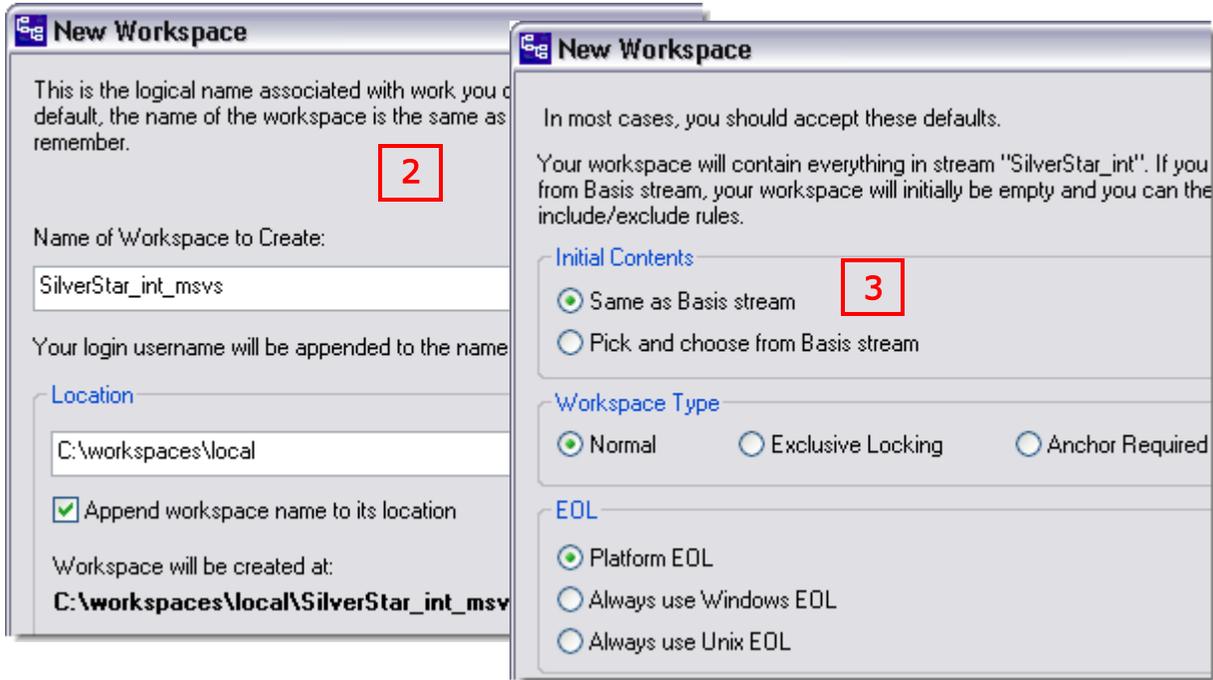
1. (optional) Create a new workspace, using the instructions in [Creating an AccuRev Workspace](#).
2. Create the new project in the workspace, using the instructions in [Adding a New Project to a Workspace](#).

Creating an AccuRev Workspace

Start the wizard with the command **File > AccuRev > Create Workspace**. Then:

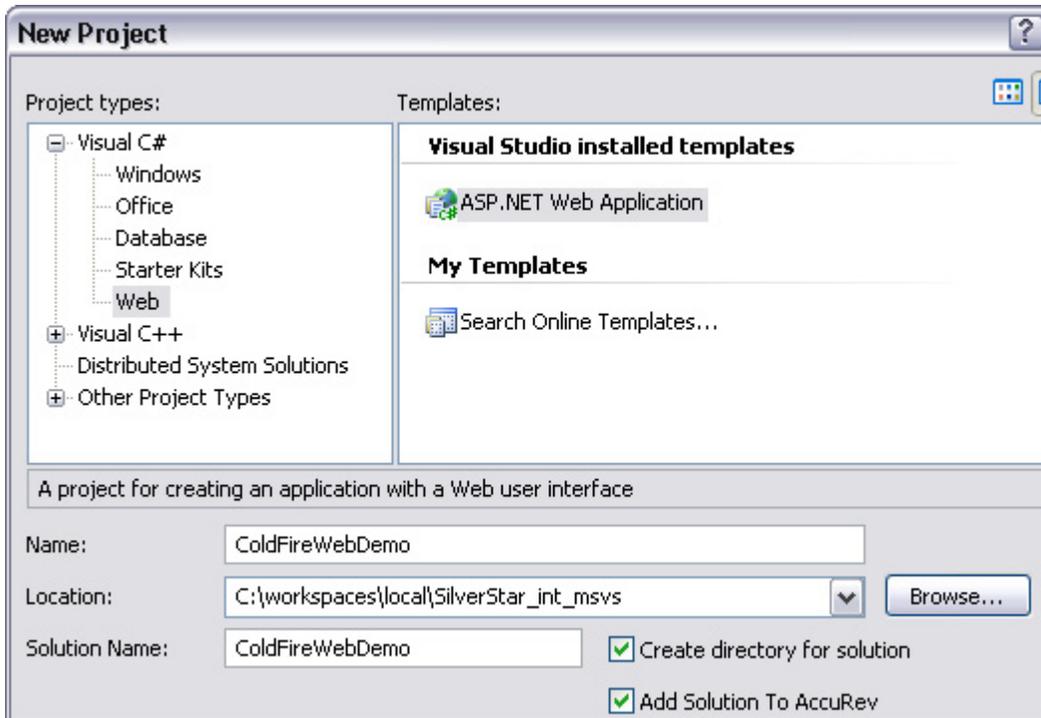
1. When the New Workspace wizard appears, choose a depot and a backing stream for the workspace, and click **Next**.
2. Choose the workspace name and location on disk, and click **Next**. The location can be on a local hard drive or on a network drive.
3. Set the workspace options — contents, type, and end-of-line (EOL) character(s) — then click **Finish** to create the workspace.





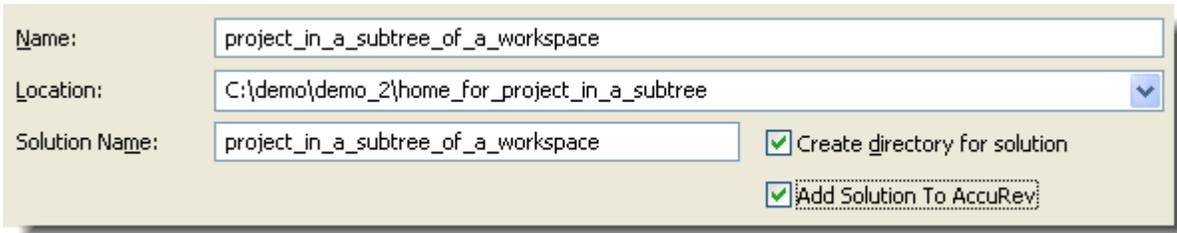
Adding a New Project to a Workspace

In Visual Studio, create a project in a directory within a workspace:



If the **Add Solution to AccuRev** checkbox is checked when you create a project, AccuBridge for Visual Studio PE runs the *Add to Depot* command on the entire contents of the project.

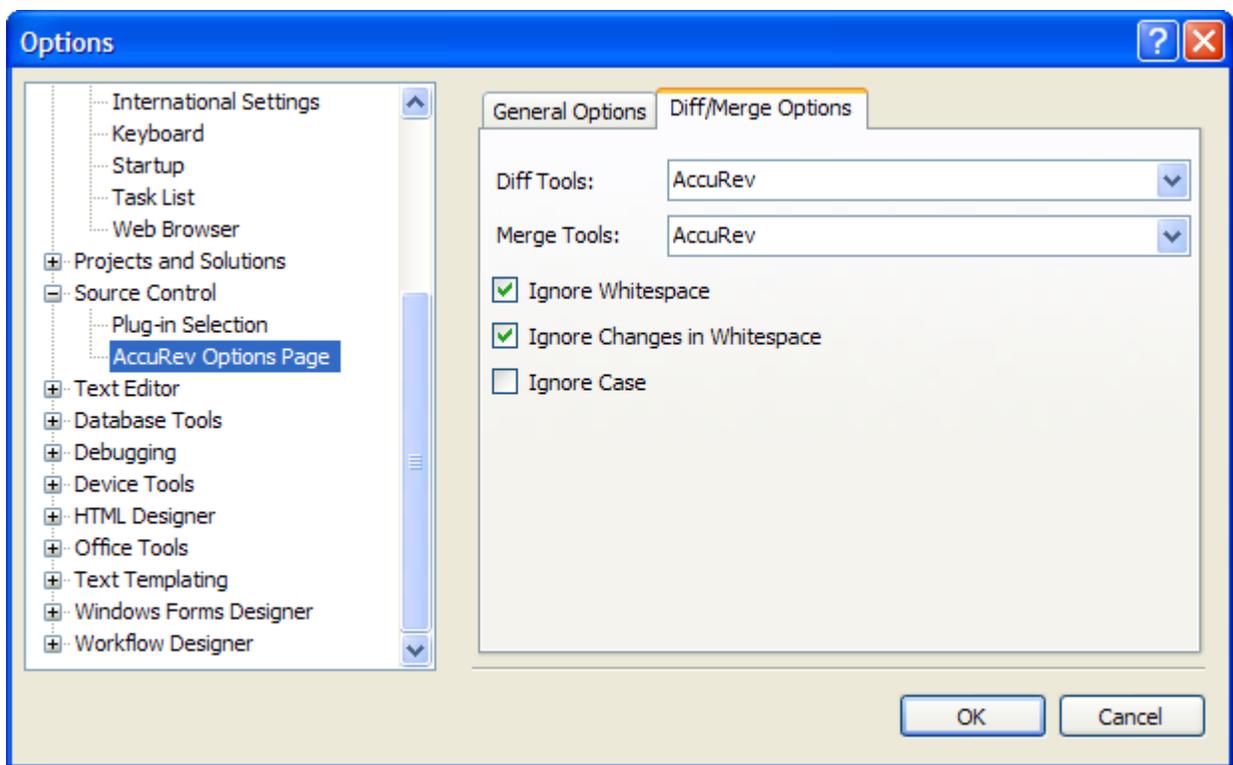
A Visual Studio project can occupy all or part of an AccuRev workspace. To create a project that occupies its entire workspace, enter the pathname of the workspace's root directory in the **Location** field. To create a project that occupies a *subtree* of a workspace, enter a **Location** below the workspace's root directory:



Name: project_in_a_subtree_of_a_workspace
Location: C:\demo\demo_2\home_for_project_in_a_subtree
Solution Name: project_in_a_subtree_of_a_workspace
 Create directory for solution
 Add Solution To AccuRev

Setting AccuRev Options

Use the **Tools > Options** command to display the Options dialog. Then choose **Source Control > AccuRev Options Page** from the tree of option types. (If this page does not appear in the tree, select the **Show all settings** checkbox at the bottom of the dialog.) You can set user preferences for AccuRev's Diff/Merge functionality, as well as more general options.



Diff/Merge Options

This set of options allows you to specify the text file comparison and merge tools that AccuBridge for Visual Studio PE will use, as well as how certain characters are treated if you use AccuRev's tools.

When specifying values for the **Diff Tools** and **Merge Tools** fields, you have several options:

- *Use AccuRev's own tools* — By default, the setting is “AccuRev”, indicating the graphical diff and merge tools that are part of the AccuRev product.
- *Choose another tool from the drop-down list* — The change affects AccuBridge for Visual Studio PE only; it does not affect the AccuRev GUI (which can also be configured to use third-party diff and merge tools).
- *Specify a command line to be executed when the Diff or Merge command is invoked* — This command line must contain the name of a text file comparison or merge tool, and a series of substitution patterns which indicate the files being compared or merged. The tool must either be in a directory on your search path, or be specified with an absolute path.

Note: These patterns look like Windows batch file variables, but they aren't. They are merely placeholders that AccuBridge for Visual Studio PE will replace with character strings.

Diff Substitution Patterns

- %1% When the command line is executed, this pattern will be replaced by the quoted pathname of the first version to be compared.
- %2% Will be replaced by the quoted pathname of the second version to be compared.
- %3% Will be replaced by a displayable title string (unquoted) for the first version.
- %4% Will be replaced by a displayable title string (unquoted) for second version.

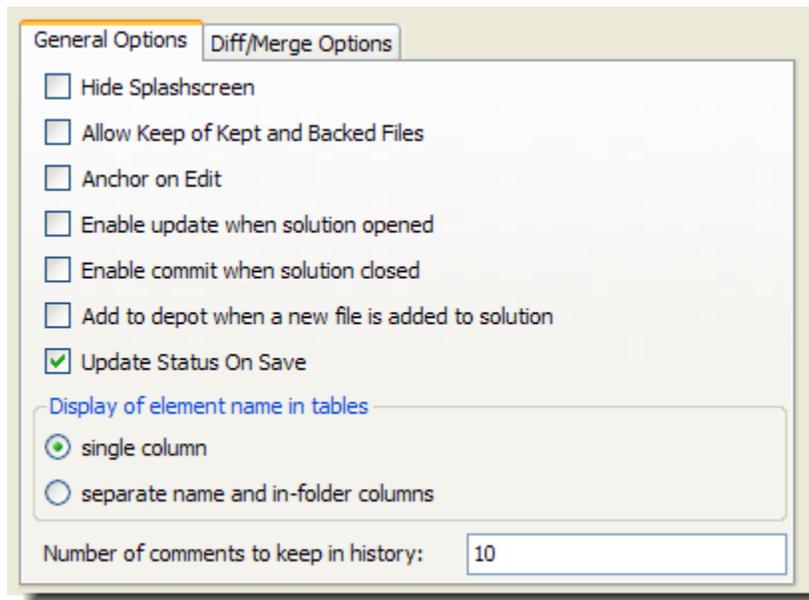
Merge Substitution Patterns

- %a% When the command line is executed, this pattern will be replaced by the quoted pathname of the closest common ancestor version.
- %1% Will be replaced by the quoted pathname of the non-workspace version.
- %2% Will be replaced by the quoted pathname of the version in the workspace.
- %3% Will be replaced by a displayable title string (unquoted) for the closest common ancestor version.
- %4% Will be replaced by a displayable title string (unquoted) for the non-workspace version.
- %5% Will be replaced by a displayable title string (unquoted) for the workspace version.
- %o% Will be replaced by the quoted pathname of a temporary file, in which the results of the merge can be stored.

The next three options affect AccuRev's graphical Diff and Merge tools only. If you configure other text file comparison or merge tools, these settings are ignored.

- **Ignore Whitespace** — Controls whether whitespace is taken into account when comparing text lines. Overrides the **Ignore Changes in Whitespace** option.
- **Ignore Changes in Whitespace** — Controls whether a change in the amount of whitespace in a text line is considered to be a change.
- **Ignore Case** — Controls whether uppercase and lowercase characters are considered to be the same when comparing text lines.

General Options



- **Hide Splashscreen** — Controls whether the AccuBridge for Visual Studio PE splashscreen appears during Visual Studio startup. The splashscreen includes a checkbox to suppress its appearance. If the splashscreen has been hidden, you can reenable its display using this option.
- **Allow Keep of Kept and Backed Files** — Controls whether files with statuses of **(kept)** and **(backed)** appear in the Keep dialog when you invoke the *Keep* command.
- **Anchor on Edit** — Causes an AccuRev **Anchor** command to be performed automatically when you start to edit a file element in an anchor-required or exclusive-file-locking workspace. If the option is disabled, an **Anchor** command is performed when you invoke **File > Save**.
- **Enable update when solution opened** — Causes an **Update** command (from the Synchronize tab of the AccuRev window) to be performed automatically when you open a Visual Studio solution.
- **Enable commit when solution closed** — Causes a **Commit** command (from the Synchronize tab of the AccuRev window) to be performed automatically when you close a Visual Studio solution.
- **Add to depot when a new file is added to solution** — Causes an AccuRev **Add** command to be invoked automatically when you add a new object to a Visual Studio project (**Add > New Item**, **Add > Existing Item**, or **Add > New Folder**).
- **Update Status on Save** — Causes an automatic call to the AccuRev Server whenever you execute the Visual Studio command **File > Save** on a file. This determines the new AccuRev status of the saved file and updates its icon decoration.

This option is turned on by default. Turning it off improves performance by eliminating the call to the AccuRev Server. To display the correct icon decoration for the saved file when the option is turned off, invoke the command **AccuRev > Refresh**.

- **Display of element name in tables** — controls how an element’s depot-relative pathname appears in a table on the Searches or Synchronize tab of the AccuRev window:
 - **single column** — entire pathname appears in a single column, labeled **Name**.
 - **separate name and in-folder columns** — pathname is split over two columns: a **Name** column with the “leaf” name, and an **In Folder** column with the folder/directory pathname to the element.
- **Number of comments to keep in history** — The number of choices to appear in the **Select Previous Comment** drop-down box in the dialog boxes for the *Add to Depot*, *Keep*, and *Promote* commands.

AccuRev-Specific Windows

This chapter describes AccuBridge for Visual Studio PE’s use of windows within the Visual Studio interface:

- A special “AccuRev” window, containing several tabs for executing — and displaying the results of — AccuRev commands.
- An “AccuRev” pane in Visual Studio’s standard Output window.

The AccuRev Window

AccuBridge for Visual Studio PE provides an “AccuRev” window, in which you can view the results of AccuRev commands and invoke AccuRev commands. To display this window, use the **View > AccuRev Window** command. It appears automatically when you invoke AccuRev’s *History* command in the Solution Explorer.

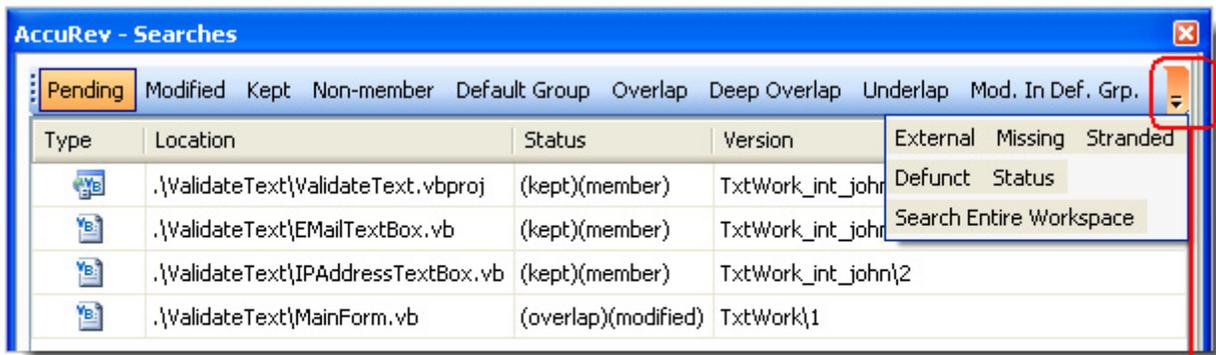
As long as the current solution remains open, you can close and reopen the AccuRev window without losing information.

The AccuRev window contains three tabs, *Searches Tab*, the *History Tab*, and the *Synchronize Tab*. Each tab contains a table, which you can manipulate in the standard ways:

- Clicking a column header sorts the table’s row on that column’s contents. Clicking again reverses the sort order, indicated by a triangle.
- Drag column headers to the left or right to change the column order.
- Drag column separators to change column widths.

Searches Tab

In the Searches tab, you can search for items based on their AccuRev status, and execute commands on search results items.



if the AccuRev window is not wide enough to show all the search choices, use the drop-down control to display the others

To perform a search, click a button on the tab's toolbar. The items that satisfy the search criterion are displayed in a table, with these columns:

- **Type** — Visual Studio file type
- **Status** — AccuRev status indicator(s)
- **Location** — location within the workspace
- **Version** — AccuRev version-ID
- **Overlap Stream** — AccuRev stream containing the overlapped version

The tab's toolbar includes these additional buttons:

- Click **Status** to display the status of all items in the workspace.
- The **Search Entire Workspace** button is a toggle switch that controls the scope of the search. If the toggle is **on** (highlighted), the results table includes matching items in all the workspaces that contain projects in the current solution. If the toggle is **off** (not highlighted), the results table only includes matching items in the current solution.

Updating Search Results

Clicking a button again reruns the search. If you change an element's status within Visual Studio (for example, by editing a file) while the Searches tab is loaded with search results, the results table is updated automatically.

Invoking AccuRev Commands

You can invoke AccuRev commands in the Searches tab: select one or more items, then right-click to bring up a context menu. A command is enabled only if it applies to at least one of the selected items. The Searches tab commands are the same as those available in the Solution Explorer, with the addition of *Defunct* and *Locate in Solution Explorer*. See *AccuRev Command Reference* on page 19 for full descriptions of the AccuRev commands.

History Tab

The History tab displays a table containing the results of a *History* command. Each row lists an AccuRev transaction that created a new version of the element.

AccuRev - History of .\ValidateText\IPAddressTextBox.vb						
Name	Time	Tran:	Action	User	Version	Comment
.\ValidateText\IPAddressBox.vb	2008-09-16 11:13:02	16	purge	john	vbone_int_john/4	
.\ValidateText\IPAddressBox.vb	2008-09-16 11:11:55	15	keep	john	vbone_int_john/4	copyright date
.\ValidateText\IPAddressBox.vb	2008-09-16 11:11:08	13	move	john	vbone_int_john/3	
.\ValidateText\IPAddressTextBox.vb	2008-09-16 11:10:50	12	keep	john	vbone_int_john/2	fix initial comment
.\ValidateText\IPAddressTextBox.vb	2008-09-15 23:07:41	5	promote	john	vbone_int/1	
.\ValidateText\IPAddressTextBox.vb	2008-09-15 23:07:37	4	add	john	vbone_int_john/1	

The table contains these columns:

- **Name** — the element's pathname within the workspace.
- **Time** — a timestamp, indicating when the transaction took place.
- **Transaction** — The unique number (within this AccuRev depot) of the transaction.
- **Action** — the kind of AccuRev transaction: **keep**, **promote**, etc.
- **User** — the AccuRev username of the user who performed the transaction.
- **Version** — the unique version-ID of the element version that was created in this transaction.
- **Comment** — the user-supplied comment for this transaction.

Invoking AccuRev Commands

You can select one or two transactions from an item's history, then invoke an AccuRev command from the selection's context menu:

- *Diff Against Workspace* — Compares the version in the selected transaction with the version currently in your project.
- *Diff Against Version* — Compares the versions created in the two selected transactions.
- *Checkout Version* — Replaces the version in your workspace with the version in the selected transaction.
- *Show Transaction* — Pops up another window (“Transaction History”), showing the complete contents of the selected transaction.

Synchronize Tab

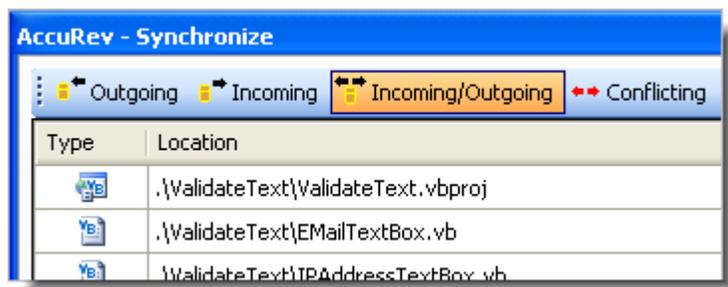
The Synchronize tab shows an element-by-element listing that answers the question: *What are the current differences between my project(s) and the backing stream(s) in the AccuRev repository?*

The Synchronize tab's toolbar provides command buttons to filter project files by how they differ from the backing-stream versions in the AccuRev repository:

Incoming

The element changed in the repository, but not in the project.

Objects with AccuRev status (**stale**), (**overlap**), (**underlap**), or (**missing**) are selected by this filter.



Outgoing

The element changed in the project, but not in the repository. Objects with AccuRev status **(modified)**, **(kept)**, **(member)**, **(external)**, **(overlap)**, **(underlap)**, or **(missing)** are selected by this filter.

Note: The AccuRev command *Anchor* changes a file's AccuRev status to **(member)**, but doesn't affect the file's contents. Such a file is classified as **Outgoing** in the Synchronize tab, even though there might be no difference between the file's contents in the project and in the repository.

Incoming/Outgoing

Shows elements from both the Incoming and Outgoing categories.

Conflicting

Shows elements that have changed in both the project and the repository. Objects with AccuRev status **(overlap)** or **(underlap)** are selected by this filter.

Two additional buttons affect the display of elements in the Synchronize tab:



Refresh

Retrieves the AccuRev status of all the files in the project, and updates the current display.

Sync Entire Workspace

Toggles the scope of the Synchronize tab. If the toggle is **on** (highlighted), the tab includes items from the entire AccuRev workspace containing the current solution. And if the solution contains multiple projects that are contained in multiple workspaces, the tab includes items from the entirety of all those workspaces.

If the toggle is **off** (not highlighted), only items that are contained in the current solution are displayed.

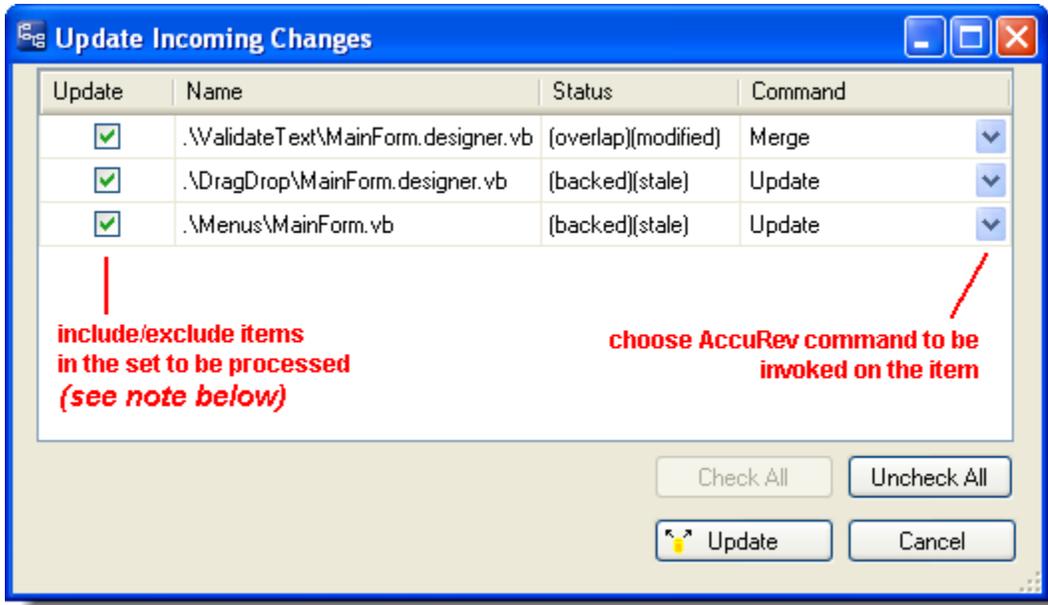
Invoking AccuRev Commands to Synchronize the Project with the Repository

The Synchronize tab's toolbar includes two command buttons that initiate AccuRev commands to bring your project into closer (or complete) synchronization with your workspace's backing stream.



Update

Pops up an Update Incoming Changes window, in which you can bring changes into your project, with the AccuRev commands *Merge*, *Revert to Backed Version*, and *Update*.



You can process an **(overlap)**-status item with either *Merge* or *Revert to Backed Version*. The only command available for a **(stale)**-status item is *Update*.

Clicking the **Update** button at the bottom of this window launches a series of AccuRev commands to perform the operations you’ve configured.

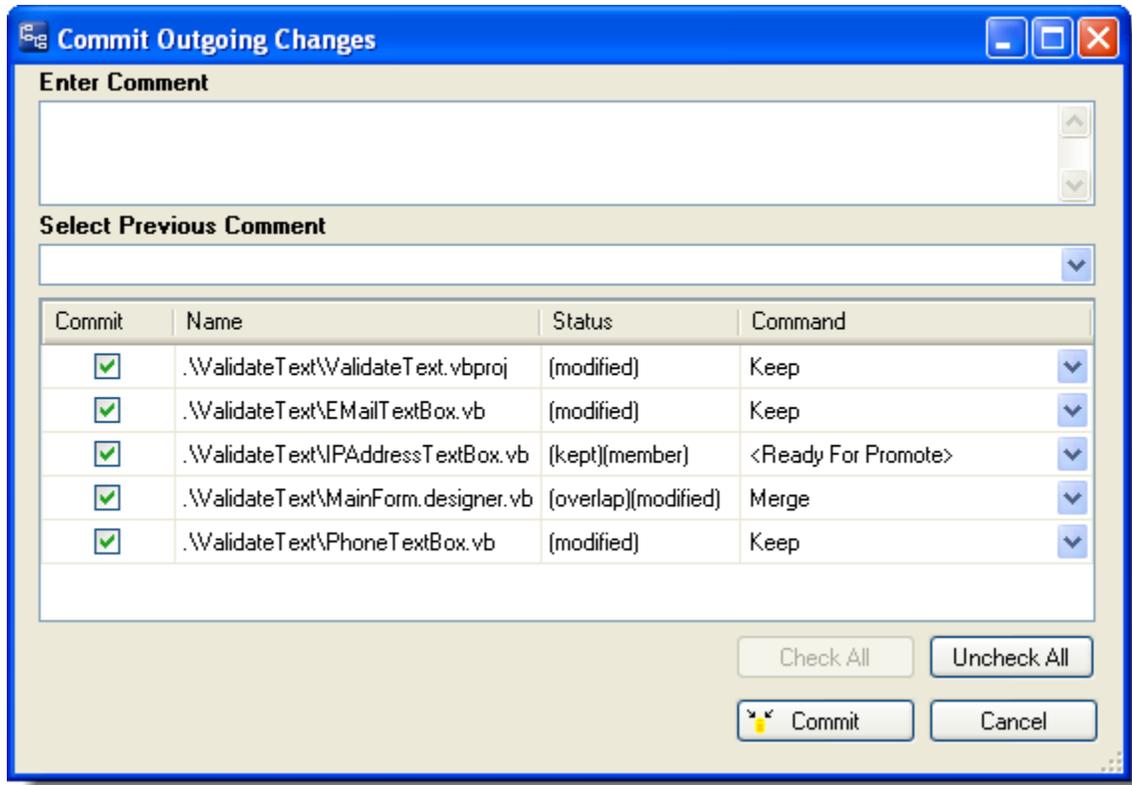
Note: the AccuRev *Update* command operates on the entire workspace, not on individual elements within it. Accordingly, clearing the checkbox for an item to be processed with the Update command has no effect.

Commit

Pops up a Commit Outgoing Changes window, in which you can send your changes to the repository, using the AccuRev commands, *Add to Depot*, *Merge*, and *Promote*. (You can also choose to “undo” changes to files, using the *Revert to Backed Version* and *Revert to Most Recent Version* commands.)

Note: For items with **(member)** status, the “Keep” choice in the Command column performs a *Keep-and-Promote* sequence.

Clicking the **Commit** button at the bottom of this window launches a series of AccuRev commands to perform the operations you’ve configured.

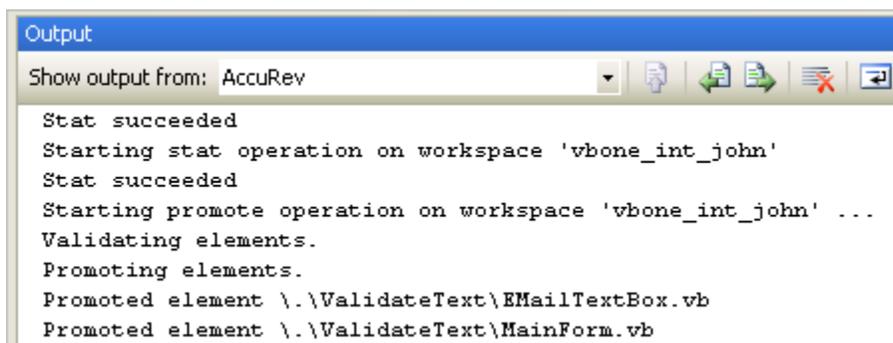


Manual Synchronization

Instead of clicking the **Commit** or **Update** button in the Synchronize tab, you can invoke AccuRev commands on specific items: select one or more items, then right-click to bring up a context menu. A command is enabled only if it applies to at least one of the selected items. The AccuRev commands available here are the same as those available in the Solution Explorer, with the addition of *Defunct*, *Locate in Solution Explorer*, and *Open File*. See [AccuRev Command Reference](#) on page 19 for full descriptions of the AccuRev commands.

AccuRev Pane in the Output Window

Messages generated by AccuRev commands are directed to the AccuRev pane of Visual Studio's Output window.



AccuRev Command Reference

To execute AccuRev commands in the Solution Explorer:

1. Select one or more files or directories.
2. Right-click to display the selection's context menu, and choose a command from the **AccuRev** submenu.

Alternatively, click a command button on the AccuRev toolbar.

In other situations — for example, in the AccuRev window — AccuRev commands appear at the top level of a selection's context menu.

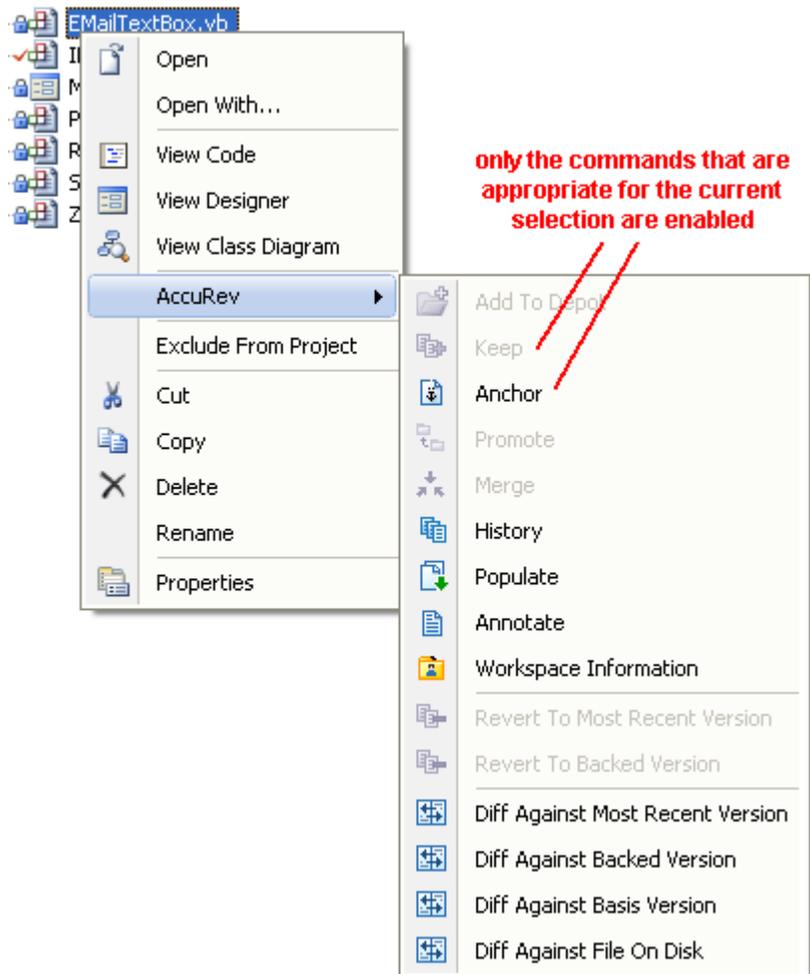
Commands that operate on files and directories are enabled if they apply to one or more items in the current selection. Certain commands, such as *History*, are enabled only if a single item is selected.

Command enabling and execution takes into account the fact that a project consists of a hierarchy of items. In particular, invoking a command on an item sometimes causes the item's subhierarchy to be processed, also. Examples:

- Invoking the *Keep* command on a directory operates on files within that directory. If no files are candidates for *Keep*, the command is disabled.
- Invoking the *Keep* command on a project or solution item provides an easy way to invoke the command on all the project's or solution's (**modified**)-status elements.
- A *Keep* command invoked on code file **MainForm.vb** can also include its subitems: the form-design file **MainForm.designer.vb** and the resources file **MainForm.resx**.

The sections below describe the AccuRev commands that are available within Visual Studio:

- Section *Commands that Operate on Files and Directories* on page 20 describes most of the commands that you'll use on a day-to-day basis. These commands are available in the Solution Explorer and also on the *Searches Tab* and the *Synchronize Tab* of the AccuRev window.



- A few additional commands, which operate on historical versions of elements, are described in section *Commands Available on the History Tab* on page 27.
- Commands that don't operate on individual files and directories are described in section *Commands Available on the AccuRev Menu* on page 28.
- Certain Visual Studio operations cause AccuRev commands to be executed automatically. This is discussed in section *Automatic Invocation of AccuRev Commands* on page 30.

Commands that Operate on Files and Directories

The following commands operate on the files and directories within Visual Studio projects and solutions. Most are available in the Solution Explorer, and are also available in the *Searches Tab* and the *Synchronize Tab* of the AccuRev window.

Add to Depot

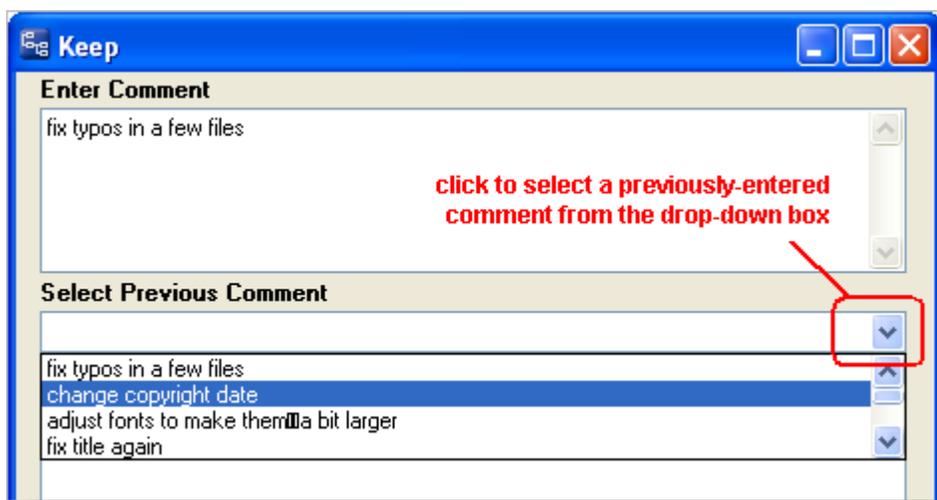
Converts the selected items into AccuRev version-controlled elements. The directory containing the files is also converted to an element, if necessary. You are prompted to enter a comment, just as with the *Keep* command.

This command applies only to items not already under AccuRev version control — that is, to items whose AccuRev status is **(external)**.

Keep

Saves the changes you've made to one or more elements as “private” versions in the AccuRev repository. These versions are visible only in your workspace — not in the backing stream or other users' workspaces. Use the *Promote* command to send versions created with **Keep** to the backing stream, making them public.

You are prompted to enter a comment, which can span multiple lines. You can reuse a comment that you have entered previously for a **Keep**, *Add to Depot*, *Promote*, or *Defunct* command — in this Visual Studio session or in a previous one.



After selecting an old comment, you can revise it before submitting it as the comment for the current command.

Anchor

Activates the selected file in your workspace, adding it to the workspace’s default group. Doing so ensures that:

- The file is not read-only.
- The file won’t be overwritten by an *Update* command.

If your workspace uses the exclusive file locking or anchor-required feature, its files are initially read-only. In that case, you can **Anchor** the file before editing it, or AccuBridge for Visual Studio PE will invoke **Anchor** automatically when you save the file.

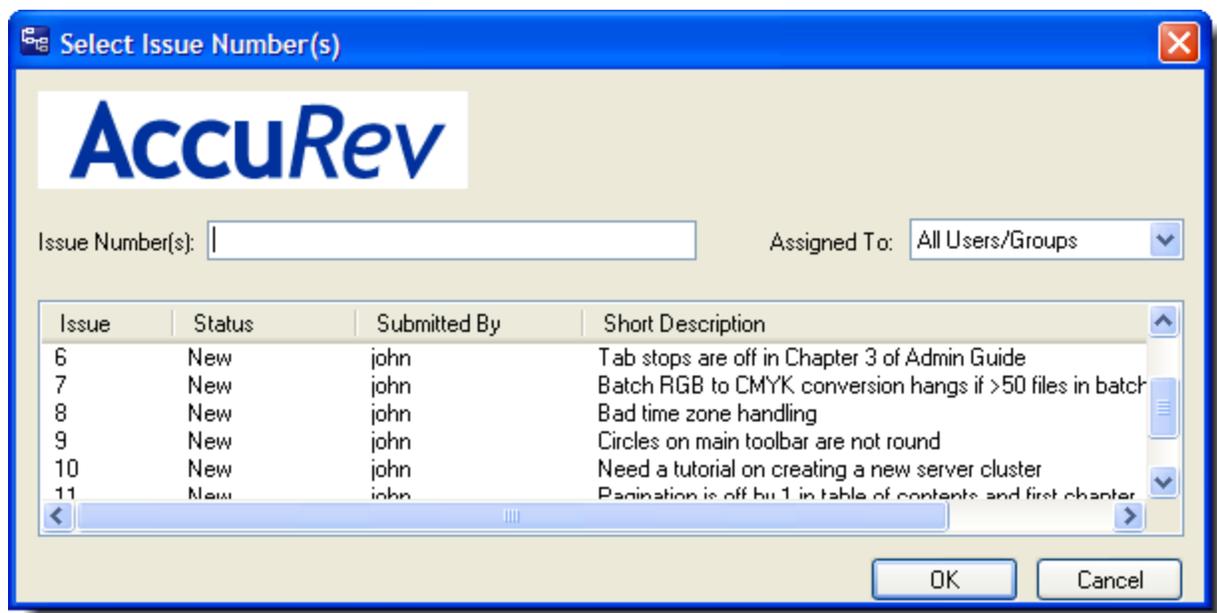
Promote

Converts the “private” versions of one or more file elements into “public” versions. It takes versions that you previously created in your workspace with *Keep*, and sends them to the backing stream shared by you and other members of your development team. You are prompted to enter a comment, just as with the *Keep* command.

If any of the selected files have been changed since their last *Keep* — and so have **(modified)** status — this command first **Keeps** the changed files, then **Promotes** all files in the selection with **(kept)** status.

Change Package Trigger

If a change package trigger is defined for the current depot’s issue database, a Select Issue Number(s) dialog box appears, displaying a set of AccuWork issue records. (The change package trigger definition includes a query, which dynamically selects the set of issue records to display.)



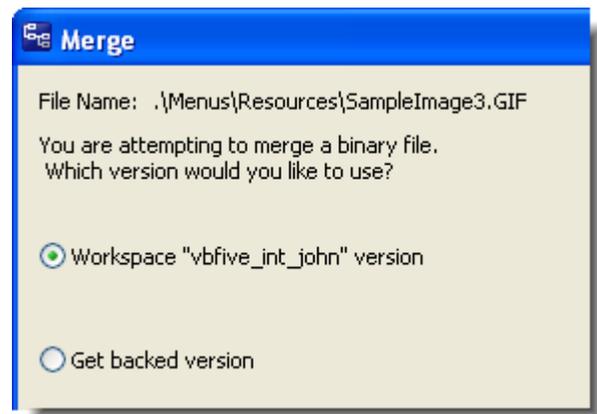
Depending on the issue database configuration, there might also be a drop-down box that enables you to restrict the issue record display to a subset — for example, to the subset whose **Assigned To** value is **derek**.

You must select one or more of these issue records by point-and-click, or by typing in the Issue Number(s) input field. Use SPACE characters to separate multiple issue numbers. When you click **OK**, the versions being promoted are added to the change packages of the selected issue record(s).

Merge

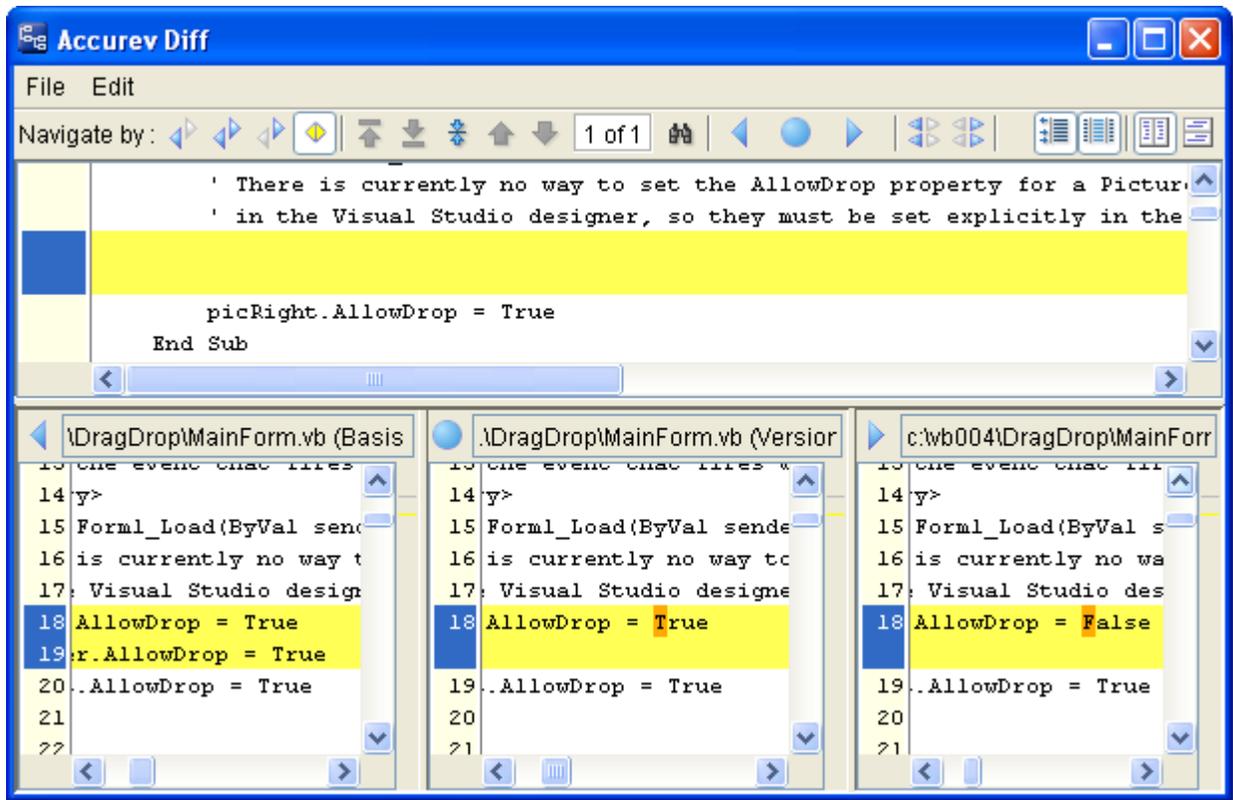
Combines two versions of an element, producing a new version in your workspace (recorded as a *Keep* transaction). Typically, you need to merge when you and another team member both modify the same element, and your colleague *Promotes* her changes to the common backing stream before you do. (This command is the equivalent of “Resolve” in other source code management terminologies.)

If the element type is **binary**, merging amounts to picking your own version or the backing-stream version. AccuRev does not support combining the contents of binary files.



If the element type is **text**, the versions’ contents are merged with an external program — by default, AccuRev’s own Merge tool, which uses a three-way merge algorithm.

You can configure another merge tool, using the **Tools > Options** command. See *Setting AccuRev Options* on page 8.



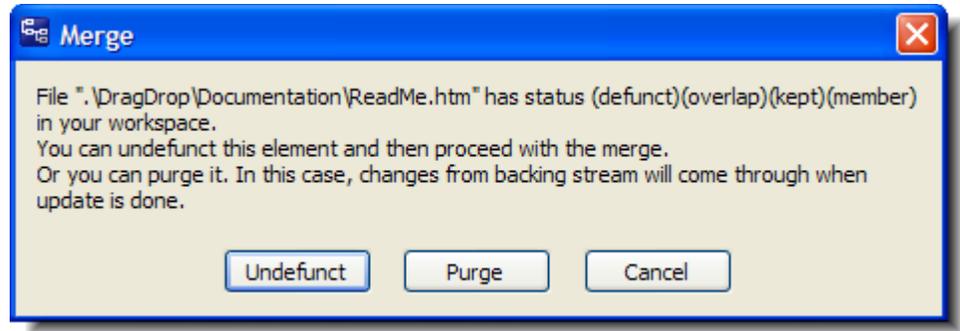
A merge might be required on the “namespace” level instead of, or in addition to, the content level. This occurs when the file or directory has been renamed or moved, both in your AccuRev workspace / Visual Studio project and in the backing stream version.



The **Merge** command has you choose which namespace change to use. You can also choose to reject both changes, and use the element’s “original” name in the common-ancestor version.

Note: After a namespace-level merge in which you choose *not* to retain the name in your workspace, the project file must be updated to reflect the name change. In many cases, you can **Update** your workspace to bring in a new version of the project file that contains the name change. If not, use Visual Studio's **Delete** command to remove the old name from the project file, then use **Add > Existing Item** to include the renamed item in the project.

Another special case occurs if an item has **(defunct)** status in your workspace. (You performed a Visual Studio **Delete**, which triggered an AccuRev **Defunct**.)



A dialog appears, in

which you can reinstate (“undefunct”) the item; this enables you to change your mind about deleting it, and incorporate the changes in the backing-stream version instead. Choosing **Purge** performs a **Revert to Backed Version** command, which discards all your changes to the item, including the **Delete/Defunct**.

If you really want the item to be removed from the project:

1. Choose **Purge** in this dialog.
2. *Update* your workspace.
3. **Delete** the item again, and allow AccuBridge for Visual Studio PE to **Defunct** it.
4. *Promote* the **(defunct)** item to the backing stream.

History

Displays the AccuRev transactions that created versions of the selected element in the History tab of the AccuRev window. See *History Tab* on page 14.

Locate in Solution Explorer

(available in the AccuRev window only) Highlights the selected item in the Solution Explorer pane, expanding the item’s project hierarchy if necessary to make it visible.

Open File

(available in the AccuRev window only) Opens the selected file in Visual Studio’s tabbed document window.

Populate

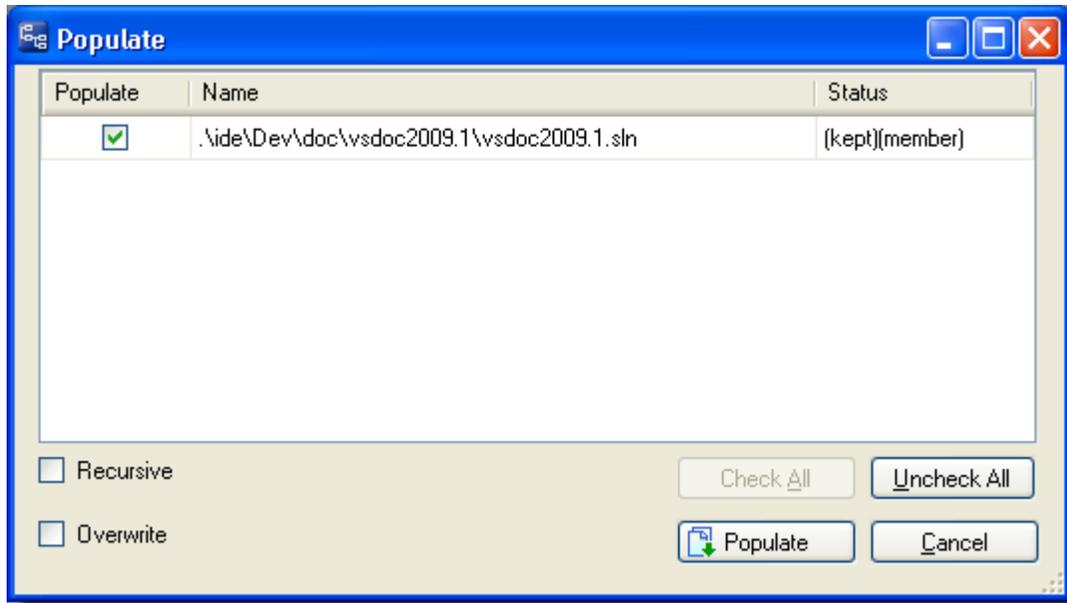
Restores a file with **(missing)** status to your project. To locate such files, use the Missing element search — see the documentation for the *Searches Tab* on page 13.

The **Populate** command copies the version currently in the workspace stream (in the AccuRev repository) to the workspace. For more information, see “What’s the Difference between Populate and Update?” in *AccuRev Technical Notes*.

Invoking the **Populate** command displays a dialog listing the files and directories to be populated. Use the checkboxes in the Populate column to choose which of the listed items will be populated.

There are two other controls at the bottom of the dialog:

- *Recursive* – For each item in the list that is a directory, perform a **Populate** command on that element and on all elements below it.
- *Overwrite* – For each item in the list that is a file, replace the file (if any) currently in your workspace. If this checkbox is not selected, no files will be overwritten.



Annotate

Displays a read-only copy of the selected file, prefixing each line with one or more of the following: the user who created the line, the transaction in which the line was added or most recently modified, the timestamp of that transaction, the version-ID of the version created in that transaction. Also noted are lines that have been modified in the workspace but not yet kept or promoted.

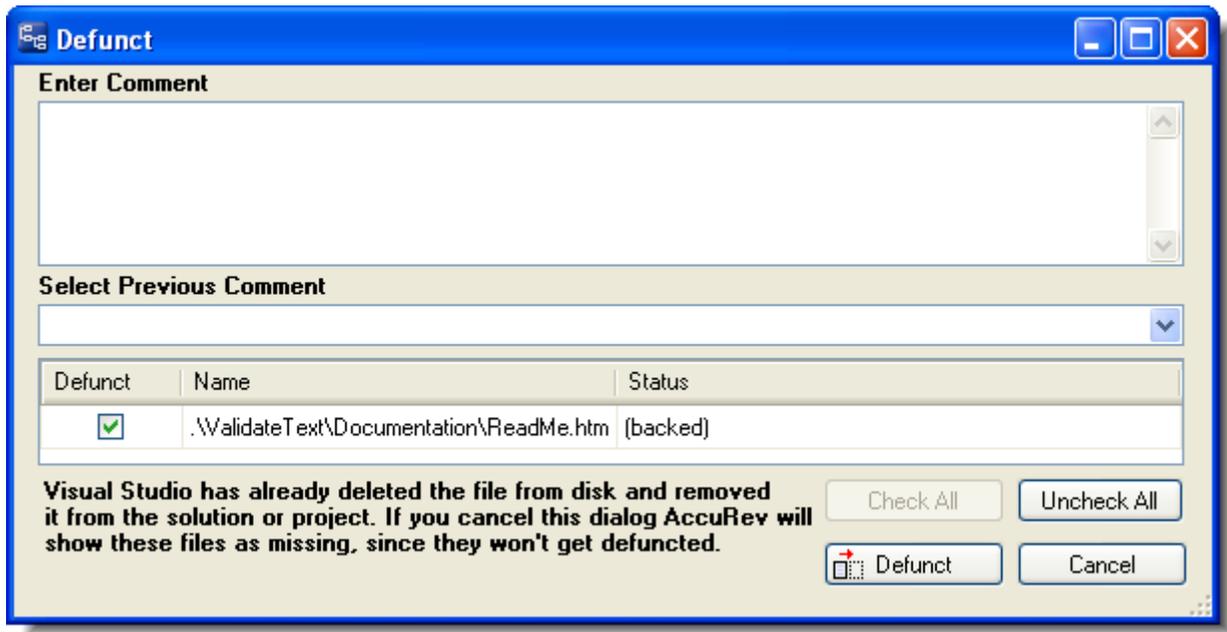
Defunct

(available in the *Searches Tab* and *Synchronize Tab*, but not in the Solution Explorer) Deletes the selected file from disk, and marks it with **(defunct)** status in the AccuRev workspace. You are prompted to enter a comment, just as with the *Keep* command.

A defunct file is no longer on your disk, but appears in the results of an AccuRev search for Defunct, Pending, or Default Group elements. It disappears entirely from the AccuRev workspace when you *Promote* the element to the backing stream.

Note: you can also defunct a directory element, but this can have far-reaching consequences. Before doing so, consult the description of the **defunct** command in the *AccuRev CLI User's Guide*.

Visual Studio's **Delete** command removes a file from your project (and local disk storage), then automatically offers to perform a **Defunct**, as well:



Be sure to proceed with the **Defunct**, to keep the Visual Studio project in sync with the AccuRev repository. If you don't, the element will have **(missing)** status in your workspace.

Revert to Most Recent Version

Similar to *Revert to Backed Version*, but rolls back a file only as far as the private version you recently created with *Keep*. This command is useful when you edit a file, save it with **File > Save**, then decide to discard the changes.

Revert to Backed Version

Discards the changes you've made to a file. It restores the version that was in the backing stream at the time of your most recent *Update* command. (But if you promoted one or more versions of the element to the backing stream since your most recent **Update**, it restores the most recently promoted version.)

Diff Against Most Recent Version

(text files only; single-file selection only) Compares your file with the private version you recently created with *Keep*. It answers the question *What have I changed since my last Keep?*

Diff Against Backed Version

(text files only; single-file selection only) Compares your file with the version currently in the workspace's backing stream.

Diff Against Basis Version

(text files only; single-file selection only) Compares your file with the more recent of these ancestor versions:

- A version that was originally created in another workspace, and brought into your workspace with an *Update*.
- A version that you created and *Promoted* to the backing stream.

It answers the question *What changes have I made recently to this file?*

Diff Against File on Disk

(text files only; single-file selection only) Compares your file with another file you select, using a standard Open dialog.

Commands Available on the History Tab

These commands are available only through context menus on the AccuRev window's *History Tab*.

Diff Against Workspace

Compares the version created by the selected transaction with the file that is currently in your project.

Diff Against Version

Compares the versions created by the two selected transactions.

Checkout Version

Performs an AccuRev checkout (**co**) command, which replaces the version in your workspace with the selected version. This is similar to the *Anchor* command, but activates a historical version rather than the workspace's current version.

The element must currently be inactive in your workspace — that is, it must have **(backed)** status.

Show Transaction

Displays a Transaction History window, showing the complete contents of the selected transaction. Some kinds of transactions can create a new version of multiple elements.

AccuRev - History of .\Clipboard\Documentation\ReadMe.htm

Name	Time	Transaction	Action
.\Clipboard\Documentation\ReadMe.htm	2008-11-17 15:02:10	72	promote
.\Clipboard\Documentation\Re...			keep
.\Clipboard\Documentation\Re...			promote
.\Clipboard\Documentation\Re...			keep
.\Clipboard\Documentation\Re...			keep
.\Clipboard\Documentation\ReadMe.htm	2008-11-13 14:25:44	40	undefunct

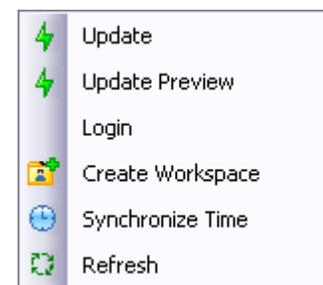
Transaction History

Type	Name	In Folder	Vir Ver	Real Ver	Anc
	Clipboard.vbproj	.\Clipboard\	2/4	vstud_int_john/4	
	ReadMe.htm	.\Clipboard\Documentation\	2/4	vstud_int_john/6	
	ReadMeFirst.txt	.\Clipboard\Documentation\	2/4	vstud_int_john/6	
	MainForm.vb	.\Clipboard\	2/2	vstud_int_john/2	
	MainForm.Designer.vb	.\Clipboard\	2/2	vstud_int_john/2	
	MainForm.resx	.\Clipboard\	2/2	vstud_int_john/2	
	Application.myapp	.\Clipboard\My Project\	2/2	vstud_int_john/2	
	Application.Designer.vb	.\Clipboard\My Project\	2/2	vstud_int_john/2	

Commands Available on the AccuRev Menu

These commands are available under **AccuRev** on Visual Studio's main menu. They are also available under **File > AccuRev**.

The AccuRev menu appears only if a solution is active in the Solution Explorer. The solution need not have any projects under AccuRev source control.



Update

Performs an AccuRev **Update** command on all workspaces that contain projects in the current solution. An update copies versions into your workspace from your workspace's backing stream. This has the effect of incorporating other people's changes, which they have promoted to the backing stream, into your workspace.

Update Preview

Lists the changes that *would* be made by an actual workspace update in the Output window's AccuRev pane.

Login

If AccuRev is configured to use the *accurev_login* user-authentication scheme, you must execute this command before you can perform any AccuRev operations within Visual Studio.

Do not use this command if AccuRev is configured to use the *traditional* user-authentication scheme. See [Establishing Your Identity](#) on page 5 for more information.



Create Workspace

Invokes a wizard that leads you through the creation of a new AccuRev workspace. See [Creating an AccuRev Workspace](#) on page 6.

Synchronize Time

Adjusts the system clock on your machine to match the clock on the AccuRev Server machine. This requires administrator-level permissions at the operating system level.

Workspace Information

Sends information regarding your current AccuRev work environment to the Output window's AccuRev pane.

```
-----  
Workspace information - TxtWork_int_john  
-----  
Principal: john  
Host: amdup  
client_ver: 92  
Server name: amdup  
Port: 5470  
ACCUREV_BIN: C:/JJPswdvt/bin  
server_ver: 92  
Client time: 2008/09/15 16:18:58 Eastern Daylight Time (1221509938)  
Server time: 2008/09/15 16:18:58 Eastern Daylight Time (1221509938)  
Depot: TxtWork  
Workspace/ref: TxtWork_int_john  
Basis: TxtWork_int  
Top: c:/wks/TxtWork_int
```

Refresh

Contacts the AccuRev Server and updates the status of all items in the solution. Use this command if a process other than Visual Studio has modified development files.

Automatic Invocation of AccuRev Commands

When you perform a Visual Studio operation that changes a project’s “namespace”, an AccuRev command is executed automatically, in order to keep the Visual Studio project namespace in sync with the AccuRev repository namespace.

Rename

If you perform a **Rename** command on an element, a corresponding AccuRev **Rename** (or **move**) command is invoked automatically. The change is logged to the AccuRev pane of the Output window:

```
Starting rename operation on '.\ValidateText\Documentation\ReadMe.htm' ...  
Moving .\ValidateText\Documentation\ReadMe.htm to  
        .\ValidateText\Documentation\ReadMeFirst.htm  
Operation completed successfully
```

Delete

If you perform a **Delete** command on an element, a corresponding AccuRev *Defunct* command is invoked automatically. Be sure to proceed — don’t choose to cancel in the **Defunct** dialog box. If you cancel, the element’s status becomes (**missing**).

Moving an Element

You can change the location of an element by dragging it from one directory to another — perhaps to a location in another project — while holding down the SHIFT key. You can also move an element with the **Cut** and **Paste** commands. AccuBridge for Visual Studio PE handles such operations as follows:

- If the destination is within the same AccuRev workspace — though not necessarily within the same Visual Studio project — an AccuRev **Rename** (or **move**) command is invoked automatically. (Note that in a C++ project, the copy operation does not create a file system object, merely a reference in the project file.)
- If the destination is not within the same AccuRev workspace, the AccuRev **Rename** command fails.

Note: A “plain” drag-and-drop, without holding down the SHIFT key, implements a copy operation, as does a **Copy-Paste** sequence. No AccuRev command is invoked in this situation. If you copy the item to a location within an AccuRev workspace, the new copy becomes an (**external**) item.

Appendix: The AccuRev Usage Model

AccuRev's flexibility makes it easy to use for a variety of development scenarios. But like every software system, AccuRev has usage models that were foremost in the minds of its architects. This section describes the most common usage model.

AccuRev is a software configuration management (SCM) system, designed for use by a team of people (users) who are developing a set of files. This set of files might contain source code in any programming language, images, technical and marketing documents, audio/video tracks, etc. The files — and the directories in which the files reside — are said to be “version-controlled” or “under source control”. AccuRev also version-controls links. Version-controlled objects are termed elements.

Workspaces and Streams

For maximum productivity, the team's users must be able to work independently of each other — sometimes for just a few hours or days, other times for many weeks. Accordingly, each user has his own private copy of all the version-controlled elements. The private copies are stored on the user's own machine (or perhaps in the user's private area on a public machine), in a directory tree called a workspace. We can picture the independent workspaces for a three-user team as follows:



This set of users' workspaces uses the convention of having like names, suffixed with the individual usernames. AccuRev enforces this username-suffix convention. **talon_dvt** might mean “development work on the Talon product”; **john**, **mary**, and **derek** would be the users' operating system login names.

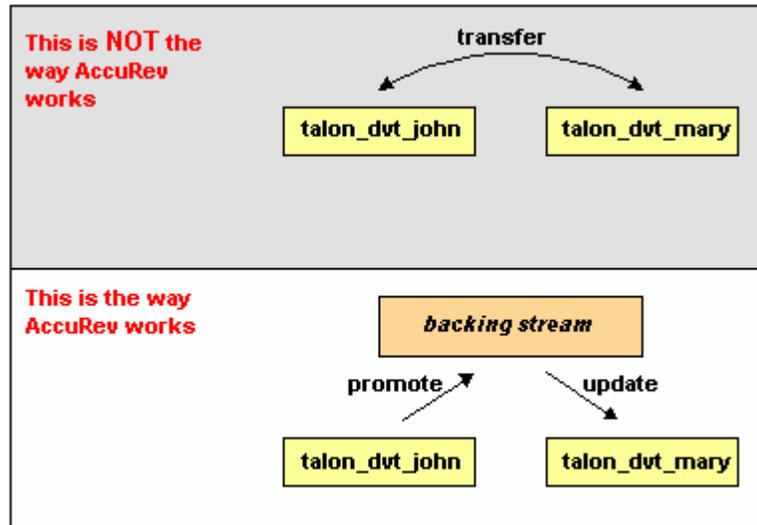
From AccuRev's point of view, development work in this set of workspaces is a continual back-and-forth between “getting in sync” and “getting out of sync”:

- Initially, the workspaces are completely synchronized: they all have copies of the same set of version-controlled elements.
- The workspaces lose synchronization as each user makes changes to some of the elements.

AccuRev uses the same synchronization paradigm as CVS — instead of transferring data directly between private areas (that is, between users' workspaces), AccuRev organizes the data transfer into two steps:

1. One user makes his changes public — available to all the other members of his team. This step is called promoting. (CVS calls this step “committing”.)
2. Whenever they wish, other team members incorporate the public changes into their own workspaces. This step is called updating.

You can use the Synchronize tab to organize and perform both your promoting work and your updating work. See *Synchronize Tab* on page 15.



The first step, promoting, sends your changes to a public data area, called a stream. AccuRev has several kinds of streams; the kind that we referred to is called a backing stream. The data in this public stream “is in back of” or “provides a backstop for” all the private workspaces of the team members. (The term “parent stream” is equivalent to “backing stream”.)

The second step, updating, copies other users’ changes from the backing stream to your AccuRev workspace.

AccuRev allows you to save any number of intermediate versions of an element in your workspace, before making your changes public. Such “private” versions of an element are created by the keep operation.

AccuRev Element Status

Each AccuRev element (version-controlled file, directory, or link) has a status, expressed as a set of status indicators. An element’s status addresses the question, “for this element, what is the relationship between the version in my workspace and the version in the AccuRev repository?”. There are quite a few status indicators, because AccuRev tracks an element’s status in three locations, not just two:

- The workspace tree: the directory tree on your machine, which you access as a Visual Studio project.
- The workspace stream: a corresponding area in the AccuRev repository that provides permanent storage for the private versions that you create in your workspace (for example, with the **Keep** command).
- The backing stream: the public area in the AccuRev repository that is accessed by you and other team members.

Following are descriptions of the AccuRev element status indicators.

Presence of the element in the workspace:

- **(defunct)** — the element has been marked for removal from the workspace stream with the **Defunct** command.
- **(external)** — the file or directory has not been placed under version control. (It is in the workspace tree, but not in the workspace stream.)
- **(excluded)** — the element does not appear in the workspace because it has been excluded, using the Include/Exclude facility. The AccuRev plug-in does not provide an interface to this facility.
- **(link)** — the element is a file link or a directory link.
- **(missing)** — the workspace “should” include a version of this element, but doesn’t. This occurs when you delete version-controlled files from the workspace tree using operating system commands.
- **(twin)** — the element is one of multiple elements in the workspace that exist at the same pathname. At most one of these elements can be accessed through the pathname; the other(s) can be accessed through their unique element-IDs. The AccuRev plug-in does not provide for access by element-ID.
- **(stranded)** — the element is active in the workspace, but there currently is no pathname to the element.

Changes to the element in the workspace:

- **(modified)** — the file has been modified in the workspace since the most recent **update** or **keep**.
- **(kept)** — you have created a new, private version of the element, and you have not yet made the version public with **Promote**.
- **(member)** — the element is “active” in your workspace, because you have created a new, private version of it with **Keep** or **Anchor**.

Relationship to the version in the backing stream:

- **(backed)** — an element that you’re not currently working on: the versions in the Visual Studio project (workspace tree), the workspace stream, and the backing stream are all the same.
- **(stale)** — the element needs to be updated, because the version in the backing stream has changed since the workspace’s latest **Update**.
- **(overlap)** — the element has changed both in the backing stream and in your workspace. This indicates that a **Merge** is required before you can **Promote** your changes to the backing stream.
- **(underlap)** — similar to **(overlap)**: the element has changed both in the backing stream and in your workspace, but the changes in your workspace have already been promoted to the backing stream.