

AccuRev Version 4.5

Installation and Release Notes

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AccuRev Installation Notes

Installation of AccuRev Configuration Management software on a machine involves running an installation “Wizard” program, after downloading it from the AccuRev Web site. One machine at your site should be installed as the “Server” machine — the one that runs the AccuRev Server process and hosts the AccuRev data repository. Any number of other machines can be installed as “Client” machines.

Each machine must be installed separately. There is no batch-installation capability, but you can perform a non-interactive installation, driven by a simple configuration file. (See *Non-Interactive Installation (Unix/Linux only)* below.)

We present an overview of the installation process here. The wizard aims to be self-explanatory, but if you’d like a detailed, step-by-step description of the installation process, see the “Quick Evaluation” chapters in *AccuRev Technical Notes*.

Upgrading from an Earlier Version?

AccuRev Version 4.x use a different license key from previous versions. You need a new license key to upgrade successfully. Please contact support@accurev.com to obtain a new license key.

Upgrading a machine from an earlier AccuRev release is easy. You are not required to uninstall any existing software. You can install the new release “right on top of” the existing release — the installation Wizard lets you preserve your development data and configuration files. On the server machine — the one that runs the AccuRev Server process — installation of the new release automatically upgrades the data repository to the new release level.

Note: On Windows machines that are running the AccuRev client, we recommend that you uninstall the existing version of AccuRev before installing AccuRev 4.5. Failing to first uninstall the existing version has two bothersome side-effects: First, the entry for the previous release is not removed from the **Add or Remove Programs** applet in the Windows control panel. Second, there is a documentation mismatch. The documentation links under the AccuRev icon in the Windows Start menu will continue to point to the old documentation, while the documentation links under the Help menu in the AccuRev application will point to the new documentation.

Getting Ready to Run the Wizard

We assume that you’ve already downloaded a file containing the installation Wizard from the Downloads page of the AccuRev, Inc. Web site. If not, perform the download now, then return to these instructions.

If the file you downloaded is the Wizard itself (Windows: **AccuRevInstall.exe**, Unix: **AccuRevInstall.bin**), then you’re all ready to run the Wizard.

If you downloaded a compressed package (a file with a **zip** or **gz** suffix), you must first extract the Wizard from the package. Many extraction tools are freely available. There are handy links to

such tools on the Downloads page; and the **unzip** and **gunzip** programs are standard on many Unix systems.

Now that you're ready to run the Wizard, you can proceed to the appropriate section below. When we instruct you to "start the Wizard", keep in mind these tips:

- If you are using a window system (Microsoft Windows or the X Window System) and can see the file as an icon, double-click it to launch the wizard in graphical mode.
- If you're using a command shell, go to the directory where you downloaded the file, and type one of these commands:

```
AccuRevInstall          (on Windows)
sh AccuRevInstall.bin   (on Unix/Linux)
```

This always launches the Wizard in graphical mode on Windows. On Unix/Linux, it launches the Wizard in graphical mode only if the X Windows System DISPLAY environment variable is set. Otherwise, it launches the Wizard in console (text) mode.

First-Time Installation — Client or Server

Start the Wizard. You'll be up and running in just a few minutes!

Upgrading a Client (Non-Server) Machine

Start the Wizard. If you choose a Custom installation, be sure to select **No** when the Wizard asks, "Do you want to install new configuration files?".

Upgrading a Server Machine

1. Stop the AccuRev Server process. On Unix/Linux systems, use the command **acservctl stop**. The **acservctl** program is located in the AccuRev **bin** directory. On Windows systems, you can use the Services applet to stop the AccuRev Server process, or the command **net stop accurev**.
2. Perform a full backup of the AccuRev data repository. For detailed instructions, see section *Backing Up the Repository* on page 3 of the *AccuRev Administrator's Guide*.
3. Start the Wizard. If you choose a Custom installation, be sure to select **No** when the Wizard asks, "Do you want to install new configuration files?". Similarly, select **No** when asked about replacing your license key file. Installation automatically upgrades the AccuRev data repository on the server machine. (There is no way to "downgrade" the data repository, for use with an earlier version of the AccuRev Server.)
4. Verify that the new AccuRev Server process has been started, by running the command **accurev info**. If you need to start the Server process manually, use the command **acservctl start** on Unix/Linux systems. On Windows systems, use the Services applet or the command **net start accurev**.

Non-Interactive Installation (Unix/Linux only)

On a Unix or Linux, system, you can run the AccuRev installation program **AccuRevInstall.bin** as a non-interactive “console program” instead of as a wizard. Follow these steps:

1. Create an installation configuration file by copying the sample text below. This text is also available for download from the Downloads page of the AccuRev, Inc. Web site.
2. Revise the settings in the configuration file, as appropriate for the target machine.
3. Invoke the installation program as follows:

```
sh AccuRevInstall.bin -i SILENT -f <config-file-pathname>
```

You must use a full pathname to specify the installation configuration file. Use the following text as a template for the configuration file:

```
###
### AccuRev InstallAnywhere SILENT installation config file
###
#
# Unix/Linux usage:  sh AccuRevInstall.bin -i SILENT -f <config-file>
# Windows usage:     AccuRevInstall -i SILENT -f <config-file>
#

# this setting enables use of this config file; do not change.
INST_ROOT=true

# location of AccuRev installation directory (OK to already exist)
# installer creates subdirectories bin, doc, jre, etc.
USER_INSTALL_DIR=/opt/accurev

# un-comment exactly one of the following lines.
#CHOSEN_INSTALL_SET=Client
CHOSEN_INSTALL_SET=Full

# Client install: hostname of machine to run AccuRev Server process.
# Full install: this setting ignored, hostname of local machine used.
SERVER_HOSTNAME=myhost

# The traditional port for the AccuRev Server is 5050. But you can
# change it to any number. We recommend the range 5000 - 6000.
SERVER_PORT=5050

# Full install: full pathname of a valid license key file.
# installer copies this file into site_slice dir, as "keys.txt".

LICENSE_KEY_FILE=/path/to/license-key-file
```

Note: the SERVER_PORT setting does not work in this release. The installation program uses **5050** as the port number in the **acclient.cnf** and **acserver.cnf** files (if it creates them), no matter what value you specify in the configuration file.

AccuRev Release Notes

Please read these Release Notes to familiarize yourself with the changes in AccuRev for Version 4.5.

Compatibility with Previous Versions of AccuRev

AccuRev Version 4.5 programs are incompatible with all prior AccuRev releases. If you are upgrading from a pre-V4.5 release of AccuRev, you must upgrade the machine that runs the AccuRev Server software, along with all the machines that run AccuRev client software.

No explicit conversion is required to bring the AccuRev data repository from any prior level to the Version 4.5 level. When you install Version 4.5 on the machine that runs the AccuRev Server software (this machine also hosts the data repository), the repository will be upgraded automatically, if necessary.

Compatibility with Versions of the Java Runtime Environment

Version 4.5 is fully compatible with both Versions 1.3.x, 1.4.x, and 1.5.x of the Java 2 Runtime Environment (JRE).

Source Code Availability

In accordance with the GNU open-source policy, the source code for the AccuRev programs **acdiff** and **acdiff3** is available at this Web address:

http://www.accurev.com/download/open-source/acdiff_source.zip

These programs implement text-file comparison and merging operations.

XML-Format Output of CLI Commands

Many of the commands in the AccuRev CLI tool, **accurev**, can produce output in XML format (**-fx** option). The documentation for this release does not describe the structure of the commands' XML-format output.

Principal Enhancements in Version 4.5

The following sections summarize the product enhancements in AccuRev Version 4.5.

New Security Features

AccuRev's security capability has been strengthened in these areas: user authentication, group management, and the access control list (ACL).

New “AccuRev Login” User Authentication Scheme

Each registered AccuRev user has a username/password combination, recorded in the AccuRev repository. Prior to Version 4.5, a person’s AccuRev username was either the same as his operating-system username (default), or a username established with environment variable `ACCUREV_PRINCIPAL`. This scheme is still supported, and is now called the “traditional” user-authentication scheme.

Version 4.5 also features a new “AccuRev login” user-authentication scheme. In this scheme, user’s must run the **login** command before using other AccuRev commands.

A site chooses its user-authentication scheme during AccuRev installation on the AccuRev Server machine. The scheme can be changed subsequently, using the **authmethod** command.

For details, see the **login** reference page in the *AccuRev User’s Guide (CLI Edition)*. In the AccuRev GUI, use the **Tools > Login** command.

Group Management

In Version 4.5, a group’s members can include other groups, as well as individual users. See the **addmember** reference page in the *AccuRev User’s Guide (CLI Edition)*.

More Flexible ACL Facility

Prior to Version 4.5:

- Each “permission” in the repository’s access control list (ACL) could apply only to a group, not to an individual user.
- Each stream or depot could have only one permission at a time; for example, creating a new permission for a stream automatically removed an existing permission for that stream.
- Permissions were not inherited; a permission on a stream affected *only* that stream, not any of the streams below it.

All these restrictions have been relaxed in Version 4.5. For example, access to stream **gizmo_integration** can be granted only to the individual users **tom**, **dick**, and **harry**. And that access control applies to the entire stream hierarchy below **gizmo_integration** (but can be overridden at lower levels).

For details, see the **setacl** reference page in the *AccuRev User’s Guide (CLI Edition)*. In the AccuRev GUI, use the **Admin > Security** command (ACL subtab).

Version Control of File System Links

Prior to Version 4.5, AccuRev provided version control of files and directories (folders) only. Version 4.5 provides:

- file links, which work somewhat like hard links
- directory links, which work somewhat like symbolic links (Unix/Linux) or junctions (Windows).

For details, see the **In** reference page in the *AccuRev User's Guide (CLI Edition)*. In the AccuRev GUI, link objects are created through a **Copy / Paste Link** command sequence.

Specifying the Backing Stream on a Per-Element Basis

The set of streams and workspaces in each AccuRev depot is arranged in a stream hierarchy. Each workspace or stream has a parent stream (or backing stream). Data flows in both directions between child and parent:

- A workspace gets versions of elements from its backing stream with the **Update** command. A dynamic stream inherits versions of elements from its backing stream automatically.
- A workspace or dynamic stream sends versions of elements to its backing stream with the **Promote** command.

In Version 4.5, you can “go outside the lines” of the stream hierarchy for specified elements in specified workspaces or streams. For example, stream **widget_dvt** might be the backing stream of workspace **widget_dvt_john**. But you can make stream **exper_481** the backing stream for element **base.java** in workspace **widget_dvt_john**. That is, when the workspace is updated, a new version of **base.java** comes from stream **exper_481**, not from stream **widget_dvt**.

This “outside the lines” relationship between workspace **widget_dvt_john** and stream **exper_481** for a particular element is called a cross-link. It's indicated by the status flag (**xlinked**). You can create cross-links ...

- from workspaces to streams
- from streams to higher-level streams
- from streams to lower-level streams

You can cross-link directory elements as well as file elements. This changes the backing stream for all the elements in the subtree below that directory.

Similarly, you can create cross-links for file system link objects (file links and directory links, described in *Version Control of File System Links* above.) Be sure to keep in mind that cross-links apply to the depot's *stream* hierarchy, whereas file links and directory links apply to the depot's *directory* hierarchy.

Cross-Links Are Read-Only

In Version 4.5, the **Update** command can traverse a cross-link to bring versions into a workspace from an “alternative” stream. But you cannot **Keep** or **Promote** a cross-linked element (or elements under a cross-linked directory).

Given this situation, the principal anticipated use of cross-links is to access alternative versions of build components. For example, suppose your team has been working to improve the performance of an application's memory-management library. The interface to the library has remained the same — only the implementation has changed. To test the improvements, you could build the application twice ...

- ... in the regular manner, so that the build uses the latest versions of the memory-management library sources (say, in directory subtree `./src/mgmt`).
- ... in a workspace that cross-links directory `./src/mgmt` to stream **Widget_2.8**, a snapshot that contains an old release's versions of the memory-management library sources.

Creating Cross-Links

You create cross-links using the include/exclude facility. Instead of asserting that you wish to “cross-link to” a particular stream, you assert that you wish to “include from” that stream. The element must already be present in both the workspace/stream you’re changing and the “include from” stream.

CLI example: To create a cross-link from workspace **widget_dvt_john** to stream **exper_481** for element **base.java**:

1. In workspace **widget_dvt_john**, go to the directory where element **base.java** resides.
2. Enter this command:

```
accurev incl -b exper_481 base.java
```

GUI example: To create a cross-link from workspace **widget_dvt_john** to stream **exper_481** for element **base.java**:

1. In a File Browser opened for workspace **widget_dvt_john**, navigate to the directory where element **base.java** resides.
2. Check the **Include/Exclude Mode** checkbox below the Folder pane.
3. Choose **Include from Stream** from the context menu of file **base.java** in the Details pane.
4. A popup window appears, listing all of the depot's streams. Choose **exper_481**.

Relationships between AccuWork Issue Records

AccuWork supports two kinds of relationships between a pair of issue records:

- **Duplicate**: You can specify that issue record B duplicates issue record A, so that no work need be done on B. (Perhaps the same bug was reported twice.) Any number of records (B, C, D, ...) can duplicate a given record (A). Your issue database might be set up to require establishing a Duplicate relationship when an issue record's State field is set to the value **Duplicate**.
- **Clone**: You can specify that issue record B clones issue record A, so that work on B (as tracked in its change package) is automatically “credited” to A. Any number of records (B, C, D, ...) can clone a given record (A).

You cannot create “relationship chains”: if B duplicates A, you cannot make C a duplicate of B. The same restriction holds for the clone relationship.

Issue record relationships can be viewed only in the AccuWork GUI. The edit-form tables that display issue relationships are not included when you export an issue record (for viewing or

printing). These tables are not included when you use the AccuWork command-line interface to dump the contents of an issue record.

When you create or delete a relationship between issue records, the change to both issue records is stored in the issue database immediately. There is no need to invoke the Save command on the issue record.(The Save button is not enabled in the edit-form toolbar.)

Viewing and Maintaining an Issue Record's "Duplicate" Relationships

The “duplicate” relationship is not symmetrical: “A duplicates B” is not the same as “B duplicates A”.

Accordingly, an edit-form field displaying a duplicate-type relationship consists of two tables: the top table shows issue records that are duplicated by the current record; the bottom table shows issue records that the current record duplicates.

Because of the “relationship chains” restriction, issue records can appear in only one of these tables, not both.

On the other hand, “A duplicates B” is the same as “B is duplicated by A”. This means that when you add an entry to the top table of one issue record, AccuWork automatically adds it to the bottom table of the other issue record (and vice-versa).

A Duplicate relationship field has its own toolbar, with these buttons:

Link Issue

Create a relationship link with another issue record. AccuWork prompts you to enter an issue record number.

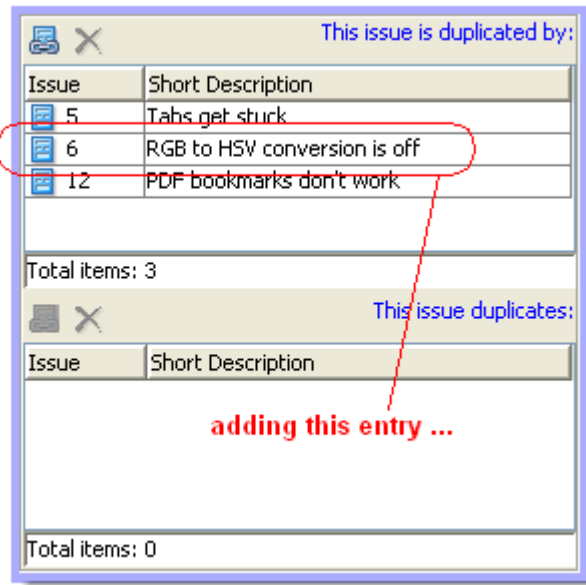
Remove Link

Remove the selected relationship link.

Note: In AccuWork's default issue database schema:

- There is a State field in the header section, one of whose values is **Duplicate**. (The Status value must be **Closed** to enable the setting of the State value to **Duplicate**.)

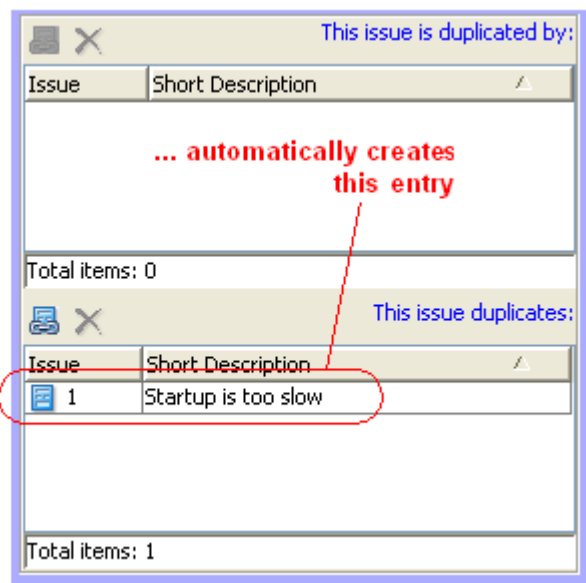
in issue record #1



Issue	Short Description
5	Tabs get stuck
6	RGB to HSV conversion is off
12	PDF bookmarks don't work

Total items: 3

in issue record #6



Issue	Short Description
1	Startup is too slow

Total items: 1

- There is a Duplicates field in the Relationships subtab.
- An edit-form validation specifies that when you set the State field's value to **Duplicate**, you must indicate which issue record is duplicated, by creating an entry in the Duplicates field.

Viewing and Maintaining an Issue Record's "Clone" Relationships

The “clone” relationship is not symmetrical: “A clones B” is not the same as “B clones A”. Accordingly, an edit-form field displaying a clone-type relationship consists of two tables: the top table shows issue records that are cloned by the current record; the bottom table shows issue records that the current record clones.

Because of the “relationship chains” restriction, issue records can appear in only one of these tables, not both.

On the other hand, “A clones B” is the same as “B is cloned by A”. This means that when you add an entry to the top table of one issue record, AccuWork automatically adds it to the bottom table of the other issue record (and vice-versa).

A Clone relationship field has its own toolbar, with these buttons:

Link Issue

Create a clone relationship link with another issue record. AccuWork prompts you to enter an issue record number.

Remove Link

Remove the selected relationship link.

An issue record's clone relationships affect the results of a Show Issues (or Show Diff by Issues) command:

If issue records A, B, and C clone issue record X, then X is considered to be “in” a given stream if any one (or more) of A, B, and C are “in” that stream.

Terminology: issues “in” a stream

Strictly speaking, the only objects that are “in” a stream are versions. It makes sense to describe a set of versions as being “in” a stream. And so, it makes sense to describe the set of versions in a change package as being “in” a stream. From there, we make the leap to describing the AccuWork issue record containing the change package as being “in” a stream.

New “Revert” Functionality

Prior to Version 4.5, the CLI **revert** command simulated an “undo promote” or “undo purge” operation on one or more elements in a stream by reinstating older versions of the elements (using the **co** command). Version 4.5 provides a more sophisticated approximation to “undo” — it uses a “reverse patch” algorithm to subtract the precise set of changes that the specified **promote** transaction had added to the element(s). Note that a **purge** transaction can no longer be reverted.

Version 4.5 also extends the “undo” capability to change packages. Each entry in a change package is similar to a patch to a particular element. When you revert a change package, AccuRev removes those patch-like changes from your workspace’s version of each element.

For details, see the **revert** reference page in the *AccuRev User’s Guide (CLI Edition)*. In the AccuRev GUI, use **Revert** command in a History Browser tab or Stream Issues tab.

Per-Element Exclusive File Locking

Prior to Version 4.5, the exclusive file locking feature could be enabled at the workspace level or at the depot level. In Version 4.5, you can enable this feature on a per-element basis, through the dialog box for the **Add to Depot** or **Keep** command. In the CLI, the **anchor**, **add**, and **keep** commands support the **-E serial** option to enable exclusive file locking for the specified element(s).

See also *Exclusive File Locking and Anchor-Required Workspaces* on page 3 of the *AccuRev User’s Guide (CLI Edition)*.

Note: In this release, **Keep** fails if an element itself has been locked, but succeeds if locking applies at the workspace or depot level. This behavior may change in future releases.