



# Introduction to Perforce for Users

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## Introduction

- Introductions
- Class Schedule
- GUI vs. CLI
- About the Exercises
- The meaning of \*live\* (P4V Demonstrations)

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## Course Contents (1 Day)

- Overview
- Help!
- Basic File Operations
- File Reporting and Revision Specifiers
- Changelist Management
- Workspace Management
- Handling File Conflicts
- Branching and Integration
- Streams
- Labels (optional)
- Job Tracking (optional)

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## Introduction to Perforce for Users

### Overview

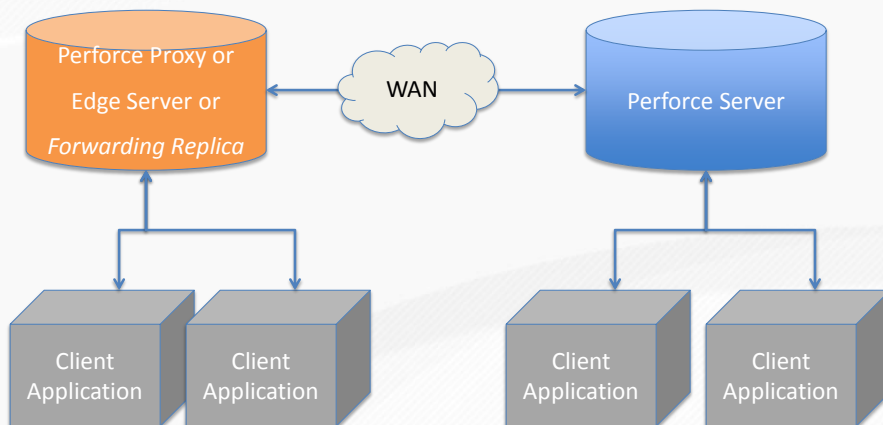
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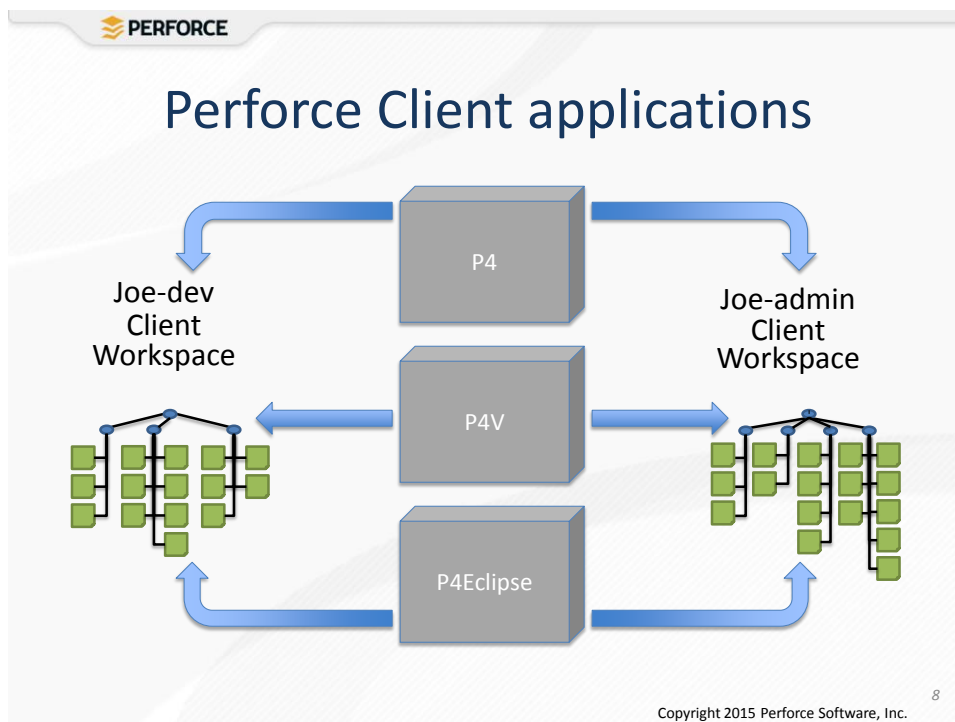
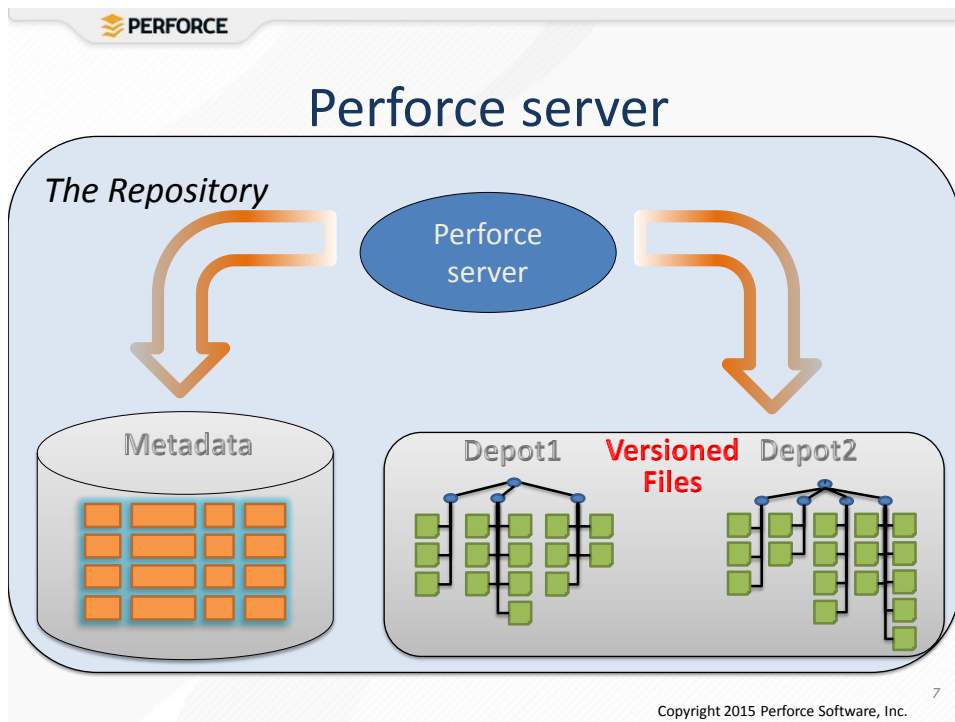
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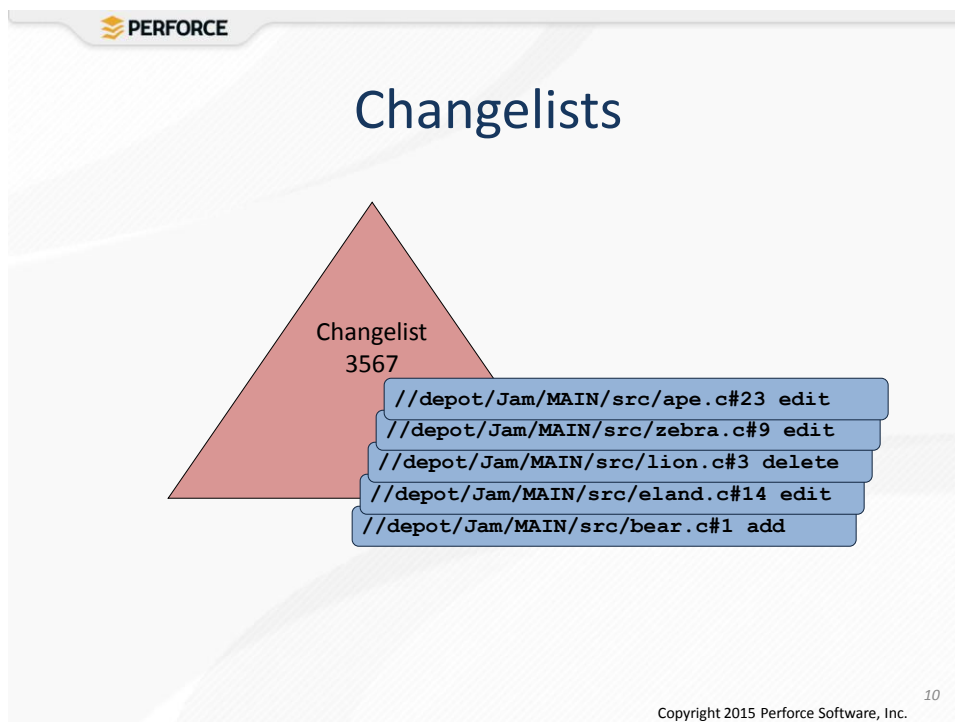
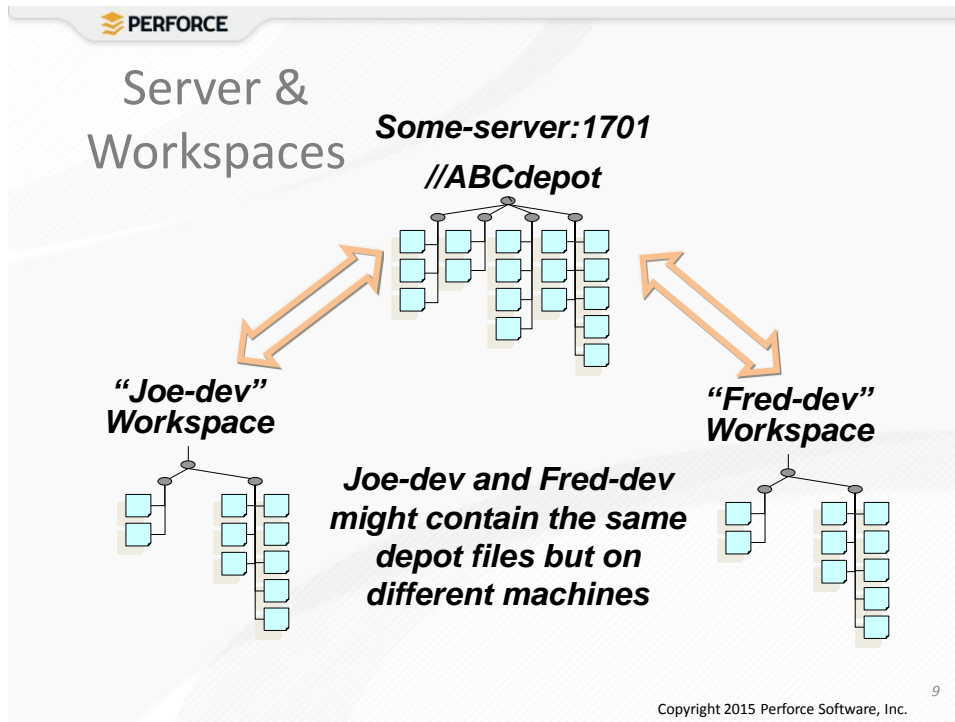
## Overview

- Client/Server Model
- Server
- Client Programs
- Changelists
- Terminology: Client...
- Connecting to Perforce

## Perforce Client-Server model









## Terminology - Client ...

- Client machine
- Client programs
- Client workspaces

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## Connecting to the server \*Live\*

- Basic connection - specify
  - <Server-machine>:<port-number>
  - Username
  - Workspace (optional)
- You may be prompted for password

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## Commands in this Chapter

- Connecting to Perforce

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## Introduction to Perforce for Users

Help!

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## Help!

- P4V Help Files
- Online Perforce Documentation
- E-mail Perforce
- Perforce Forums / Community
- P4Blog / Newsletter

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## Getting help in P4V

**\*live\***

- Task oriented context sensitive help
- Getting started with P4V manual
- Showing system information

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## Documentation on Perforce's web site

### Support > Documentation

- Introducing Perforce
- Getting Started with P4V
- P4/P4V Cheat Sheet
- Perforce Command Reference
- Perforce System Administrator's Guide
- Release Notes
- Knowledge Base
- White Papers

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## Help via E-mail and other sources

- E-mail Perforce at:
  - [support@perforce.com](mailto:support@perforce.com)
  - [sales@perforce.com](mailto:sales@perforce.com)
  - [consulting@perforce.com](mailto:consulting@perforce.com)
- Perforce Community
  - [www.perforce.com/community](http://www.perforce.com/community)
  - Forums / Blog / Ideas
  - Exchange ideas with other Perforce users

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## Customize P4V

**\*live\***

- General settings
- Editor choices
- Diff applications
- Merge applications
- File content font selection

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## New Actions in this Chapter

- **Help →**
  - **P4V Help**
  - **Getting Started with P4V**
  - **System Info**

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# Introduction to Perforce for Users

## Basic File Operations

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## Basic Operations

- Populating a Client Workspace (Get Latest Revision)
- Editing, Adding and Deleting Files
- Renaming/Moving Files
- Reverting Files
- Assessing Current Status
- Submitting Changes



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## Get latest revision of files \*live\*

### **Get latest revision**

- Select  Depot or  Workspace tree
- Select desired folder or files
- Selected files are transferred to your workspace from the server
- Files are read-only by default

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## Editing workspace files \*live\*

### **Check out...**

- or
- Check out and open...
- Make local files writeable
- Optionally, open files in editor
- Other users can see which files you have checked out

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## Adding new files

**\*live\***



### **Mark for Add...**

- Save new files in your workspace tree
- Select the Workspace tree
- Refresh P4V and navigate to your files
- Optional:
- Change Filetype...
  - Add file type modifiers
  - Change base file type

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## Deleting files

**\*live\***



### **Mark for Delete...**

- Select files for deletion on the server
- Marked files are removed from workspace

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## Renaming/moving

**\*live\***

- **Rename/Move . . .**
- Rename a file or move to another server folder
- New file name is marked for move/add
- Old file name is marked for move/delete

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## Reverting workspace files

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- **Revert**
- Discard action on marked files
- Edits overwritten
- Deleted files copied to workspace
- Files marked for add unmarked

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## Assessing work in progress \*live\*

- ▲ Pending changelist tab
  - Which files are you working on?
  - **Diff Against Have Revision**
  - What changes have you made?

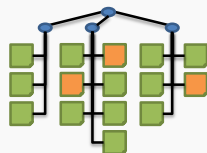
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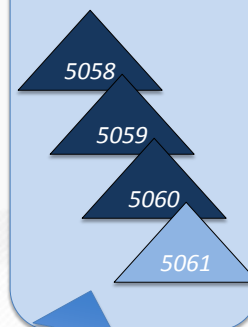


## Submitting a changelist

*Client Workspace*



*Depot*



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## Submitting a changelist

**\*live\***

### **Submit...**

- Opens the submit dialog
- Enter a description for the default changelist
- **Submit**
  - Completes the submit action
  - Files are transferred to the server

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## New Actions in this Chapter

- **Context-click →**
  - **Get Latest Revision**
  - **Check Out**
  - **Mark for Add**
  - **Mark for Delete**
  - **Rename/Move**
  - **Revert**
  - **Diff Against Have Revision**
  - **Submit**
- Marked files show in pending changelist

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# Introduction to Perforce for Users

File Information / Reporting  
Underlying principles and P4V  
implementation

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## File Reporting

- Finding files
- Wildcards for filenames
- Revision specifiers
- Showing file and folder history
- Comparing and diffing files and folders

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## Searching for files

**\*live\***



### **Find File...**

- List files matching search pattern

### **Show In**

- Depot Tree
- Workspace Tree
- File browser
- Pending Changelist

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## Supported Wildcards

- P4V vs CLI
- Two types

```
p4 sync ...
```

```
p4 sync //depot/Jam/MAIN/...
```

```
p4 sync //depot/Jam/R1.0/....txt
```

```
p4 sync //depot/Jam/MAIN/doc/J*
```

```
p4 sync //depot/Jam/MAIN/src/*
```

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## Revision Specifiers – CLI/API syntax

Type	Syntax
Revision number	#7
Changelist number	@30
Workspace name	@sams_ws
Label name	@rlos_label
Date	@2012/03/01
<i>Latest revision</i>	<i>#head</i>
<i>Have revision</i>	<i>#have</i>
<i>Non-existent revision</i>	<i>#none or #0</i>

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## What are Revision Specifiers?

- Identify a file or group of files

Changelist	@5123	@5179	@5234	@5259	@5310
<b>file1</b>	#1	#2		#3	#4
<b>file2</b>		#1	#2		#3
<b>file3</b>	#1			#2	

- A changelist specifier can refer to:
  - The set of files contained in the changelist
  - A point in time in the life of your repository (like a label)

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## Why use Revision Specifiers?

- Restrict the scope of a command; for example:

- Sync to a particular revision

```
p4 sync //depot/Jam/MAIN/rules.h#12
```

- List files updated up to a known changelist

```
p4 files //depot/Jam/...@5234
```

- List changes submitted up to a known date

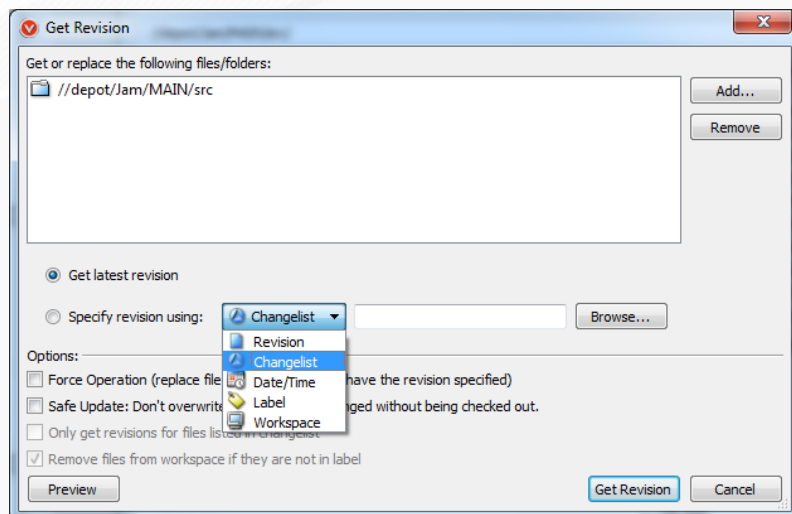
```
p4 changes //depot/Jam/MAIN/...@2012/04/21
```

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## Revision Specifiers - P4V



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## Revision Specifiers - CLI

```
p4 sync utils.c#2
p4 sync utils.c@431
p4 sync @431
p4 sync ...@431
p4 changes //depot/Jamgraph/DEV/gizmo/*.c@431
p4 sync @janslabel
p4 files //depot/Acme-api/...#have
p4 sync //depot/notes/....txt
p4 sync #none
p4 sync util.c@2014/05/29
p4 files //depot/Jam/...@2014/05/29:15:37:00
```

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## Revision ranges – CLI only

- Limiting commands to a revision range:

```
p4 changes abc.c@20,@32
p4 changes xyz.c@rel1,@rel2
p4 files //depot/api/...@431,@431
p4 files //depot/api/...@=431
```

- Some commands accept revision ranges:

```
p4 changes    p4 integ    p4 sync
p4 jobs       p4 files    p4 print
p4 fixes
```

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## Displaying file properties

**\*live\***

### **Files in Folder**

- Display file information

**Details**

**Checked Out By**

**Preview**

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## Displaying file history

**\*live\***

### **File History**

- List summary of each submitted revision
- Use drag-and-drop for showing file diffs

**Details**

**Integrations**

**Labels**

**Preview**

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## Displaying revision graph

**\*live\***

### Revision Graph

- View a file's history graphically
- View file differences
- Display file information

**Details**

**Integrations**

**Labels**

**Preview**

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## Displaying Time-lapse View

**\*live\***

### Time-lapse View

- Recently added lines color-coded
- Lifetimes of adjacent chunks of text
- Which user made the change?
- Find text in a file
- View a single revision, incremental diffs or a range of revisions

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## Removing workspace files

**\*live\***

### **Remove from workspace**

- Delete local files under Perforce control
- Leave marked files untouched

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## Displaying folder history

**\*live\***



### **Folder History**

- Drag-and-drop changelists to view **Folder Diff**

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## Using the Diff dialog

\*live\*



### Diff Against...

- Select files or folders in the server
- Use a revision specification

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## File types

- Base file types:

text	symlink	unicode	utf16
binary	apple	resource	

- Workspace storage attributes

<i>+x</i> - executable	<i>+ko</i> - RCS keyword (old style)
<i>+w</i> - always writable	<i>+l</i> - exclusive open
<i>+k</i> - RCS keyword	<i>+m</i> - sync vs. submit modtime

- Server storage attributes

<i>+S</i> - latest revision	<i>+D</i> - deltas
<i>+C</i> - compressed	<i>+F</i> - full file

- See **Command Reference Guide** for definitive explanation

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## New Actions in this Chapter

- **Edit → Find File**
- **View → Files in Folder**
- **Context Click →**
  - *Get Revision*
  - *Revision Graph*
  - *Remove from Workspace*
  - *Diff Against*
  - *Change Filetype*
  - *File History*
  - *Time-lapse View*
  - *Folder History*
- **Tree Filter pull-down menus**

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## Introduction to Perforce for Users

### Changelist Management

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## Changelist Management

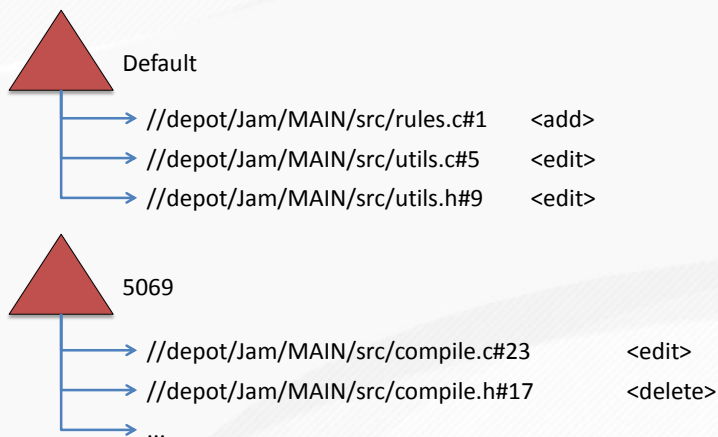
- Managing pending changelists
- Shelving opened files
- Showing changelist detail

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## Multiple Pending Changelists



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## Working with multiple changelists *\*live\**



### Pending Changelists

- Organize your work
- Rearrange files before submitting
- Add to the description

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## Shelving opened files *\*live\**

### Shelve Files...

- Transfer edited files to a “shelved” changelist on the server
- Revert checked out files
- Clear previously shelved files

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## Working with shelved files \*live\*



Shelved files are available to other users

- Unshelve and open for edit
- View file differences
- Transfer ownership
- Shelved changelists can be updated
- Owners can delete shelved changelists

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## Shelved Changes



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## Filtering changelists



**Pending** or



**Submitted Changelists**

- Filter by:
  - Folder or file path
  - User name
  - Workspace name

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## New Actions in this Chapter

- **File → New → Pending Changelist**
- **Drag and drop files among changelists**
- **Context click →**
  - **Edit Pending Changelist <nnn>**
  - **Submit**
  - **Shelve Files**
- **View → Submitted changelists**
- **Context click →**
  - **View Submitted Changelist <nnn> →**
    - **Show File Diffs**
- **Filter Submitted Changelists**

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# Introduction to Perforce for Users

## Workspace Management

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# Setting up a Workspace

- Creating a Workspace
- Setting Workspace View Mappings
- Referencing Files
- Configuring Workspaces and Connections

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## What is a workspace?

- View into a Perforce Server
- Local files in the workspace are managed by Perforce
- Uniquely identified by its name (**P4CLIENT**)

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## Why have multiple workspaces?

- Project/Branch oriented
- Better performance
  - For both you and your colleagues!

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## What does a workspace need?

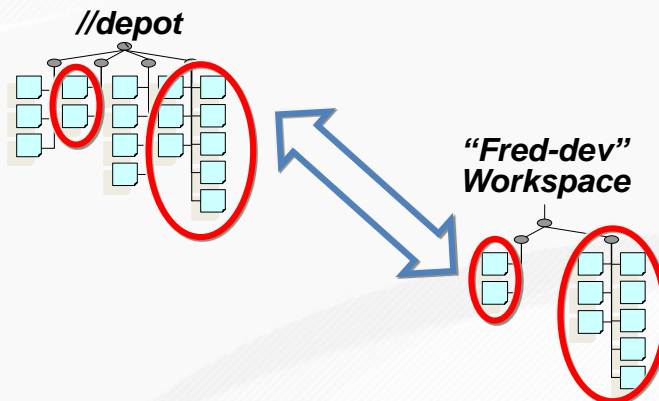
- Name
  - Uniquely identifies the workspace
- Root
  - The workspace's root directory on your client machine
- View
  - Maps areas of a Perforce Server to client workspace

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## Workspace Views map between server and local file system

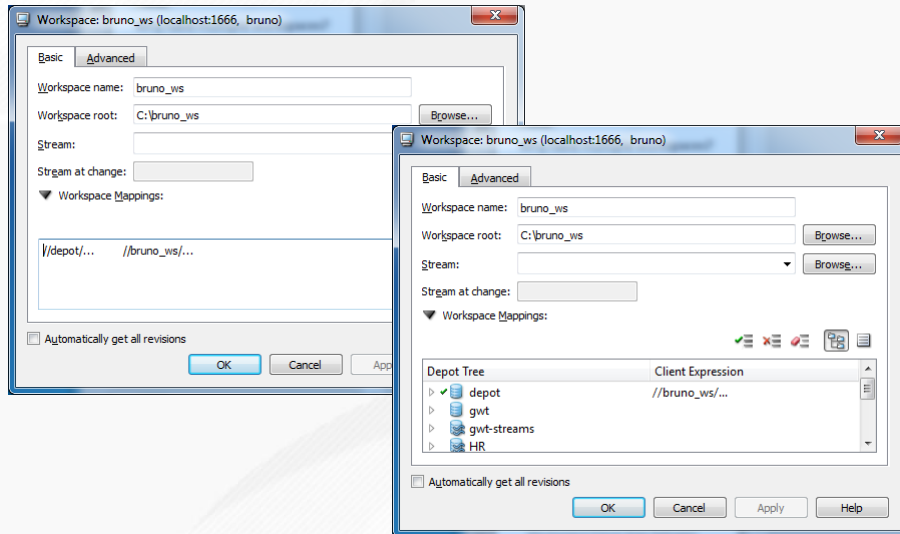


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## Creating a workspace specification



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## Creating a workspace specification \*live\*

### Create a new workspace

- When launching P4V

**Connection → New Workspace...**

- In the **Depot** or **Workspace** tree
- In the **Workspaces** pane

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## Client workspace view

**Client:** bob-jam

**Root:** c:\p4work\bob-jam

**View:**

//depot/Jam/MAIN/src/...	//bob-jam/Jam/MAIN/src/...
-//depot/Jam/MAIN/src/tests/...	//bob-jam/Jam/MAIN/src/tests/...
//depot/Jam/MAIN/src/*.h	//bob-jam/Jam/MAIN/src/hfiles/*.h
//depot/Jam/MAIN/A/B/config/*	//bob-jam/Jam/MAIN/cfg/*
//depot/Acme-api/....cpp	//bob-jam/Acme-api/....CC
//depot/Jam/REL1.0/src/...	//bob-jam/Jam/REL1.0/src/...
+//depot/Jam/PATCH1.0/src/...	//bob-jam/Jam/REL1.0/src/...

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## Workspace view tab options \*live\*

- Include or exclude
  - Files or folders
  - An entire tree
  - Files under one folder
  - Files by extensions
  - Files or folders mapped to different names

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## Workspace customization

\*live\*

- Specify a root folder
- Add alternate root folders
- Set workspace options
- Specify line ending translation
- Choose submit option

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## Viewing workspaces

\*live\*

- Filter workspaces by:
  - Owner
  - Names containing a string
  - Available for use on your computer

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## Copying workspaces

**\*live\***

- Clone a workspace's
  - Options
  - View
  - Submit Options
  - Line Endings

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## New Actions in this Chapter

- **Open Connection → New → Workspace**
- **Details → Form/View tabs**
- **Connection →**
  - **Edit Current Workspace**
  - **New Workspace**
- **View → Workspaces →**
  - **Name contains: Filter**
  - **Context click → Create Workspace from <workspacename>**

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# Introduction to Perforce for Users

## Handling File Conflicts

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## Handling File Conflicts

- File Conflicts
- Resolving Conflicts
- Conflicting Diffs
- Reporting Actions

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## Classic conflict scenario

- Two users edit the same file
- First user submits
- Second user gets latest revision
- Resolve is 'scheduled'

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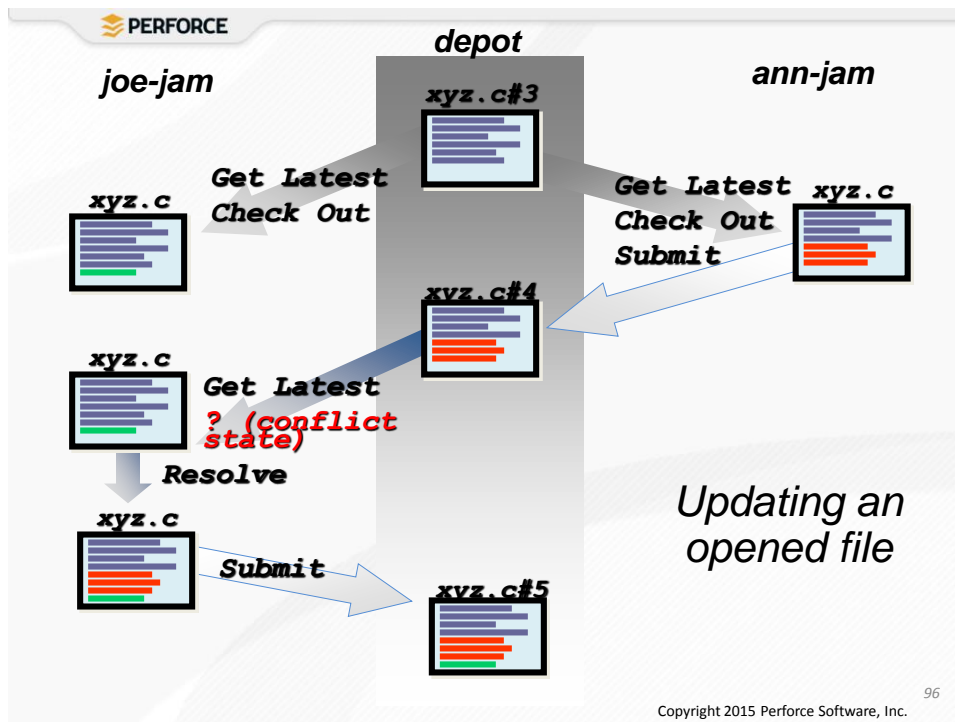


## Other conflict scenarios

- File conflicts
  - Submitting a change to an out-of-date file
  - Re-syncing an opened file that is out-of-date
  - Moving to an existing file
  - Unshelving onto an opened file
- *Integration conflicts*

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## Updating out-of-date workspace files

*\*live\**

- File checked out not at the head revision
  - Get latest revision to "schedule a resolve"
  - File checked out will not be changed
- File ready to resolve

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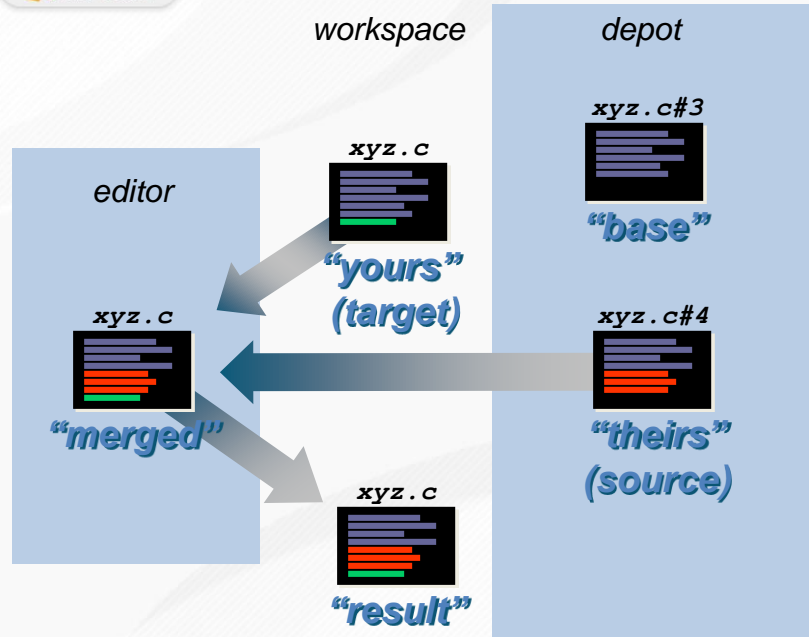


## Textual vs. binary resolves

- Three-way resolves
  - Operate on text files
  - Use Yours, Theirs, and Base
  - Files can be merged
- Two-Way resolves
  - Operate (by default) on binary files
  - No binary diffs stored, so files can't be merged
  - Resolve choices: accept yours or theirs

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## Resolving files interactively

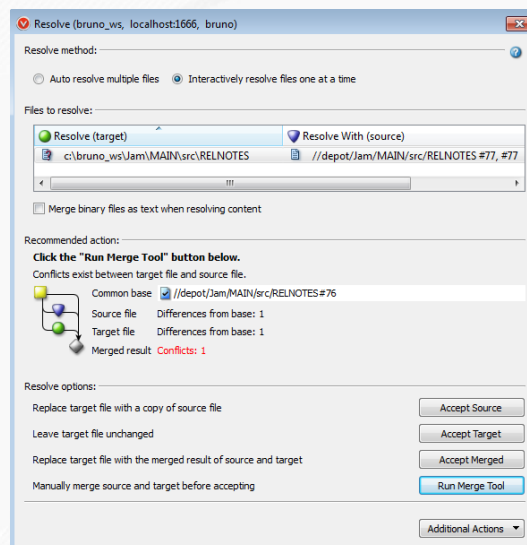
### Resolve...

- Accept Source (Theirs – depot file)
- Accept Target (Yours – workspace file)
- Accept Merged
- Run Merge Tool
- Data mining / Additional Actions

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## Resolving options



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## Diff chunk types

### yours

- Unique diff chunk in client file only

### theirs

- Unique diff chunk in depot file only

### both

- Unique diff chunk common to depot and client file

### conflicting

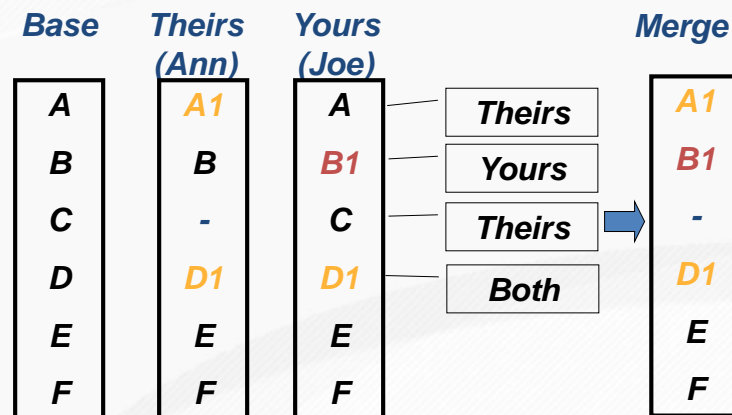
- Unique diff chunk conflicting between depot, client and base.

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## Diff Chunks – Easy 3-way Merge

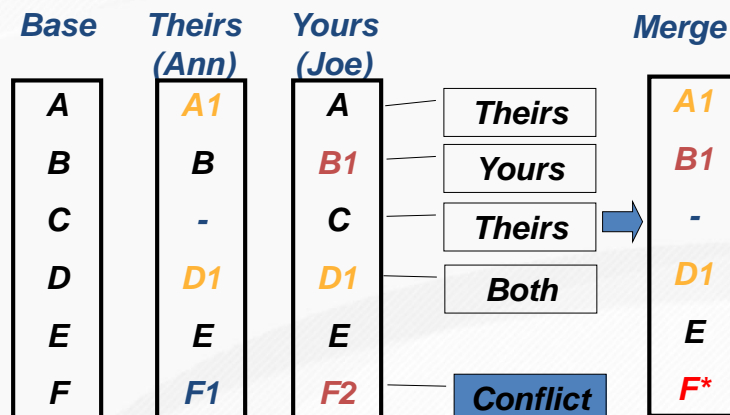


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## Diff Chunks – 3-way Merge conflicts

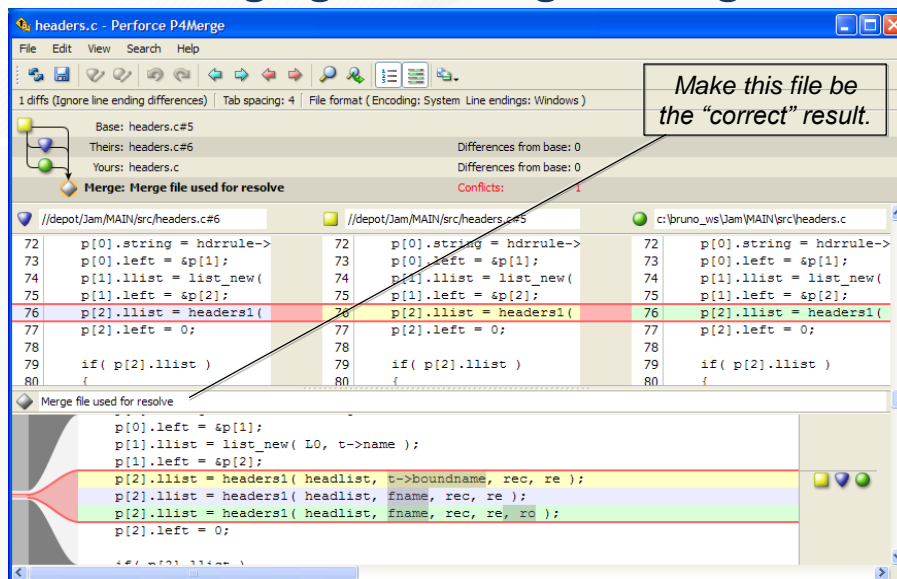


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## Merging files using P4Merge



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## Locking files

\*live\*



### Lock

- Other users cannot submit until you submit or unlock the file
- Exclusive lock filetype prevents other users even checking out

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## Recovering a deleted file

\*live\*

Show deleted depot files

Rollback...

Submit...



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## Reconciling offline work \*live\*

- Mark files for:
  - add
  - edit
  - delete

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## New Actions in this Chapter

- Context click →
  - Get Latest Revision
  - Resolve →
    - Open File
    - Diff
    - Run Merge Tool
  - Lock
- View → Submitted Changelists →

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# Introduction to Perforce for Users

Classic Branching and Integration  
Branching Files and Propagating  
Changes  
(and Branch Mappings)

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## Branching and integration

- Terminology
- Why branch?
- Integration steps – creating
- Integration steps – propagating

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## Terminology

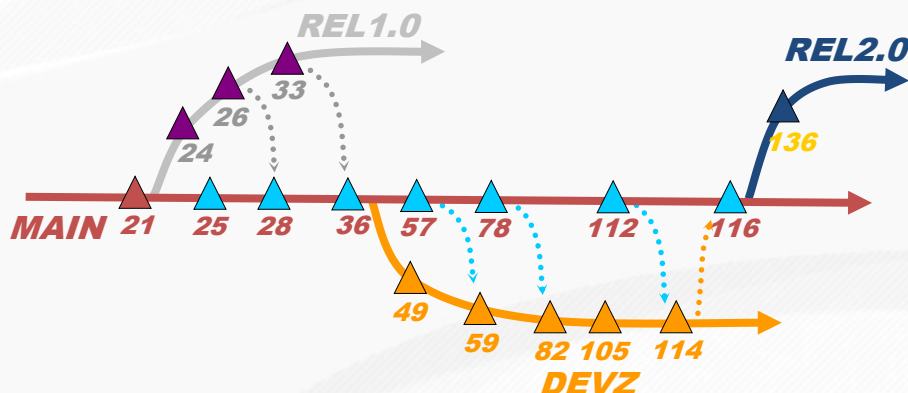
- Branch
  - (noun) A set of related files (a.k.a. codeline), created as a copy of its parent
  - (noun) A branch mapping (in P4V)
  - (verb) To create a new codeline (branch)
- Integrate
  - To create a new branch/codeline ([Branch Files...](#))
  - To propagate changes between existing branches/codelines ([Merge/Integrate...](#) or [Copy...](#))

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## Some branching patterns



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## Why branch?

- Conflicting policies
- Task oriented development
- Discussed in more detail in:

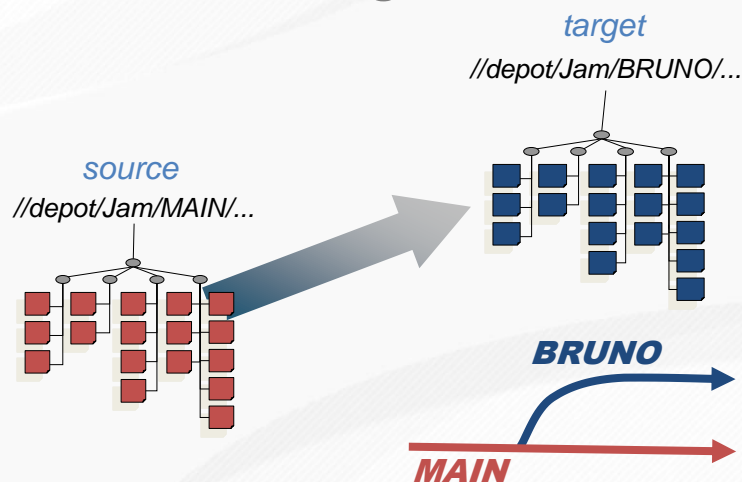
### High-Level SCM Best Practices

<http://www.perforce.com/sites/default/files/pdf/high-level-perforce-best-practices.pdf>

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## Creating a branch



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## Creating a new branch

*\*live\**

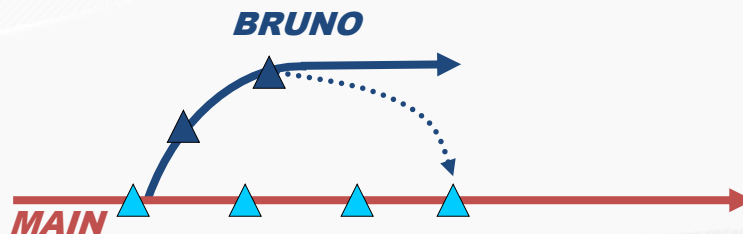
- **Branch Files...** specifying source and target
- **Submit...**

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## Propagating changes across branches



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## Propagating changes

**\*live\***

- The target branch must be mapped in the current workspace view – we are changing those files!
- **Merge/Integrate...**
- **Resolve...**
- **Submit...**

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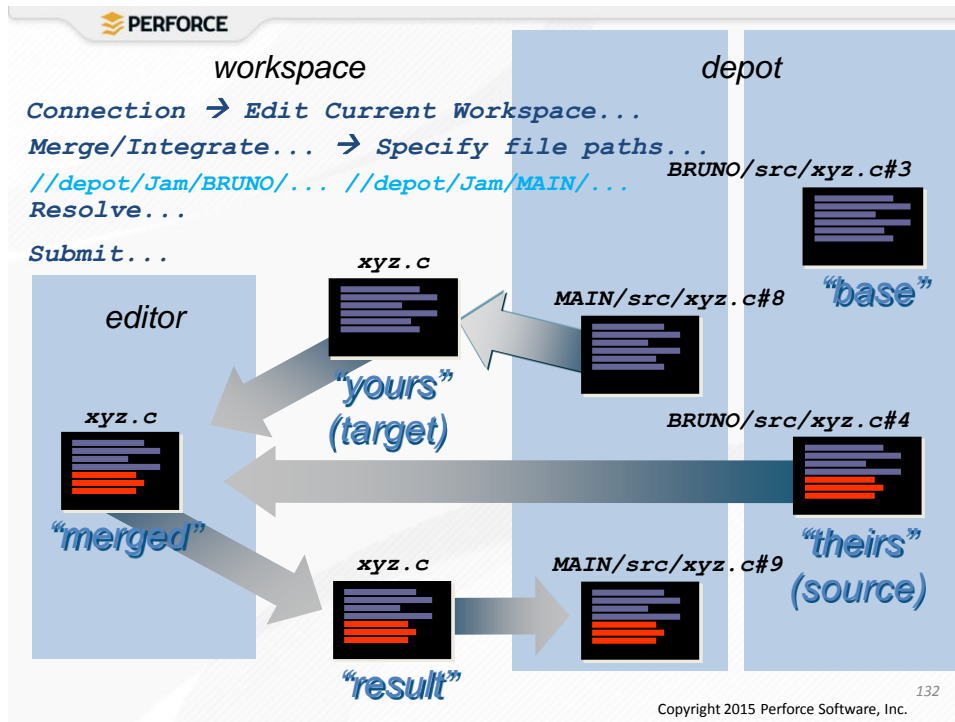


## Resolving for merge/integrate

- *Theirs* = Source
- ***Yours* = Target (the one being changed by merge)**
- *Base* = Closest common ancestor

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**PERFORCE**

## Integrating using branch mappings

- Branch mappings store source/target pairs
- Integrate using branch mappings
  - Create new branch or Save
  - Re-use to propagate changes

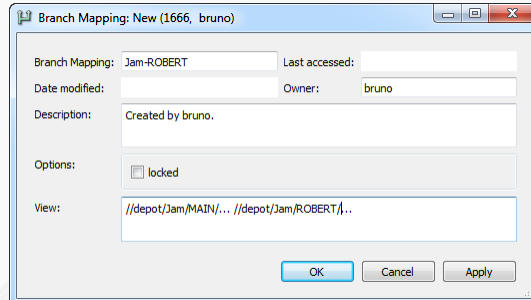
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## Creating branch mappings

### New Branch Mapping...



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## Integrating using branch specifications\*live\*

- **Merge/Integrate...**
- Choose branch spec
- **Resolve...** when propagating changes
- **Submit...**

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# Introduction to Perforce for Users

## Automatic Resolving

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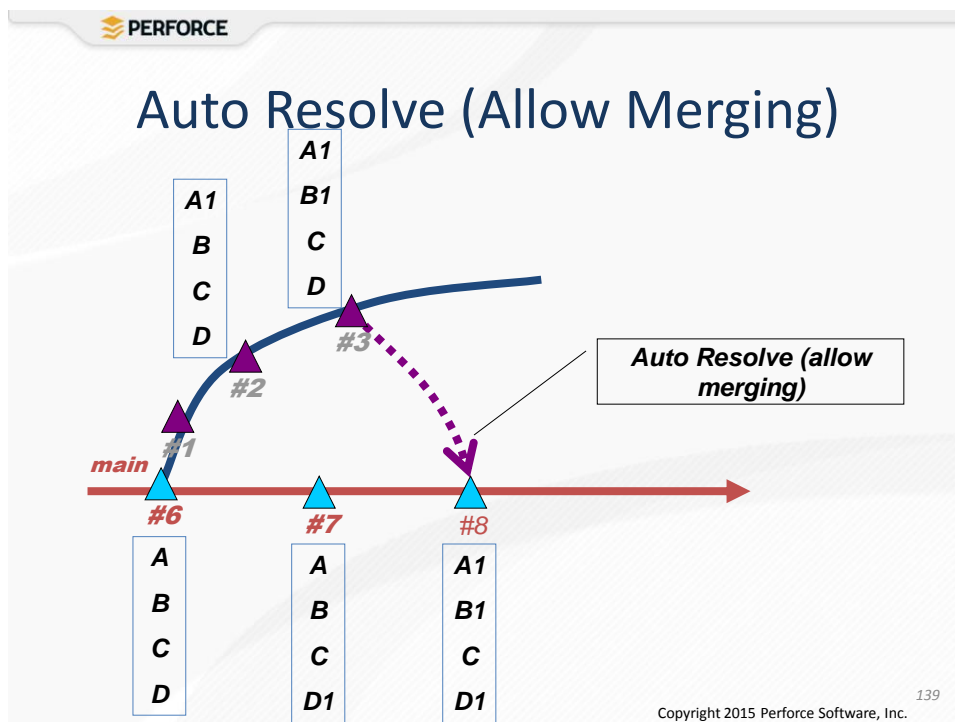
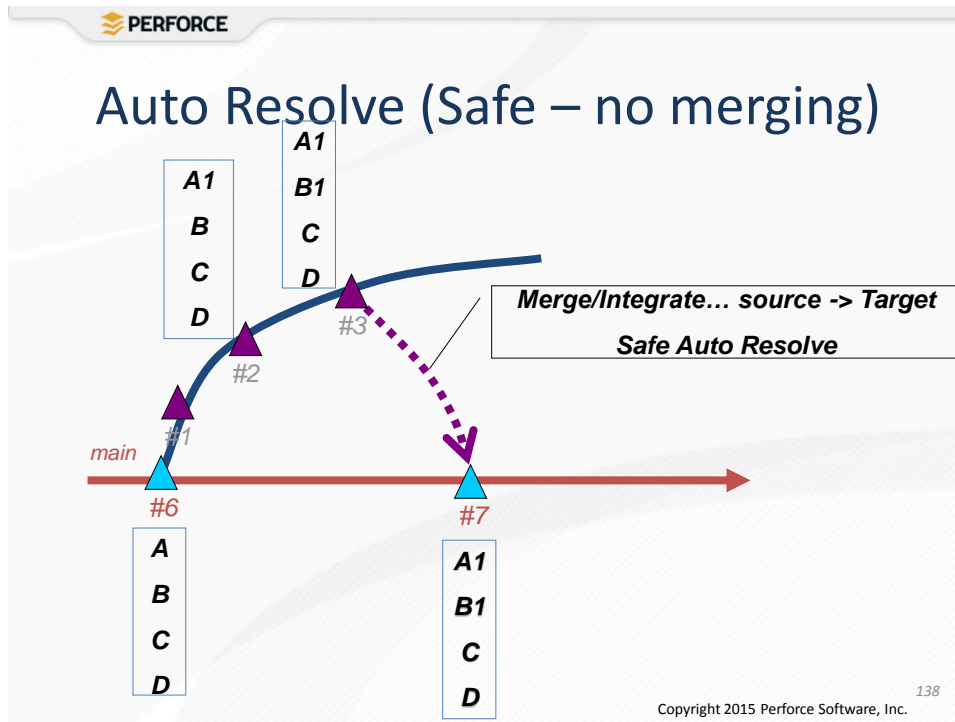


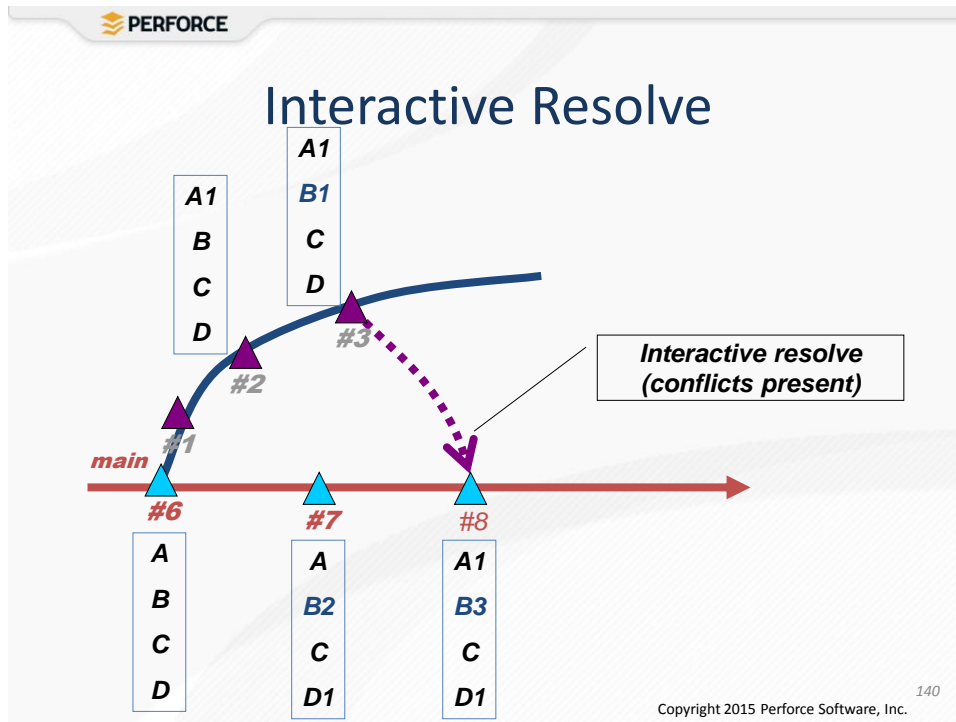
## Automatic Resolve Options

### Resolve...

- Safe Automatic (no merging)
- Automatic (merging allowed)
- Interactive (conflicts present)

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**PERFORCE**

## Automatic Resolve Options

**Recommended every time**

- Safe Automatic (50 - 80%)
- Automatic (35 - 15%)
- Interactive (15 - 0%)

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## Selective integrations

**\*live\***

- Use any revision specification to limit the range of integration
- Integrate up to or only specific revisions
- Select **Advanced Options...** and store selections

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## New Actions in this Chapter, Part 2

- Context click → Branch Files → Specify target
- Context click → Merge/Integrate → Specify target
- Context click → Merge/Integrate → Save Branch Mapping
- Context click → Merge/Integrate → Select branch mapping
- Resolve...
- Context click →
  - Integrate... →
    - Specify source and target files →
      - Limit the range of the integration:
      - Advanced Options

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# Introduction to Perforce for Users

## Using Streams

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## Streams

- Introduction
- Creating a stream
- Populating a stream
- Working in a stream
- Streams views

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## Introduction

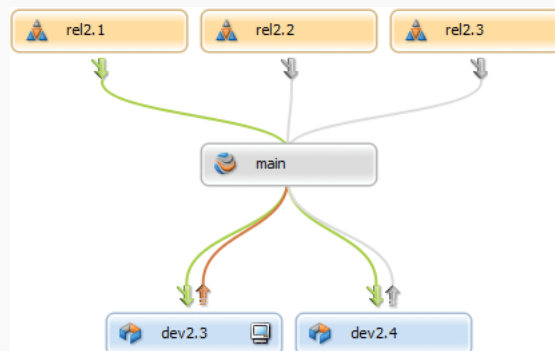
- Intelligent branching
- Policies govern workflow
- Control the flow of change
- 1:1 relationship
- All are decedents of the mainline
- Defined relationship to its parent...  
...not to its children

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## Stream relations

- Controlled flow of change



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## Stream Types

### 'release'

*Highly stable*

(merge 'down' to parent, typically no copy 'up')

### 'mainline'

*Stable per your policy*

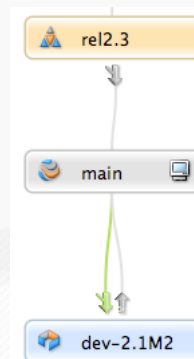
(merge 'down' to dev, copy 'up' from dev)

(merge 'down' from release, *copy 'up' to release*)

### 'development'

*Unstable*

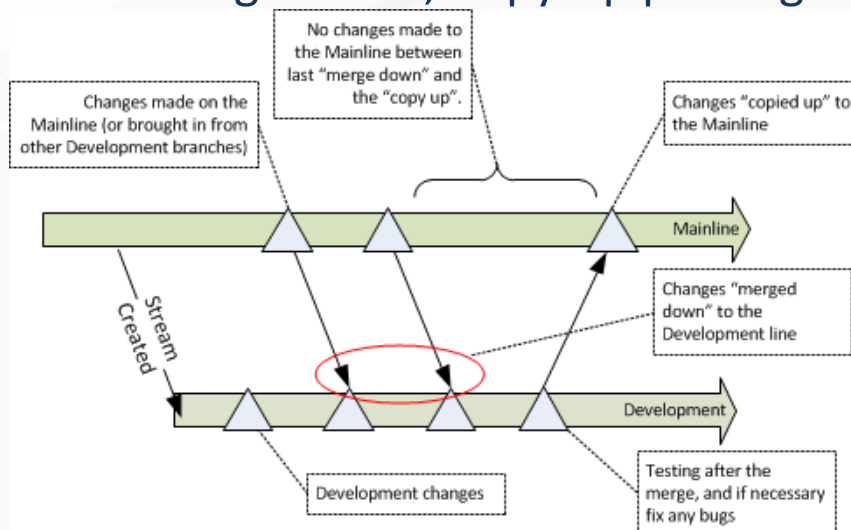
(merge 'down' from parent, copy 'up' to parent)



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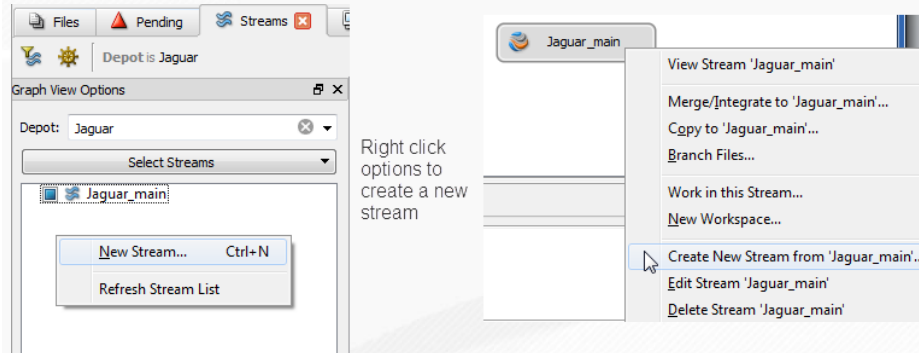
## The Merge-down, Copy-up paradigm



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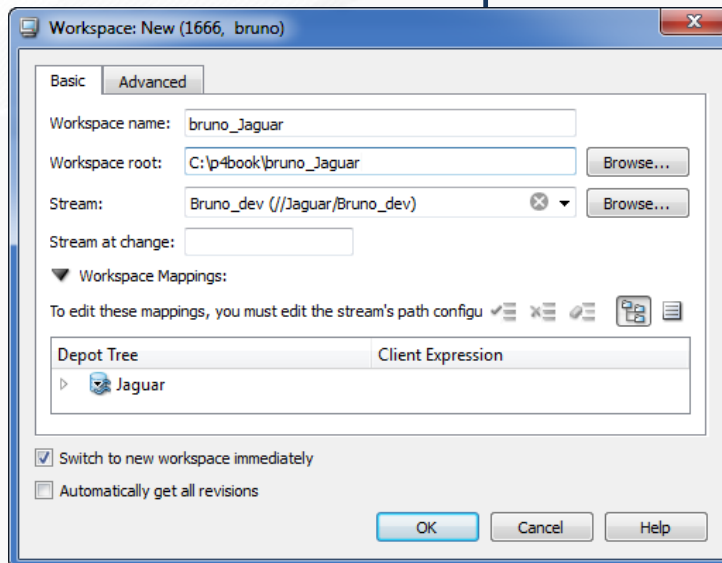
## Creating a stream



164

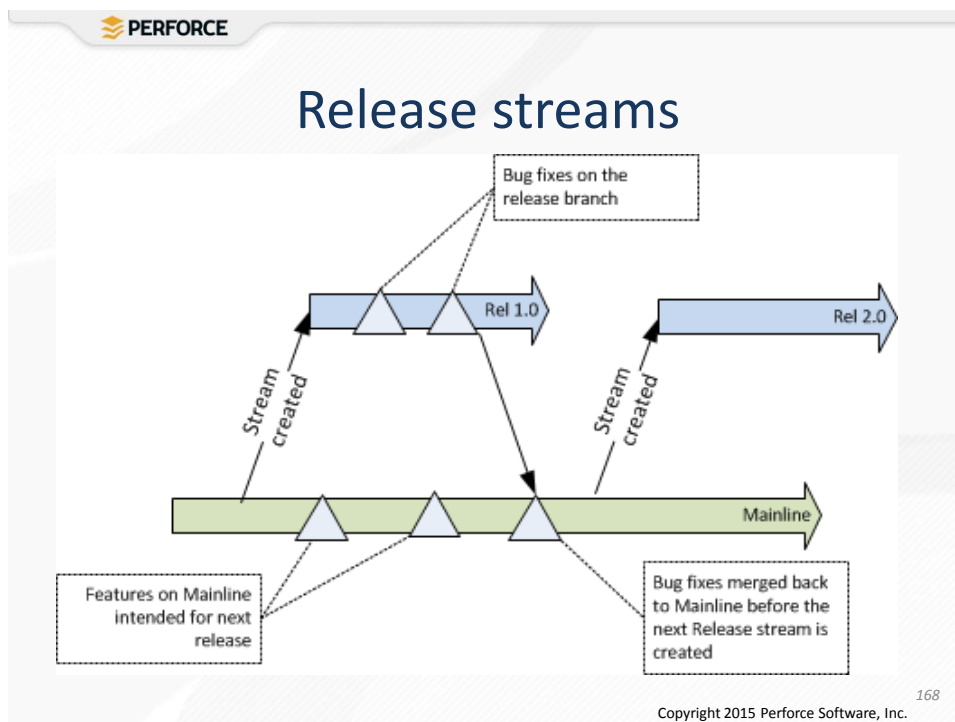
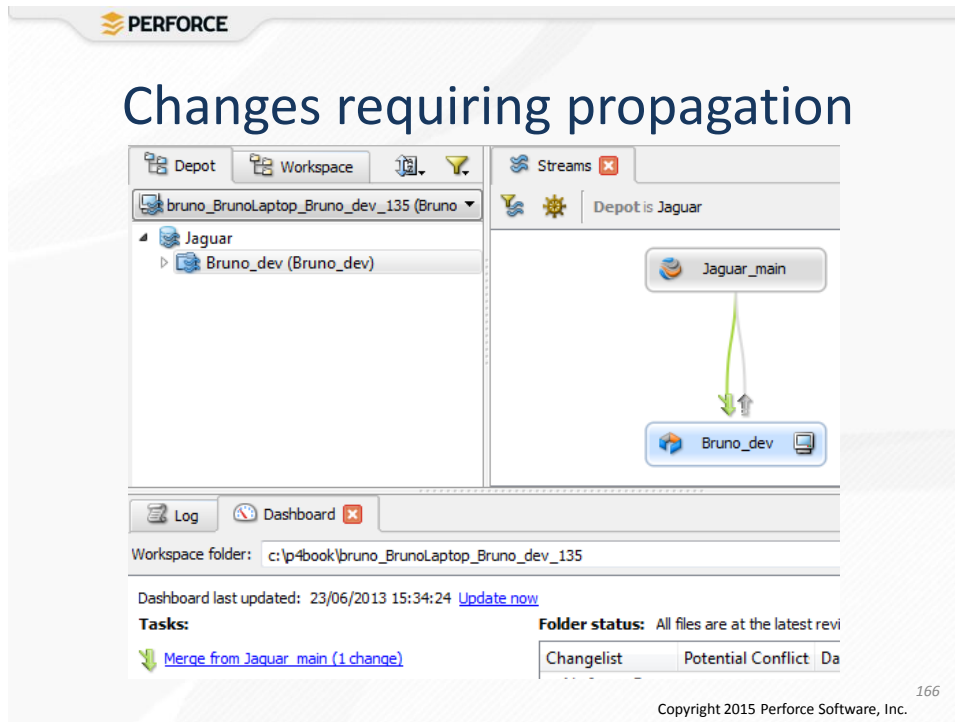
Copyright 2015 Perforce Software, Inc.

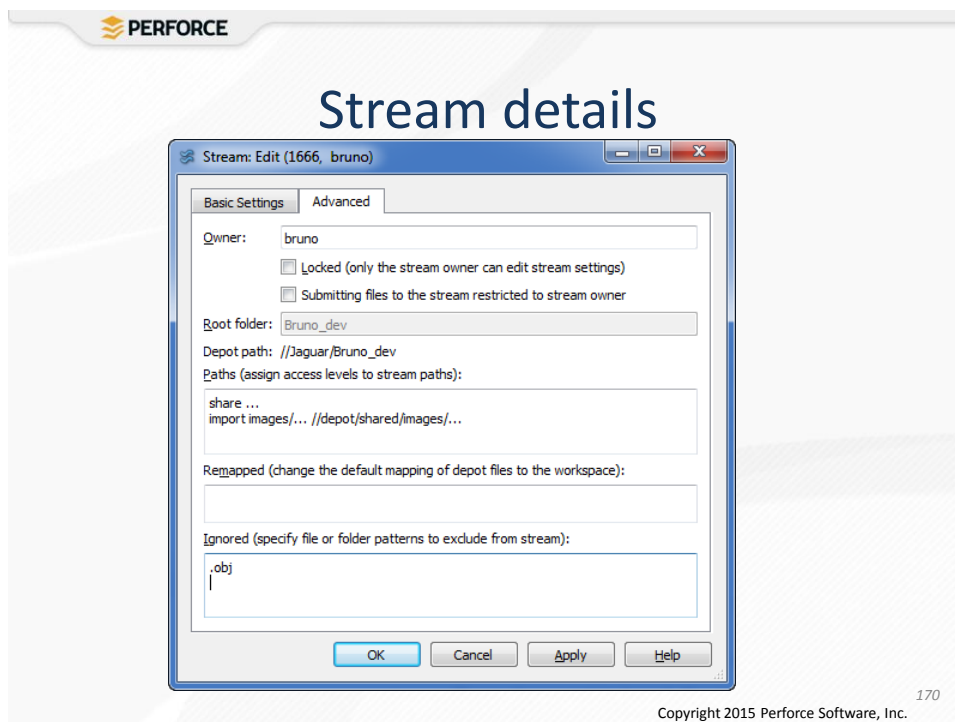
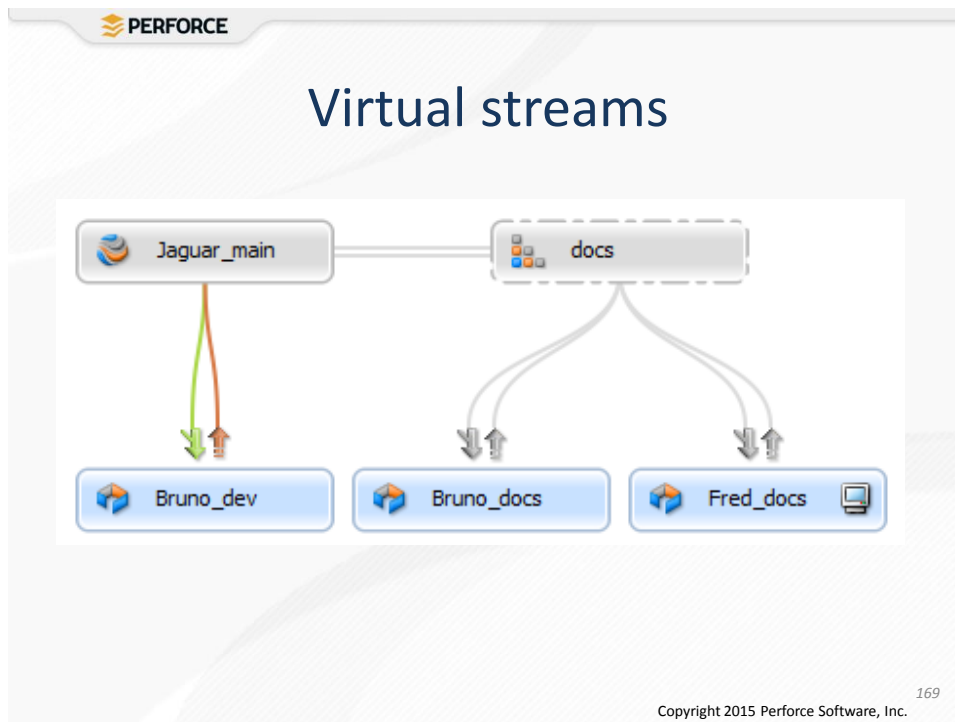
## Stream workspaces



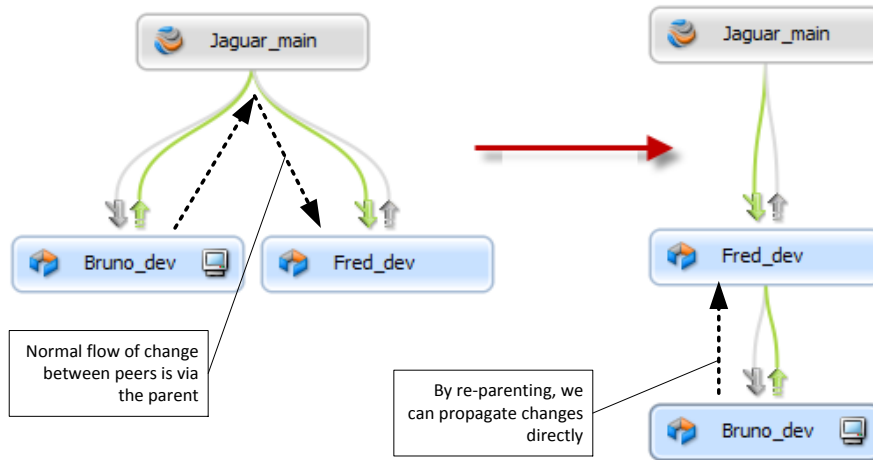
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## Propagating changes across hierarchy



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## New Actions in this Chapter

- **File → New → Stream**
- **Merge/Integrate**
- **Copy**

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# Introduction to Perforce for Users

## Labels

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## About Labels

- Labels vs. Changelist Numbers
- Creating a Label
- Tagging Files With a Label
- Locking a Label

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## Labels vs. changelist numbers

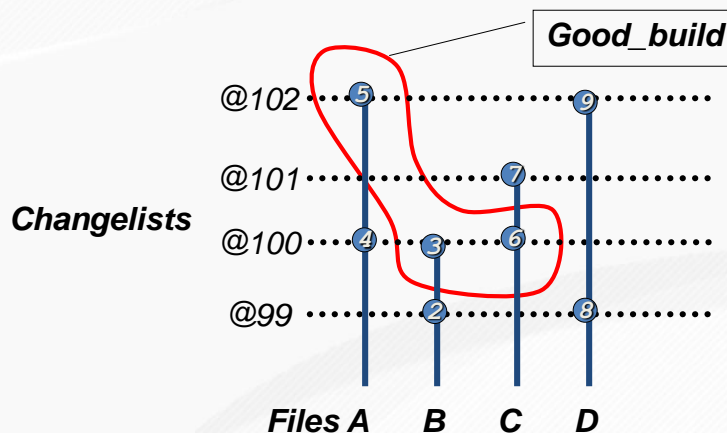
- *User-determined file set*
- *Can be changed*
- *Meaningful names*

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## Labels – cutting across changelists



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## Creating a label specification `*live*`

### Labels

- Add a description
- Select which files or paths can be tagged
- Can exclude files or paths

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## Tagging files with a label `*live*`

- Tag files using a revision specification
- Tag workspace file revisions
- Display the list of files tagged by a label

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## Use automatic labels

**\*live\***

- Less data stored on your server
- Create a mnemonic between a changelist and a label name.

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## Updating labels

**\*live\***

- A label can be removed from files
- A label can be updated with different file revisions
- A label can be updated with additional files

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## Getting tagged file revisions

**\*live\***

- Examine the list of files tagged by the label
- Check workspace view
- **Get Revision...** and use the label name to specify the revisions

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## Showing labels

**\*live\***

- Show all label specifications
- Filter by:
  - Folder or file name
  - Owner
  - String in label name

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## Locking a label

**\*live\***

- Prevent changing the list of files tagged by a label
- The owner can unlock a label

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## New Actions in this Chapter

- `File → New → Label`
- `Context click →`
  - `Label →`
    - `Apply selected label to files →`
      - `Add a revision specifier`
      - `Remove selected label from files`
    - `Get Revision`
    - `Show the List of Files`
  - `Select label → Edit Label <labelname>`
- `View → Labels`

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# Introduction to Perforce for Users

## Job Tracking

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## Job Tracking

- Perforce Jobs
- Creating a Job
- Searching Jobs
- Linking Jobs to Changelists
- Job Fix Reporting

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## Perforce jobs

- Perforce's defect tracking system
- Textual descriptions of unit of work
- Can be customized
- Can integrate with external defect tracker

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## Creating a job

**\*live\***



### Jobs

- Add the job description and save the form
- Edit to add more information

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## Listing jobs

**\*live\***

- List all jobs
- Filter by:
  - Bookmark
  - Keywords
  - Folder or file name
  - Filters are stored for future use

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## Job search examples

```
filter email
status|email
status=open user=edk
date>=1998/07/14
description=filter*
r2.1 beta.exe doesn't
```

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## Linking jobs to changelists

**\*live\***



### **Users**

- Add to the Job View: filter
- Jobs added automatically to default changelist
- Add a job to any numbered changelist



### **Pending**



### **Submitted**

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## Job fix reporting

**\*live\***

- View the job status in the **Jobs** pane
- View a job to list associated changelists
- View a changelist to list associated jobs

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## New Actions in this Chapter

- `File → New → Job`
- `View →`
  - `Jobs →`
    - `Context click on job →`
      - `Edit`
        - `Linked changelists display`
        - `Enter search string`
    - `Pending/Submitted Changelists → Expand changelist to see jobs`
- `Connection → Edit Current User`
- `Context click → Edit Pending/Submitted Changelist <nnn> → Add/Browse for jobs`

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## Introduction to Perforce for Users

### Code Review - Swarm

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## Section Contents

- Background to code review
- Overview and details of Swarm

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## Build quality in

- Find bugs early
- Share knowledge within the team
  - Code tends to be neater, better documented, and better organized
- Consistency in design and implementation
- Better security considerations

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## Code Collaboration to the Rescue



• **Better Code**

• **Pain-free Integrations**

• **Faster Deploys**

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## Perforce Swarm

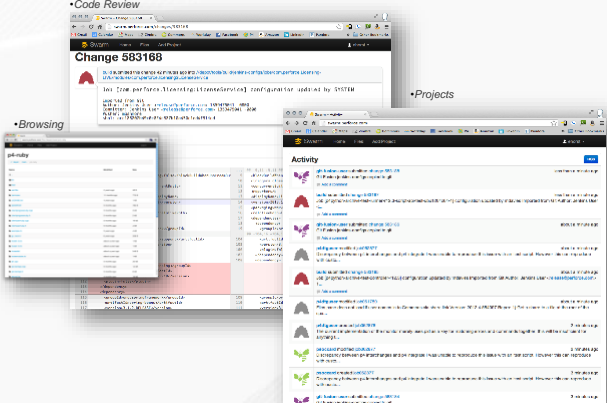
- Comprehensive code collaboration platform
- Flexible, integrates with your tool chain
- Seamless interaction via Perforce or Git
- Built for continuous delivery



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# Swarm Highlights



•Code Review


•Projects

•Browsing

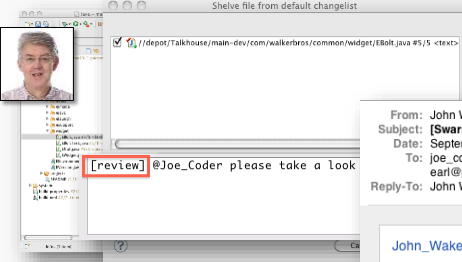
- Real-time code collaboration and review
- Inline comments and diff
- Integrates with rest of lifecycle
  - Bugs
  - Build
  - Code Analysis
- Supports Git and P4V users
- User Extensible
- Leverages Perforce versioning engine

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# Request a Code Review from within Perforce Versioning Engine...



•Request Review

•Review Notification

From: John Wakeman <perforce@p4demo.com>  
 Subject: [Swarm] Review @12179 - @Joe\_Coder please take a look  
 Date: September 26, 2013 1:00:22 PM PDT  
 To: joe\_coder@360-p4demo13-1.p4demo.com , john\_wakeman@360-p4demo13-1.p4demo.com  
 Reply-To: John Wakeman <john\_wakeman@360-p4demo13-1.p4demo.com>

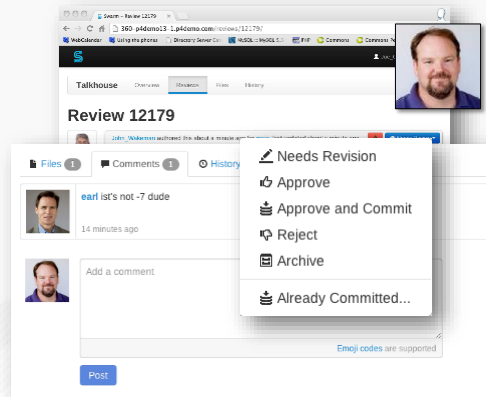
John\_Wakeman requested review 12179 for talkhouse:main  
 @Joe\_Coder please take a look

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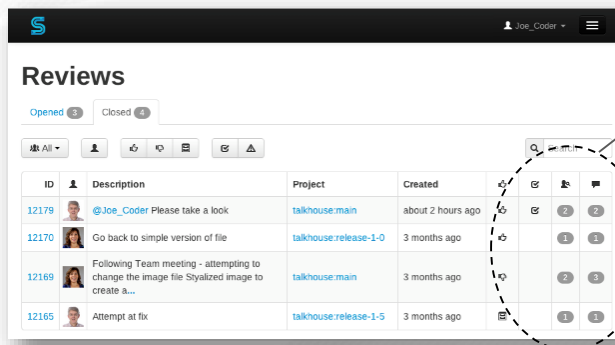
## Review, Comment, Approve...

- Link from email or within Swarm
- Comments
  - Inline in the “diff” view
  - See other comments
- Approve, Reject, etc.
  - Notification of status change



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## Status Dashboard



- Review Status
- Results from other tools
  - Build
  - Code analysis
  - QA
- Ability to Test Run appropriate projects
- Everything is Clickable
  - Links to other tools

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## Finally...

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<http://www.perforce.com>

and our Public Depot

<http://wiki.workshop.perforce.com>

for current listings of available software

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## Perforce Highlights

*FAST*

Easy to learn

Superior technical support

Cross-platform compatibility

Atomic change transactions

Powerful integration algorithm

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## The End

All Perforce manuals and technical notes are available  
at [www.perforce.com](http://www.perforce.com).

Report problems and get technical help from  
[support@perforce.com](mailto:support@perforce.com).

Share tips and ideas with other users on  
<http://forums.perforce.com>