

Exercises - 1

Basic File Operations

You may complete these exercises using P4V or the command line client (p4.exe). The default is assumed to be P4V.

In the scenario for these exercise sets, you are a new Perforce user, starting to work on files in an existing Perforce database. Your system administrator has already set up your local environment variables so you can connect to your Perforce server and has assigned you the user name "bruno," and the client name "bruno_ws". You have a Perforce server running on your local machine, and you will be working on the 'jam' project data files.

Your objectives for this exercise:

- To be able to perform fundamental operations required for manipulating files in your local workspace and submit your completed work to your Perforce depot.
- 1. Open a P4V connection, logging in to Perforce. Select No if you'd like to skip the Connection Setup Wizard and go to the Open Connection dialog to log into Perforce. The password for bruno is **brunopass**.

*Open **P4V**. Select **No** unless you'd like to run the **Connection Setup Wizard** → **OK**
Enter **brunopass** as bruno's password in the **Perforce Password Required** dialog → **OK***

- 2. Show your connection information:
 - What is the port address of your current Perforce server?
 - What is your effective Perforce user name?
 - What is the name of your current Perforce client workspace?

Help → System Info

*To show connection information in the **System Info** view, including the answers to these questions.*

- 3. Fill your workspace with files from the depot ("get latest" or "sync" them).

*Context click on the **depot** folder in the **Depot Tree** pane → **Get Latest Revision***

- 4. In P4V select a file under //depot/Jam/MAIN/src and right click > Show in Explorer (towards the bottom of the options) to launch Windows Explorer in the appropriate directory.

*Expand to the **src** folder in the **Tree** pane, then
Context click → **Launch Explorer...***

5. In the c:\bruno_ws\Jam\MAIN\src (equivalent to //depot/Jam/MAIN/src) directory, check out jam.c and jam.h (CLI - open them for editing). What has changed to the attributes of the files (use Windows Explorer, Right Click > Properties to check and compare with other files that are not checked out).

*Expand to the **src** folder in the **Tree** pane, then*

*Select **jam.c** and **jam.h***

*Context click → **Check Out...***

Use Windows Explorer to compare with other files that are not checked out.

6. Mark variable.c and variable.h for deletion (open for delete). What's happened to the local copy of the files (use Windows Explorer or the Workspace View Tab)?

*Select **variable.c** and **variable.h***

*Context click on the files → **Mark for Delete...***

The local files have been deleted.

7. Create a new file under c:\bruno_ws\Jam\MAIN\src using Windows Explorer or notepad, and mark it for add in P4V from Workspace View (P4Win/CLI - open them for add).

*From the **Windows Start** menu click **Run....** and type in **notepad** → **OK***

*Type in some text in the blank **Notepad** window **File** → **Save as...** → **Navigate to***

C:\bruno_ws\Jam\MAIN\src** → **File name: myfile.txt** → **Save** → **Exit Notepad.

*In **P4V** select the **Workspace** tab and right click on **myfile.txt** → **Mark for Add...***

8. What command would remove jam.c from the list, and return it to its original state (undo the checkout)?

*Context click on **jam.c** in the **default changelist** → **Revert***

9. Submit your changelist (check in). What is the changelist number you have just submitted?

*Context click on the **default changelist** → **Submit...***

Check the log for the submitted changelist number.

10. Check out jam.h (open for edit), and make a small change. Show how your workspace file differs from the depot revision of jam.h which you last got from the repository.

*Context click on **jam.h** → **Checkout and Open***

Make a change and save the file.

*Context click on **jam.h** in the **default changelist** → **Diff Against Have Revision***

Exercises - 2

File Information

Your objectives for this exercise:

- To be able to retrieve information about files in the Perforce depot, including determining the current state of files and finding out what and when changes were made to files.

11. Sync (get revision) all the revisions of the files in //depot/Jam/MAIN/src to your client workspace in the state they were in as of changelist 165. How can you find out what a get latest (sync to head) would do **without doing it**?

*Context click on the **src** folder under the //depot/Jam/MAIN path → Get Revision...*

☒ Specify revision using: **Changelist 165** → Get Revision

Click the Preview button.

12. Sync (get latest) all your files again.

*Context click on the **src** folder under the //depot/Jam/MAIN path → Get Latest Revision...*

13. How does the March 24, 2002 version of jambase.c differ from the May 1, 2002 version?

Context click on //depot/Jam/MAIN/src/jambase.c → File History

*Drag the revision dated **03/24/2001** to the revision dated **05/01/2002**, to show the diffs in **P4Merge**.*

14. What files changed in the //depot/Jam/MAIN area during March 2002 (hint: think differences between start and end of the month)? Extra credit – what changelists occurred during that time? (You can “see” this in p4v, but actually there is a command line command “p4 changes” which will tell you directly with an appropriate revision range parameter)

Navigate to the //depot/Jam/MAIN/ folder.

*Context click on the **src** folder → Diff Against*

*Select Specify Revision, and then date in the drop down box. Enter 03/01/2002 in the top section and 04/01/2002 in the bottom section and then click Diff to display the **Folder Diff** dialog.*

From the command line, you can run:

p4 changes //depot/Jam/MAIN/...@03/01/2002,@04/01/2002

Exercises - 3

Changelist Management

Your objectives for this exercise:

- To retrieve all or selected submitted changelists in order to report information about files in your depot
- To create a pending changelist so you can efficiently organize your work in your client workspace.

15. What files were affected by changelist 350 (and how do you see this in P4V)?

Search->Goto

Enter 350 in the dialog and click OK

16. List only those changelists that affected the file "//depot/Jam/MAIN/src/command.h".

*Drag the **command.h** file from the **Tree** pane to the **Submitted** changelists Folder/file: combo*

17. Create a pending changelist or two, move some files into them and submit them as you wish (practice using pending changelists).

File → New → Pending Changelist...

Enter "Some description info." into the changelist form's Description: field.

Select some files and drag and drop them to the new changelists.

Right click and choose submit on the changelist.

18. Practice shelving and unshelving a couple of files, experimenting with the various options.

Check out some files. Then right click the default changelist and choose Shelf.

After shelving the files, right click them in the shelf and choose unshelve.

Exercises - 4

Workspace Management

Up until now you have been working on Perforce depot files using a workspace created for you by your Perforce Administrator

Perforce works on files. If you are specifying a directory in the following exercises, be sure to add “/...” at the end of the file pattern to specify all the files in that directory and its subdirectories, e.g., //depot/Jam/MAIN/....

Your objectives for this exercise:

- To make changes to your client workspace specification
- To create a new client workspace specification for a different project.

19. Change your bruno_ws client workspace to set the “rmdir” option (from “normdir”).

Connection → Edit → Current Workspace (Assuming your current workspace is bruno_ws)

Click the Advanced tab, then check the Rmdir checkbox and click Ok to save your workspace.

20. Change your bruno_ws client workspace view so that instead of mapping all files in the whole of //depot, the only files in your workspace are those under //depot/Jam/MAIN. You may find it easier to remove the existing view (of //depot/...) and then add in the specific view you want.

Connection → Edit → Current Workspace (Assuming your current workspace is bruno_ws)

Click the text box icon above the view, then edit the view to this:

//depot/Jam/MAIN/... //Bruno_ws/Jam/MAIN/...

Click OK to save the workspace.

21. Sync (get latest) your workspace.

Context click //depot in the directory tree and choose Get Latest Revision

22. Modify your workspace view to add //depot/Talkhouse/main-dev files to the view, and yet exclude //depot/Talkhouse/main-dev/system files (and get latest/sync the workspace)

Connection → Edit → Current Workspace (Assuming your current workspace is bruno_ws)

Click the text box icon above the view, then edit the view to this:

//depot/Jam/MAIN/... //bruno_ws/Jam/MAIN/...

//depot/Talkhouse/main-dev/... //bruno_ws/Talkhouse/main-dev/...

-//depot/Talkhouse/main-dev/system/... //bruno_ws/Talkhouse/main-dev/system/...

Click OK to save the workspace.

23. In this exercise we will create a new workspace bruno_projb and add some new files (any files) such that they will go into the repository in //depot/projb/MAIN/... This makes sure you understand how workspace views map from the local file system to Perforce as well as vice versa.

This will require you to:

- Create the new workspace “Bruno_projb”
- Set its root directory, for example: c:\bruno_projb
- Set the workspace view appropriately, e.g. using Text View set to:
 - //depot/projb/MAIN/... //Bruno_projb/... (Do not cut and paste this line, type it in the view.)
- Switch to using this new workspace (if this wasn’t done automatically when you saved it)
- Using Windows Explorer, create the workspace root directory, c:\bruno_projb
- Create some files in that directory (you can copy them from c:\bruno_ws or create new ones)
- Finally add the new files into Perforce from the P4V Workspace View tab – you may find it useful to Refresh (F5) the current view.
- Don’t forget to submit!

Connection → New Workspace

Set the Root directory to: c:\bruno_projb

Click the text box icon above the view, then edit the view to this:

//depot/projb/MAIN/... //bruno_projb/...

Click OK to save the workspace.

- *Switch to using this new workspace (if this wasn’t done automatically when you saved it)*
- *Using Windows Explorer, create the workspace root directory, c:\bruno_projb*
- *Create some files in that directory (you can copy them from c:\bruno_ws or create new ones)*
- *Click the Workspace View tab – Refresh (F5) the current view.*
- *Context click the folder or files and choose Mark for Add*
- *Expand the default changelist to see the files are opened for add*
- *Context click the default changelist and choose submit. Put in a description and submit your files.*

Exercises - 5

Branching, Part 1

Up until now you have been working on Perforce depot files using a workspace created for you by your Perforce Administrator

*Perforce works on files. If you are specifying a directory in the following exercises, **be sure to add “/...”** at the end of the file pattern to specify all the files in that directory and its subdirectories, e.g., **//depot/Jam/MAIN/...***

Your objectives for this exercise:

- To create a personal branch/codeline, since the development work on the ‘jam’ project has reached a point where it is appropriate.

24. In P4V, right click //depot/Jam/MAIN and **Branch Files...** the files to //depot/Jam/<YOURNAME> (**p4 populate** on command line). Use the auto-submit option.

*Context click on //depot/Jam/MAIN → **Branch Files***

Enter //depot/Jam/<YOURNAME> in the target files/folders field.

Click Branch

25. Change your bruno_ws client workspace view so that the view maps everything under //depot/Jam/MAIN and //depot/Jam/<YOURNAME> (e.g. view contains just “//depot/Jam/MAIN/... //Bruno_ws/Jam/MAIN/...” and similarly for the other path) and do a get latest.

Connection → Edit → Current Workspace (Assuming your current workspace is bruno_ws)

Click the text box icon above the view, then edit the view to this:

//depot/Jam/MAIN/... //bruno_ws/Jam/MAIN/...

//depot/Jam/<YOURNAME>/... //bruno_ws/Jam/<YOURNAME>/...

Click OK to save the workspace.

26. Checkout (open for edit) a couple of files in //depot/Jam/<YOURNAME>, make a couple of edits and submit your changelist.

*Context click on **jam.h** or any other file → **Checkout and Open***

Make a change and save the file.

*Context click on the **default** changelist → **Submit***

Exercises - 6

Handling File Conflicts

Your objectives for this exercise:

- To create a situation where you are editing files that are out of date (as you would be when someone else edits the same file you are working on and submits their work before you)
- To resolve your files before you submit your work to your depot.
- To back out your change after you submit your completed work, because the project lead has rejected your work.

27. For the following exercises, start by doing get revision (sync) of your “bruno_ws” workspace to **changelist** 350 (not **revision** 350). Some files will now be out of date.

*Context click on the top folder in the **Tree** pane → **Get Revision...***

☒ Specify revision using: **Changelist 350**

Get Revision

28. Check out //depot/Jam/MAIN/src/RELNOTES and //depot/Jam/MAIN/src/patchlevel.h (if you are warned, then select Don't Get Latest).

- Edit patchlevel.h and add some text at the beginning of the file (You can use the 'notepad' program to edit the files.)
- Edit RELNOTES and add some text. (For the most dramatic effect, change the line “PATCHLEVEL 0” to “PATCHLEVEL 2a” or similar.)

*Select **RELNOTES** and **patchlevel.h***

*Drag the files to the **default** changelist.*

*Select **Don't Get Latest** in the **P4V** dialog.*

Make the suggested changes in Notepad and save the files.

29. Confirm that the only files you have in your pending changelist are patchlevel.h and RELNOTES. If you have any others opened, revert them.

*Expand your **default** changelist.*

If any other files are opened:

*Context click on the other files → **Revert***

30. Try and submit the changelist - in p4v you will not be able to – it will tell you to do a Get Latest, so cancel submit, select the files and do Get Latest.

*Select **RELNOTES** and **patchlevel.h** → Context click → **Get Latest Revision**.*

*Perforce updates its list of the file versions you have retrieved, and shows in the **Log** pane that since the files are opened, they are not being changed.*

31. In P4V, right-click files and resolve them (CLI run **p4 resolve** to start up the interactive dialog) and run the merge program. Make any appropriate changes and accept the merge result.

*Context click on the **default** changelist → **Resolve Files...***

Check to be sure ☒ Merge your and theirs if no conflicts exist is selected

*Click on the **Auto** button.*

*patchlevel.h has a file conflict so it can't be resolved automatically. Select the **Interactive** mode.*

Run Merge Tool and use **P4Merge** to resolve/merge the file.

*In the **P4Merge** display, **Theirs** changes are in purple, **Yours** changes are in green and the **Base** is in yellow.*

*Click on the green circle to the right of the text in the **Merge file used for resolve** pane to select your edit.*

File → Exit → Save

*Click on **Yes** to respond to the **Accept Merged** dialog.*

32. Submit your changelist.

*Context click on the changelist → **Submit***

Exercises - 7

Branching & Integration Part 2

This set of exercises continues from where the previous branching exercises left off (it expects those exercises to have been completed)

33. How can you show what changes made to //depot/Jam/<YOURNAME> need to be integrated back into the //depot/Jam/MAIN branch? (Hint: think integrate preview)

Context click on the <YOURNAME> folder → Merge/Integrate ...
Change the target to //depot/Jam/MAIN/...

Click **Preview**

*The results are displayed in the **Integration Preview** dialog.*

34. Integrate all changes made to //depot/Jam/<YOURNAME> back into the //depot/Jam/MAIN branch using automatic resolve options as appropriate.

Context click on the <YOURNAME> folder → Merge/Integrate...
Change the target to //depot/Jam/MAIN/...
Make sure Automatically Submit is selected
Click **Merge**

*Context click on the **default** changelist name → Submit*

35. Integrate all changes made to //depot/Jam/MAIN to //depot/Jam/<YOURNAME> branch using safe automatic resolve options as appropriate.

Context click on the //depot/Jam/MAIN folder → Merge/Integrate...
Change the target to //depot/Jam/<YOURNAME>/...
Make sure Automatically Submit is selected
Click **Merge**

*Context click on the **default** changelist name → Submit*

Exercises - 8

Streams

These exercises take you through the basics of using the new streams feature.

36. Edit your Preferences > Streams options to reuse the current workspace and automatically update the workspace file when switching between streams.

Click the **Edit->Preferences** menu item

Select Streams on the Preferences dialog

Click the drop down beside “When dragging workspace icon to a new stream” and choose “reuse current workspace.”

Click the check box to Automatically update the workspace with all stream files when switching between streams

Click OK to close and save the preferences.

37. Create a new streams depot called Jam (Tools > Administration and then File > New > Depot)

Click the Tools->Administration menu item, and then in P4Admin

Click File->New->Depot

Enter Jam for the name and click OK

Choose stream for the type and click OK to create the depot.

38. Create a stream “Main” of type mainline, located in depot Jam.

Click View->Streams

Select the Jam depot in the Depot drop down

Context click in the box under the Select Streams drop down item, and choose New Stream

Enter Main for the stream name.

Choose mainline for the stream type.

Choose the Jam depot for where the stream will be created.

Uncheck the Create a workspace and Populate the mainline options and then click OK

39. Right click the stream and “work in this stream” – so create a new Workspace (accept the defaults)

40. You will be prompted that the stream is empty – select option Branch files from depot and select //depot/Jam/MAIN as the source. Submit the files.

41. Right click Main stream and create a new stream called Dev which is of type Development

Context click on Main and choose Create new stream from ‘Main’

Enter Dev for the stream name.

Choose development for the stream type. (It should be the default selection.)

Click OK

42. Change a file in Dev and Copy it to Main

Drag your workspace to the Dev stream

Context click a file and choose check out and open.

Make a change to the file and save it.

Context click the file and choose submit. Enter a description and submit the file.

43. Change a file in Main (and submit it) and notice that the icon changes to show it should be Merged to Dev (don't do this yet)

Drag your workspace to the Main stream

Context click a file and choose check out and open.

Make a change to the file and save it.

Context click the file and choose submit. Enter a description and submit the file.

44. Change another file in Dev (and submit it) – notice the icons change. You should not be able to Copy to Main without a warning.

Drag your workspace to the Dev stream

Context click a file and choose check out and open.

Make a change to the file and save it.

Context click the file and choose submit. Enter a description and submit the file.

45. Merge from Main down to Dev. On the Filter menu – show the changelists needing to be merged down. Perform the merge.

Context click on the Dev stream and choose 'Merge/Integrate to Dev'

Click Preview to see the changes that need to be merged.

Make sure Automatically submit after resolving is selected and click Merge.

46. Copy from Dev up to Main!

Drag your workspace to the Main stream

Context click on the Main stream and choose 'Copy to Main'

Make sure Automatically submit copied files is selected and click Copy.

Exercises - 9

Labels

Your objectives for this exercise are to tag files using two different methods:

- Tag files under the //depot/Jam/MAIN/src directory that were current as of a changelist without syncing the files to your client workspace.
 - Tag files in your client workspace based on the following criteria:
 - tag files current in the //depot/Jam/MAIN/src directory when a particular file was submitted, with a label
 - exclude the '*.c' and '*.h' files from the label.
44. Tag files under the //depot/Jam/MAIN/src directory with a label named "jam-NT-build" that were current as of changelist 392, regardless of which versions of the files are in your client workspace.

*Context click on the //depot/Jam/MAIN/src folder in the **Tree** pane → **Label...***

Browse to select the **jam-NT-build** label → **OK**

*Select **Changelist** from the Specify revision using: pull-down list → **392***

Label

45. List the versions of the files you have just tagged with label jam-NT-build.

View → Labels

*Click on the **jam-NT-build** label*

*Click on the **Files** tab and scroll through the files listed in the dialog, to find **jambase.c** in the list*

46. Sync your bruno_ws client workspace with the file versions that were current when changelist 395 was submitted.

*Context click on the top folder in the **Tree** pane → **Get Revision...***

☒ Specify revision using: **Changelist 395**

Get Revision

47. Create a label specification called jam-2.2.1. Restrict the label's view to //depot/Jam/MAIN/src files.

File → New → Label...

Edit the label:

Label: jam-2.2.1

View:

//depot/Jam/MAIN/src/...

OK

48. Tag the files in your client workspace with the jam-2.2.1 label.

Context click on the top folder in the Tree pane → Label...

Browse to select the **jam-2.2.1** label → **OK**

Select **Workspace** from the Specify revision using: pull-down list → **bruno_ws**

Label

49. What version of //depot/Jam/MAIN/src/jam.h is tagged with the “jam-2.2.1” label? Is the version tagged the head revision?

View → Labels

*Click on the **jam-NT-build** label*

*Click on the **Files** tab and scroll through the files listed in the dialog, to find **jambase.c** in the list*

Compare the version in the label against the version in the depot

50. Remove all the *.c and *.h files from the jam-2.2.1 label.

Context click the folder and choose find files

*Enter *.c in the contains field and click Find*

*Select all the file and context click and choose **Label***

Browse to select the **jam2.2.1** label → **OK**

☒ Remove label from file revisions → **Label**

Repeat for the *.h files

51. Sync your client workspace with the file versions in the “jam2.2.1” label.

*Context click on the **jam-2.2.1** label → **Get Revision...***

Add... → //depot → **OK**

Get Revision

Congratulations! You have completed the one day Perforce Training Course. We hope this course material has prepared you to use Perforce with confidence and ease.