TFS Branching Guidance – Labs

Quick Start- Single Team Development combined with Single Release Scenario

Applies to:

Microsoft Visual Studio 2008 Team Suite
Microsoft Team Foundation Server 2008

Summary: In this Quick Start, you will learn to use a single branch for both software releases and maintenance (Sustained Engineering).

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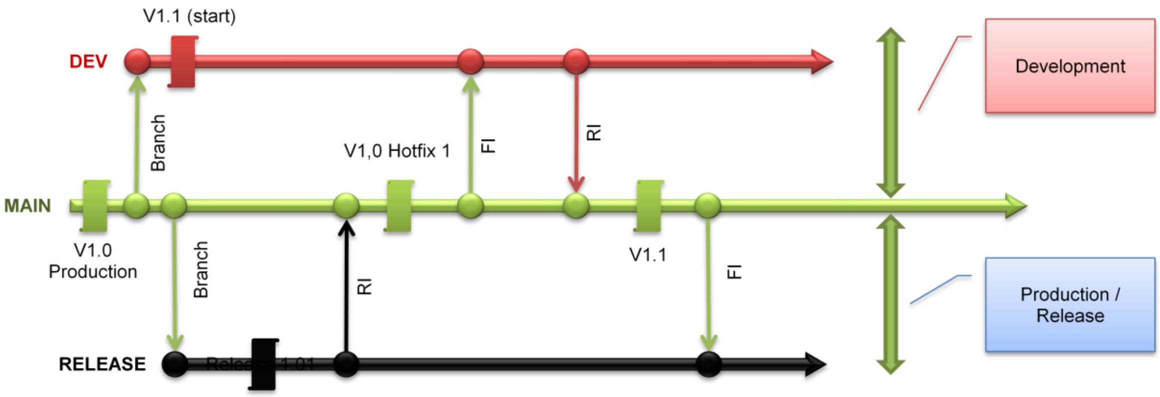
Introduction

In this walkthrough, you will start with an application whose first version (Release 1.0) is ready to go live. You have planned for the development of the next version and support for the current version to happen in parallel. This lab walks you through a strategy for release & sustained engineering using the same branch. The focus is on the main steps that are required to achieve the goal; the other mandatory steps will be provided (but not elaborated) for completeness.

The following diagram illustrates the branching plan for this Quick Start:



Prerequisites

To follow this Quick Start, you must install the following software and components on the development computer (with any prerequisites—see the Team Foundation installation guide, available on the Team Foundation installation media, for details):

- Microsoft Visual Studio 2008 Team Suite
- Microsoft Team Foundation Client 2008
- Microsoft Team Foundation Server 2008 installed in workgroup security mode

The Quick Start assumes you are using the Microsoft provided Virtual PC image that has been pre-configured to support this walkthrough. If not, you will need to perform the tasks described in the Team Development Setup.doc file.

You should be familiar with

- Setting up your version control tree.
- Creating a branch.
- Using the Merge command.
- Using the Label command.

Create Branches for Development & Release

In this first exercise, you will configure the core folders need to work with version control. You will configure your local workspace and add existing sample code and create branches for Release and Development.

Follow the steps below to setup the required branches

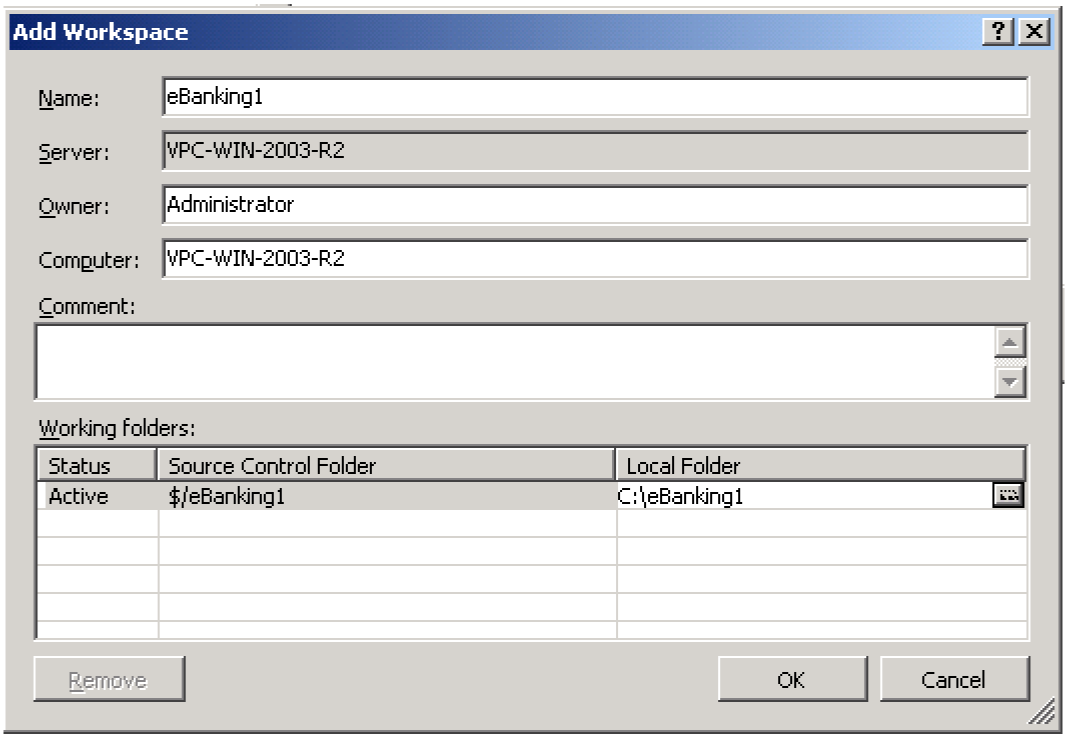
1. Log on to the VPC using Jacqui and P2ssw0rd.
2. Start Microsoft Visual Studio 2008.
3. Connect to Team Foundation Server

   Select **Tools | Connect to Team Foundation Server.**
4. Create a new Team Project called "eBanking1".

   Select **File | New | Team Project.**
5. Open the Source Control Explorer:

   In the **Team Explorer** window, double-click on the **Source Control** node to open the **Source Control Explorer** window.
6. Create a Workspace for "eBanking1" to map your source control folder to a local folder.

   In the **Source Control Explorer** window, click on the Workspaces drop down. Click on **Workspaces…** to open the **Manage Workspaces** dialog. Click on the Add button to open the **Add Workspace** dialog shown below. Enter a name for the Workspace (e.g. "eBanking1"). Click on the ellipsis (…) under **Source Control** folder and select the name of your new Team Project. Click on the ellipsis under **Local Folder** and enter a local folder for your project (e.g. "c:\eBanking1"). When you are done, you will have created a local drive mapping for your Team Project as shown below.



Add Workspace

Name: eBanking1

Server: VPC-WIN-2003-R2

Owner: Administrator

Computer: VPC-WIN-2003-R2

Comment:

Working folders:

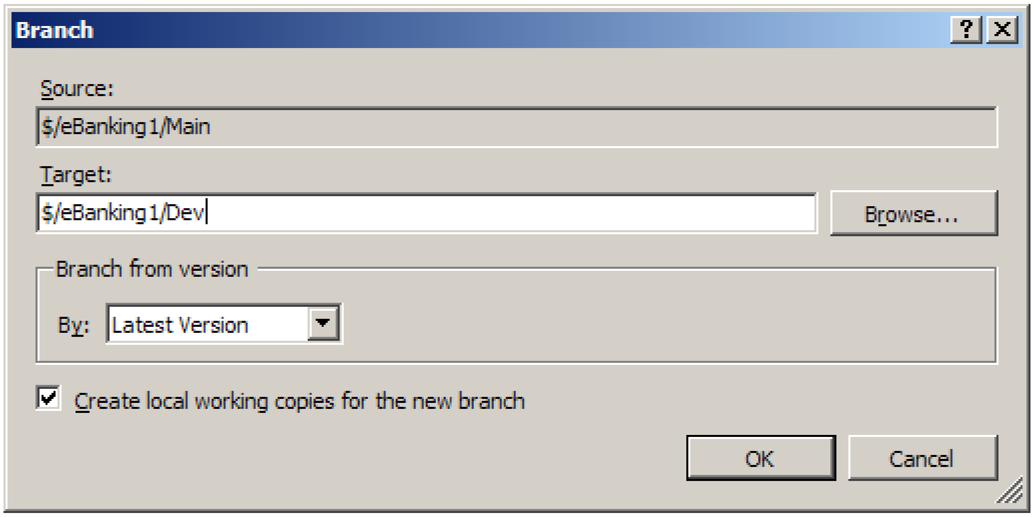
Status	Source Control Folder	Local Folder
Active	$/eBanking1	C:\eBanking1

7. Create a folder in the source control called "Main".

   On the **Source Control Explorer** window's toolbar, click the **New Folder** button. Name this folder "Main".

8. Unzip the contents of this file Banking.zip and add it to the "Main" folder and check-in the files.

9. Create two branches from "Main", namely "Dev" and "Release".



Branch

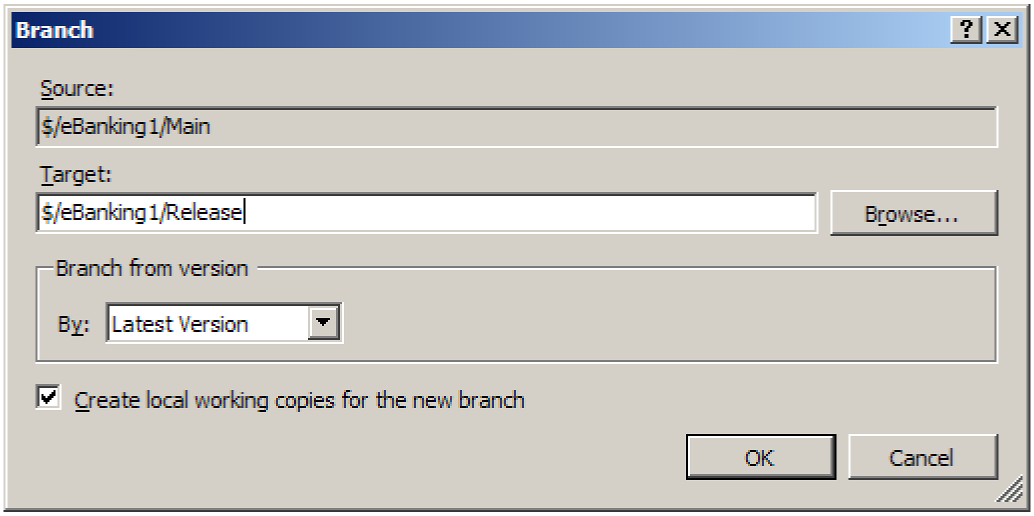
Source: $/eBanking1/Main

Target: $/eBanking1/Dev

Branch from version

By: Latest Version

☑ Create local working copies for the new branch


Branch

Source:
$/eBanking1/Main

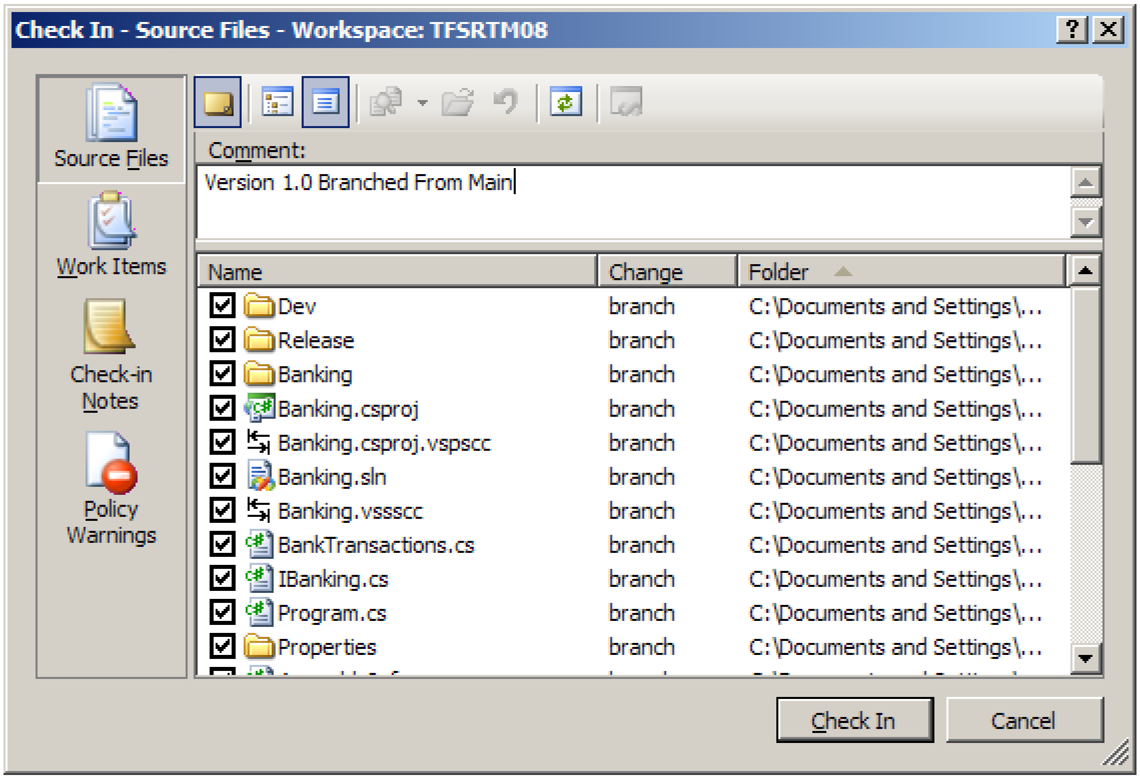
Target:
$/eBanking1/Release

Branch from version

By: Latest Version

☑ Create local working copies for the new branch

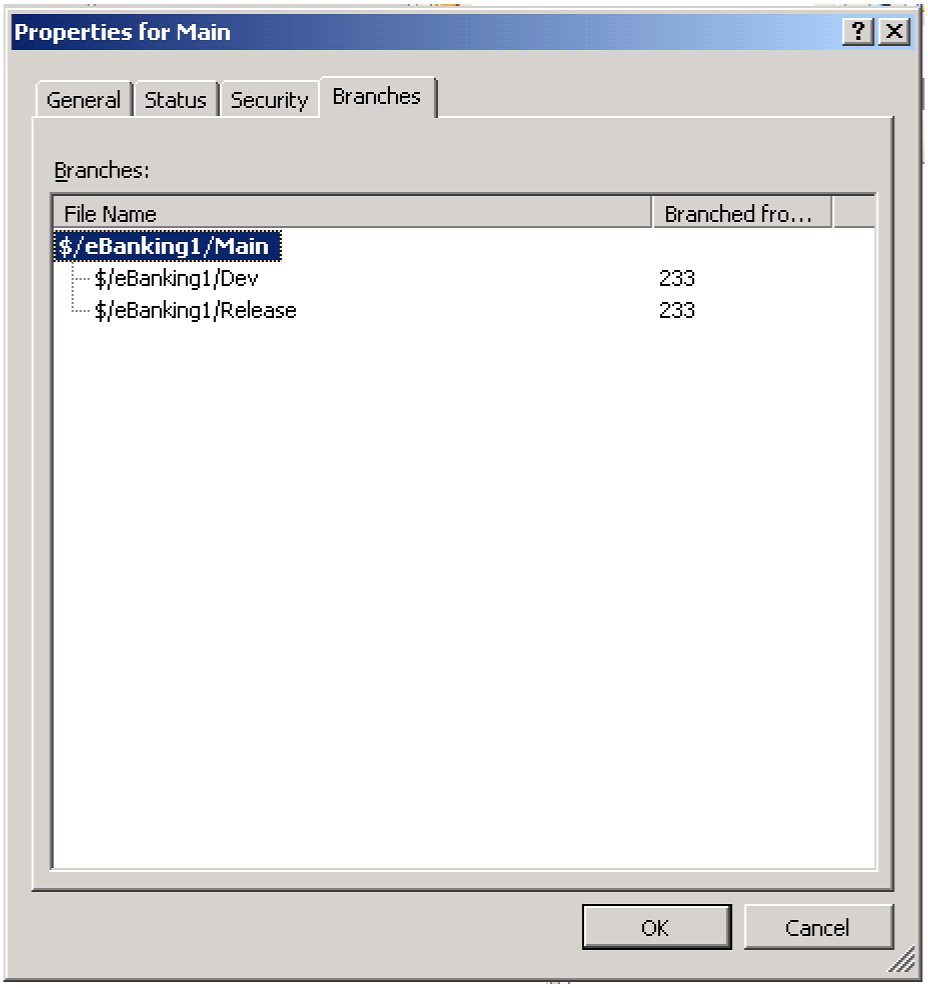
10. Check-in the files.


Check In - Source Files - Workspace: TFSRTM08

Comment:
Version 1.0 Branched From Main

	Name	Change	Folder
☑	Dev	branch	C:\Documents and Settings\...
☑	Release	branch	C:\Documents and Settings\...
☑	Banking	branch	C:\Documents and Settings\...
☑	Banking.csproj	branch	C:\Documents and Settings\...
☑	Banking.csproj.vspscc	branch	C:\Documents and Settings\...
☑	Banking.sln	branch	C:\Documents and Settings\...
☑	Banking.vssscc	branch	C:\Documents and Settings\...
☑	BankTransactions.cs	branch	C:\Documents and Settings\...
☑	IBanking.cs	branch	C:\Documents and Settings\...
☑	Program.cs	branch	C:\Documents and Settings\...
☑	Properties	branch	C:\Documents and Settings\...

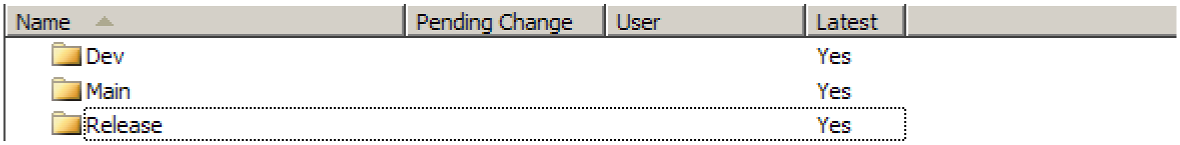
11. **Right-click** on the Main branch in the Source Control Explorer. Select **Properties** and click on the **Branches** tab. Your branch hierarchy should look like the following illustration:



Branches:

File Name	Branched fro...
$/eBanking1/Main	
$/eBanking1/Dev	233
$/eBanking1/Release	233

In this example we will treat the current contents of "Main as Version 1.0 which is deployed in Production.

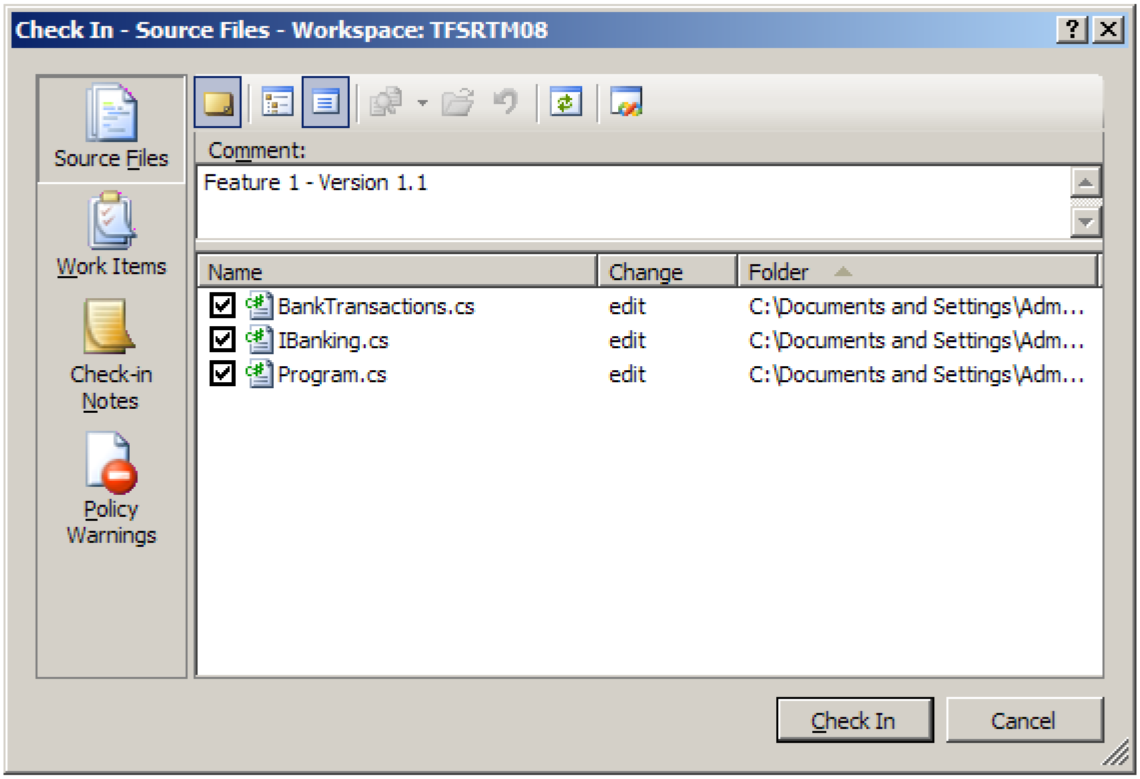


Name	Pending Change	User	Latest
Dev			Yes
Main			Yes
Release			Yes

Add features to Dev branch

The development team works off the “Dev” branch and work towards achieving the features for Release 1.1.

1. Checkout “BankTransactions.cs”, “IBanking.cs” and “Program.cs” from the “Dev” branch.
2. Replace it with the contents of this Banking-Dev.zip file.
3. Check-in the changes.



Check In - Source Files - Workspace: TFSRTM08

Comment:

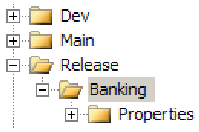
Feature 1 - Version 1.1

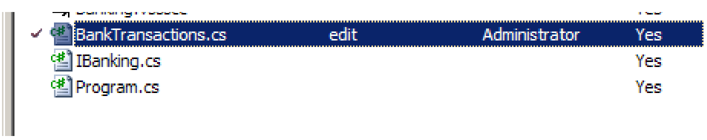
	Name	Change	Folder
☑	BankTransactions.cs	edit	C:\Documents and Settings\Adm...
☑	IBanking.cs	edit	C:\Documents and Settings\Adm...
☑	Program.cs	edit	C:\Documents and Settings\Adm...

Fix a Bug in Production & Merge Changes

Users of Release 1.0 notice an issue and the Sustenance team needs to provide a hotfix. This change would be made in the "Release" branch and the changes need to be integrated to the "Main" branch and then the changes in the "Main" branch are integrated with the "Dev" branch.

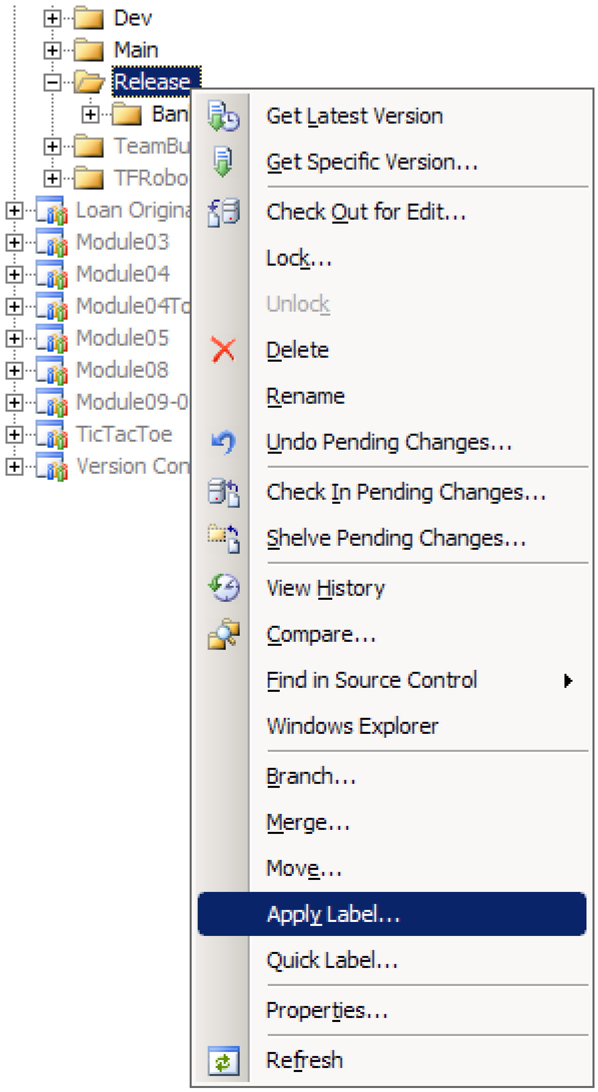
1. Checkout "BankTransactions.cs" from the "Release" branch.

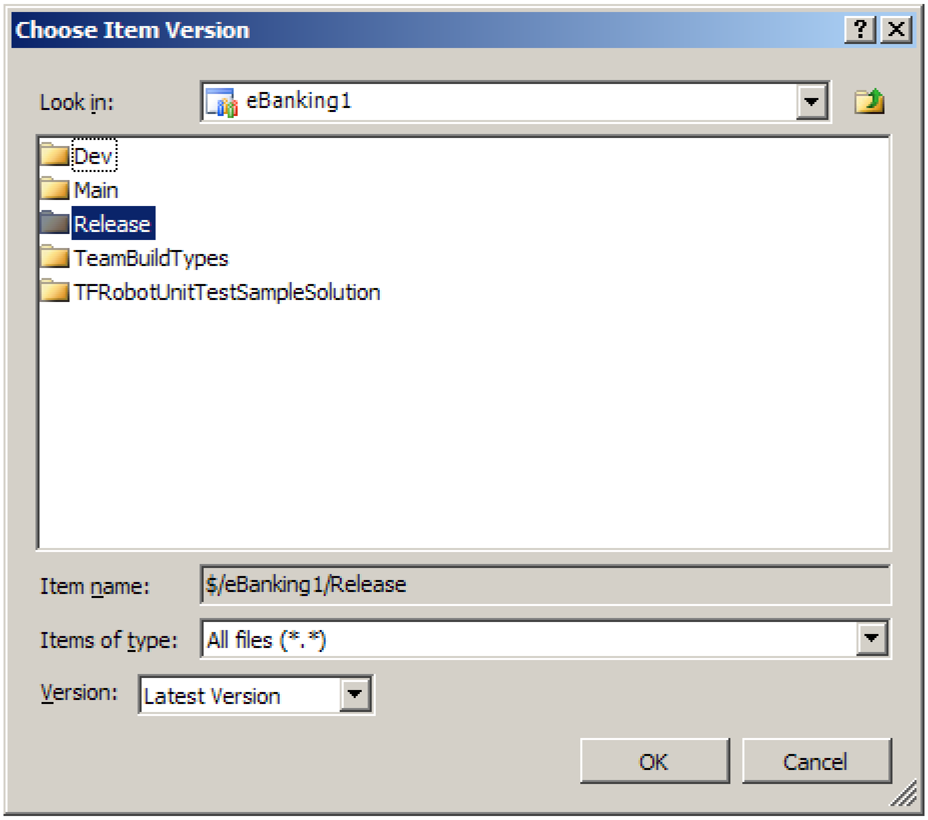




✓ BankTransactions.cs	edit	Administrator	Yes
IBanking.cs			Yes
Program.cs			Yes

2. Replace it with the contents of this BankTransactions.cs file.
3. Check-in the changes.
4. Label the "Release" branch. Call this snapshot as "Release 1.01".


Dev
Main
Release
Ban
TeamBu
TFRobo
Loan Origina
Module03
Module04
Module04To
Module05
Module08
Module09-0
TicTacToe
Version Con
Get Latest Version
Get Specific Version…
Check Out for Edit…
Lock…
Unlock
Delete
Rename
Undo Pending Changes…
Check In Pending Changes…
Shelve Pending Changes…
View History
Compare…
Find in Source Control
Windows Explorer
Branch…
Merge…
Move…
Apply Label…
Quick Label…
Properties…
Refresh

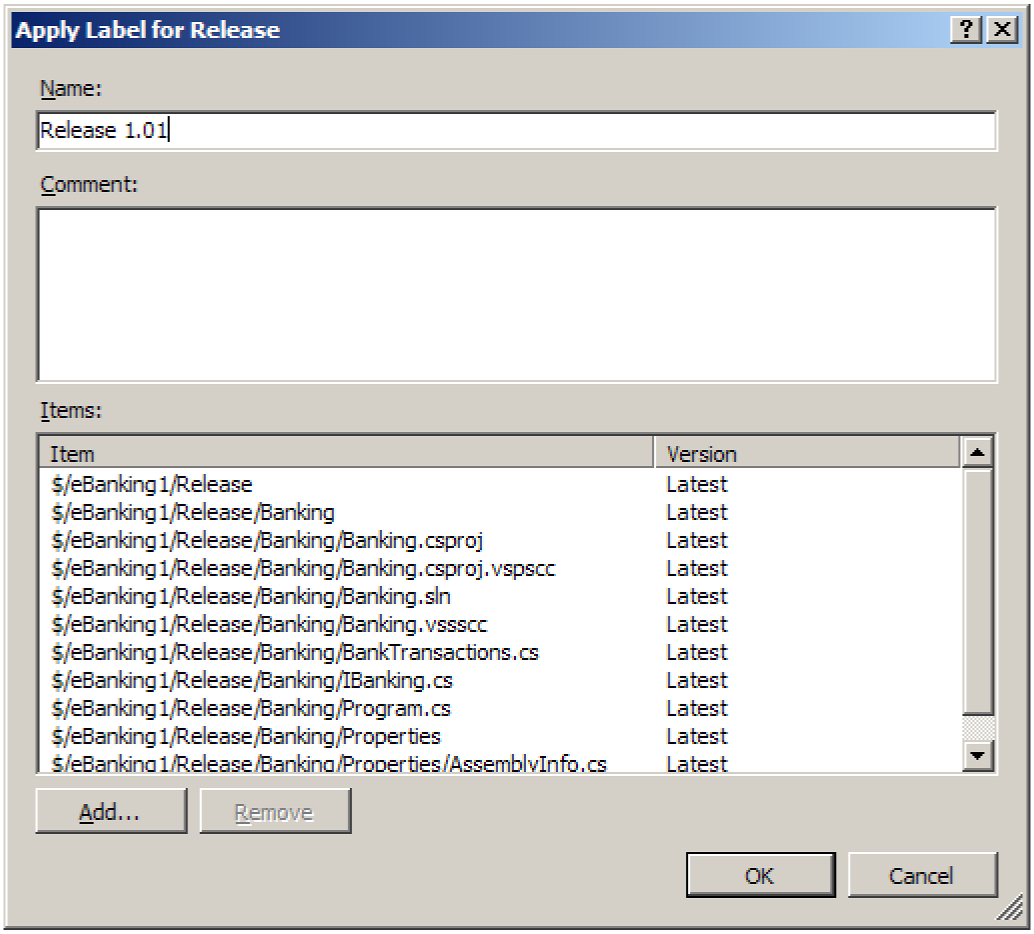


Item name: $/eBanking1/Release

Items of type: All files (*.*)

Version: Latest Version

5. Click on “OK” button.
6. Name this label as “Release 1.01” and Click on “OK” button.



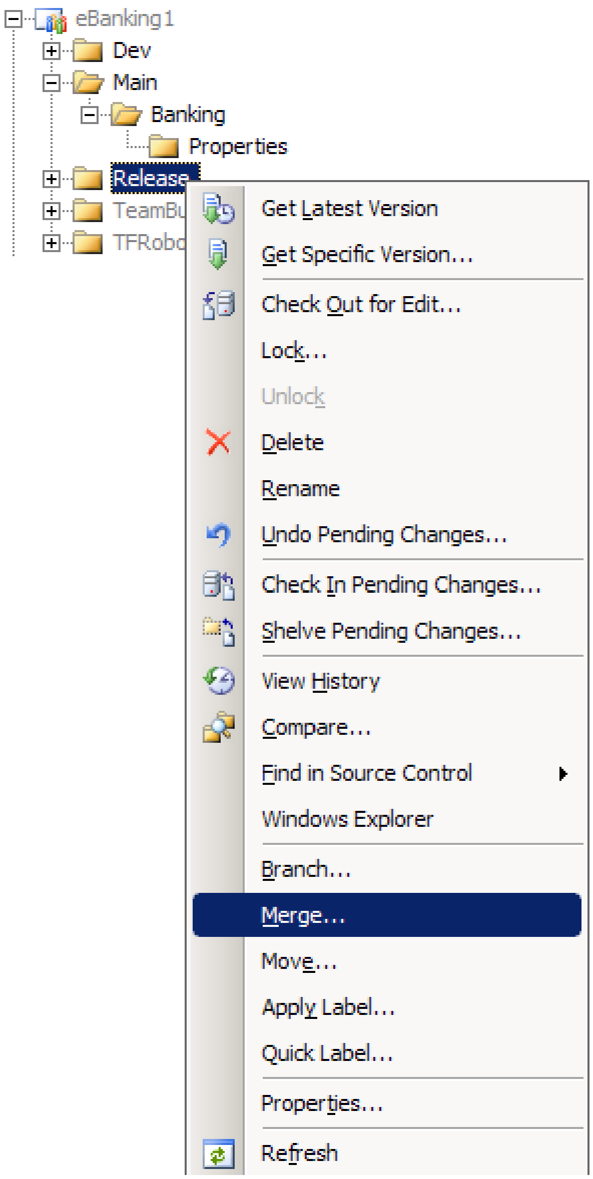
Name: Release 1.01

Comment:

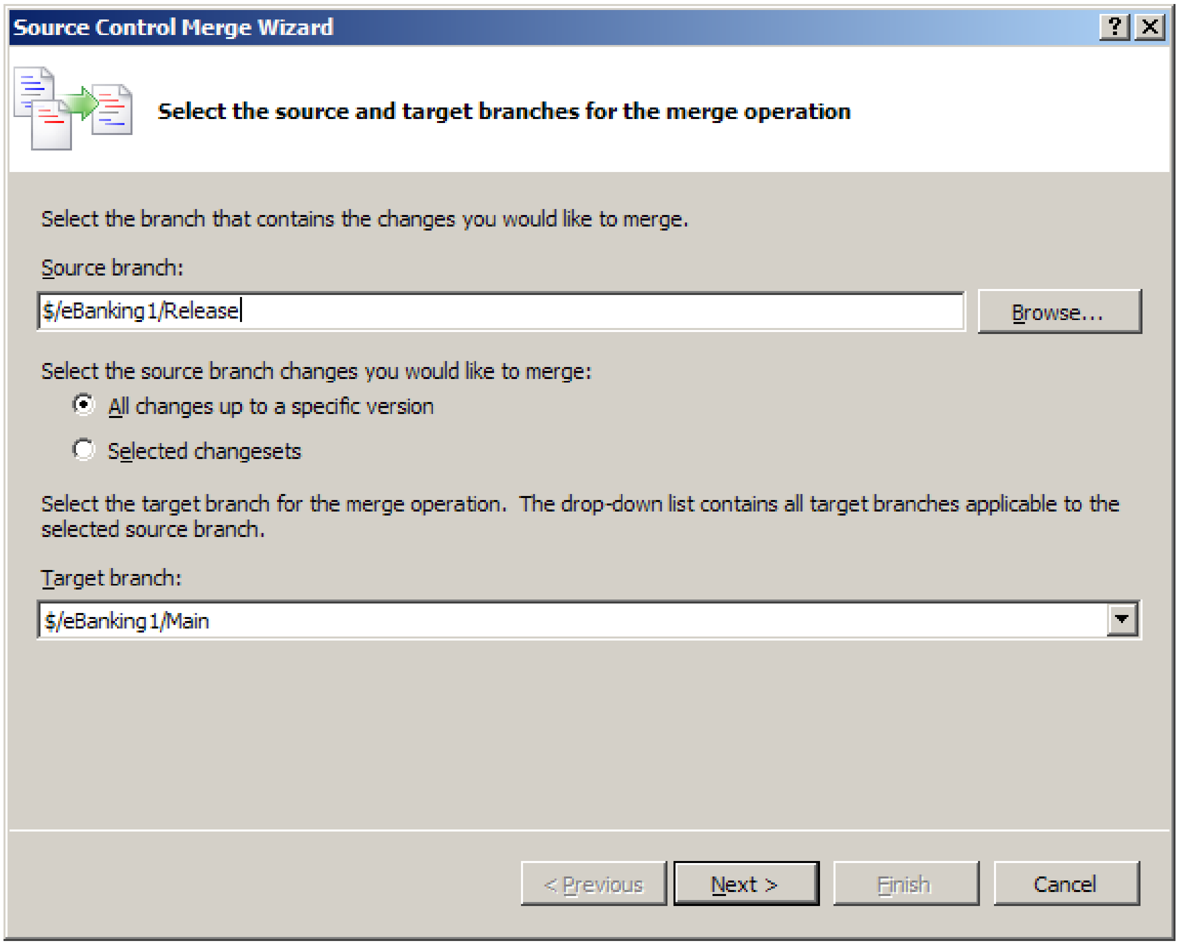
Items:

Item	Version
$/eBanking1/Release	Latest
$/eBanking1/Release/Banking	Latest
$/eBanking1/Release/Banking/Banking.csproj	Latest
$/eBanking1/Release/Banking/Banking.csproj.vspscc	Latest
$/eBanking1/Release/Banking/Banking.sln	Latest
$/eBanking1/Release/Banking/Banking.vssscc	Latest
$/eBanking1/Release/Banking/BankTransactions.cs	Latest
$/eBanking1/Release/Banking/IBanking.cs	Latest
$/eBanking1/Release/Banking/Program.cs	Latest
$/eBanking1/Release/Banking/Properties	Latest
$/eBanking1/Release/Banking/Properties/AssemblyInfo.cs	Latest

7. Merge the contents of "Release" branch to "Main" branch.



8. Verify that the target branch is “Main” and source branch is “Release”.



Select the source and target branches for the merge operation

Select the branch that contains the changes you would like to merge.

Source branch: $/eBanking1/Release

Select the source branch changes you would like to merge:

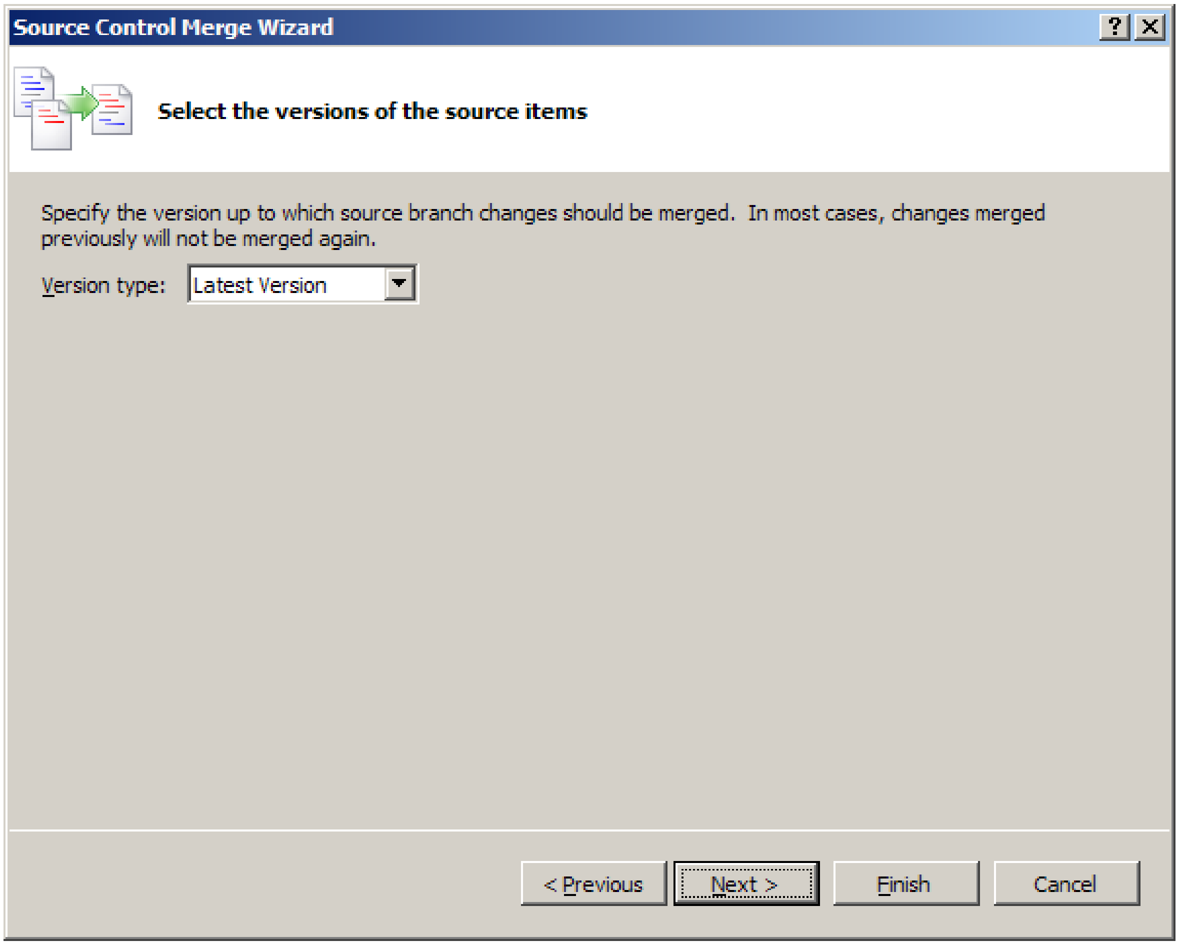
● All changes up to a specific version

○ Selected changesets

Select the target branch for the merge operation. The drop-down list contains all target branches applicable to the selected source branch.

Target branch: $/eBanking1/Main

9. Click on “Next” button

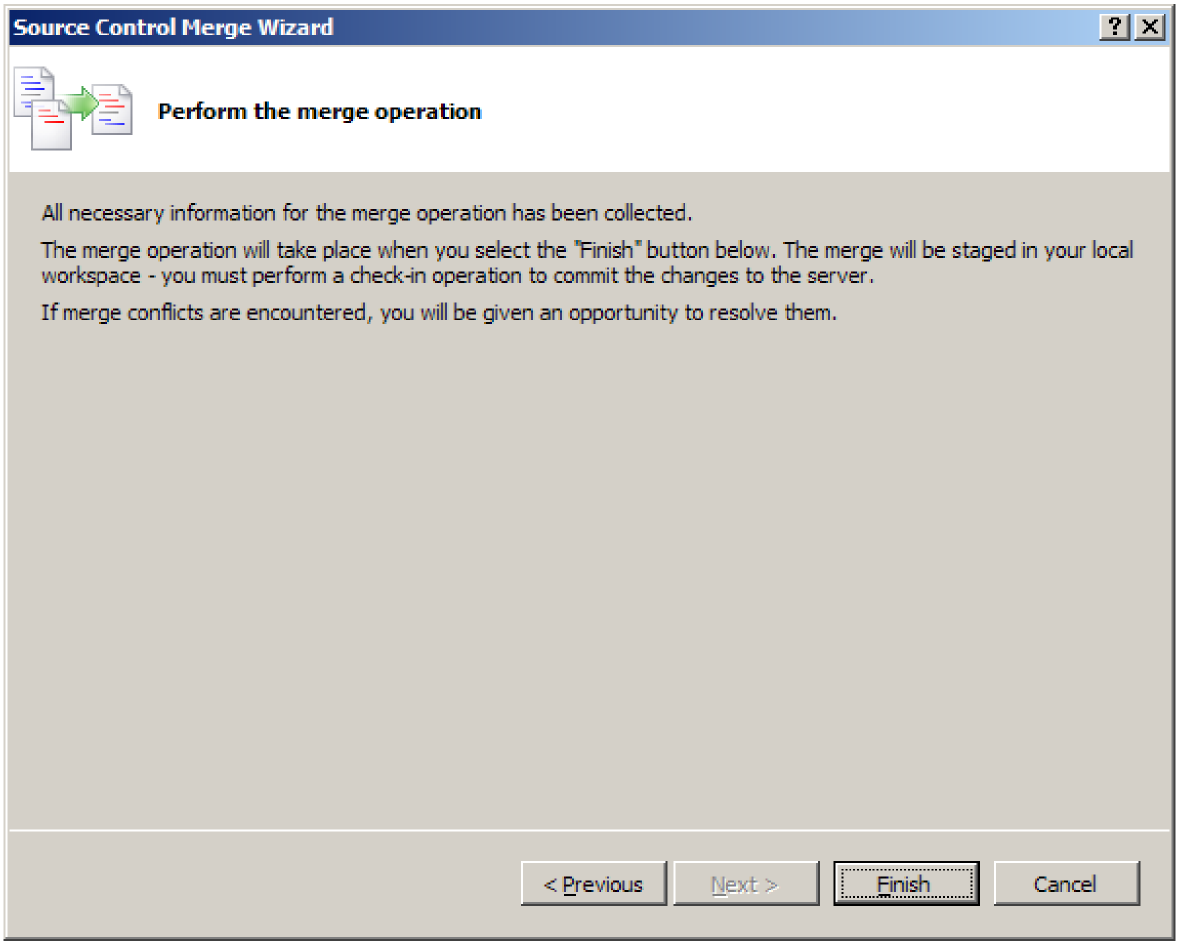


Select the versions of the source items

Specify the version up to which source branch changes should be merged. In most cases, changes merged previously will not be merged again.

Version type: Latest Version

10. Click on "Finish" button



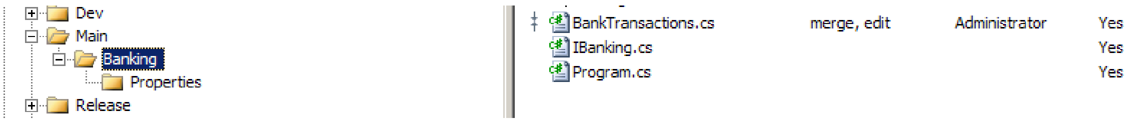
Perform the merge operation

All necessary information for the merge operation has been collected.

The merge operation will take place when you select the "Finish" button below. The merge will be staged in your local workspace - you must perform a check-in operation to commit the changes to the server.

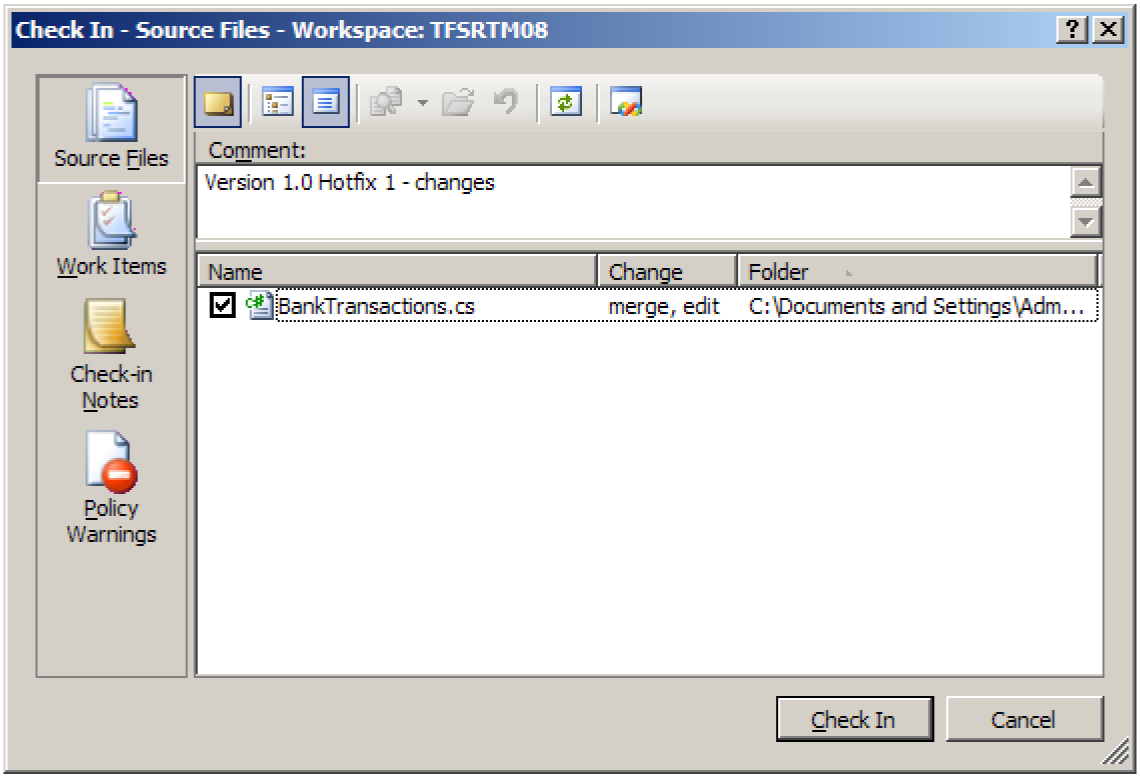
If merge conflicts are encountered, you will be given an opportunity to resolve them.

11. The tool has automatically merged the contents (see below). In case of conflicts you would be presented with options to resolve them.



BankTransactions.cs	merge, edit	Administrator	Yes
IBanking.cs			Yes
Program.cs			Yes

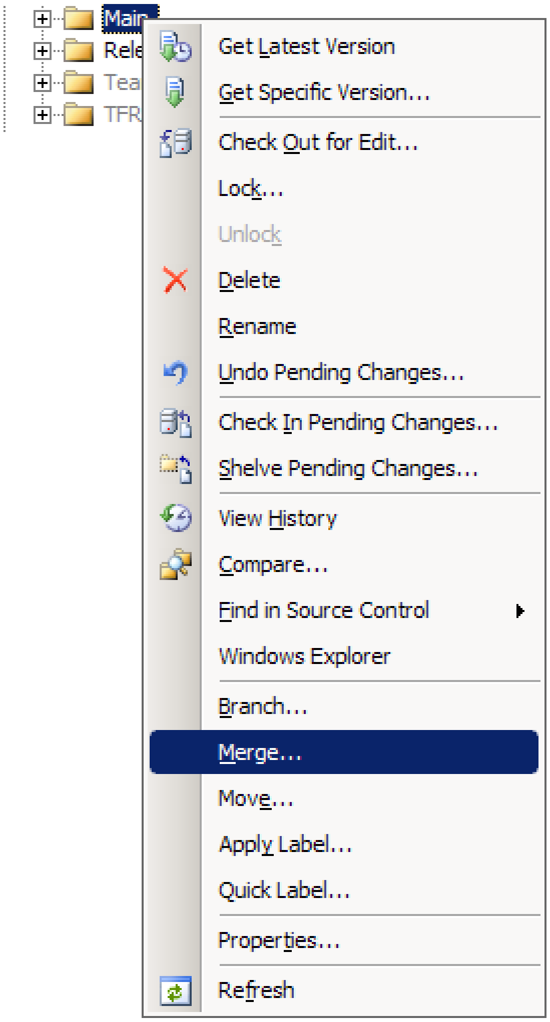
12. Check-in the merged changes in the “Main” branch.



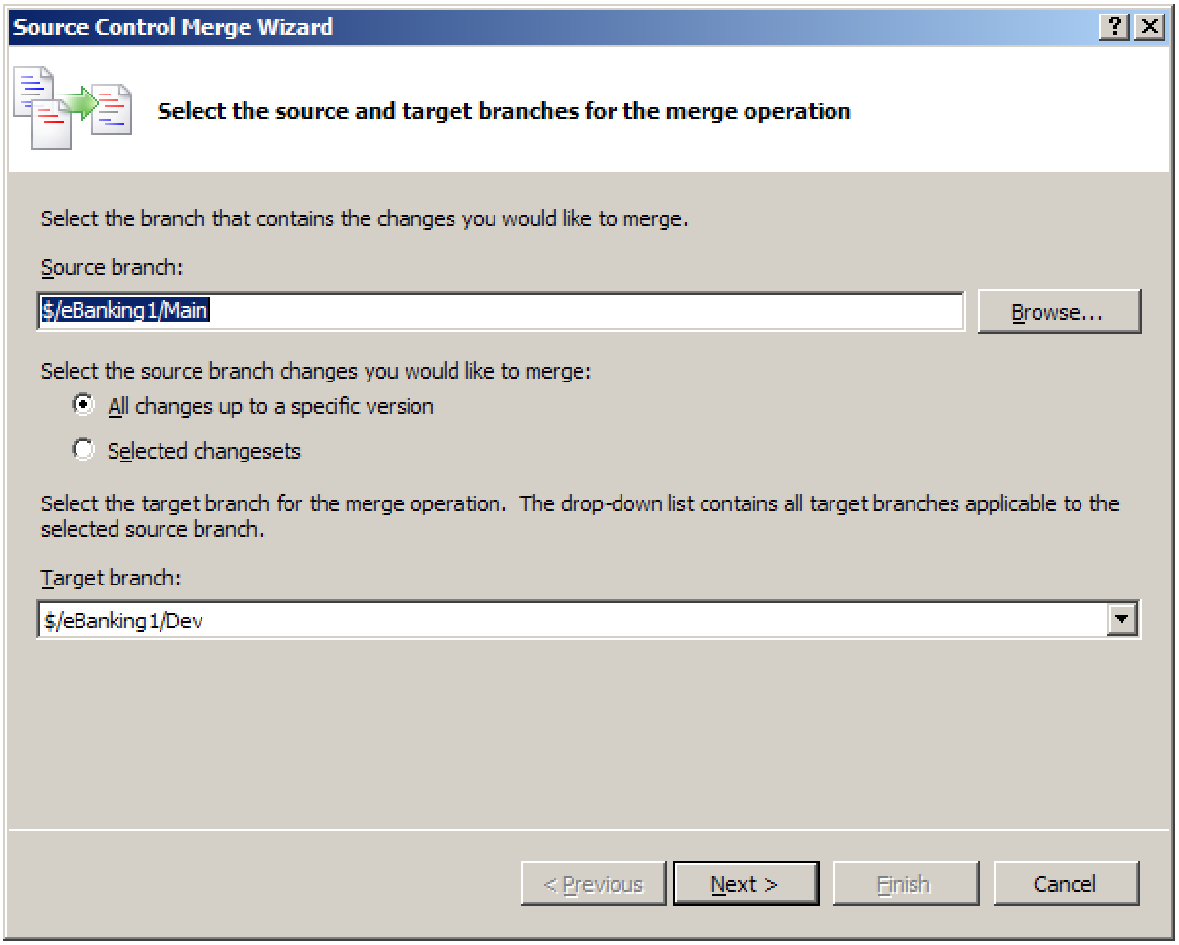
Comment:
Version 1.0 Hotfix 1 - changes

Name	Change	Folder
☑ BankTransactions.cs	merge, edit	C:\Documents and Settings\Adm...

13. The changes in the “Main” branch must now be made to the “Dev” branch. Note that the “Dev” branch has some changes specific to Release 1.1.
14. Select the Merge option as shown below.



15. Verify that the target branch is "Dev" and source branch is "Main".



Select the source and target branches for the merge operation

Select the branch that contains the changes you would like to merge.

Source branch: $/eBanking1/Main

Select the source branch changes you would like to merge:

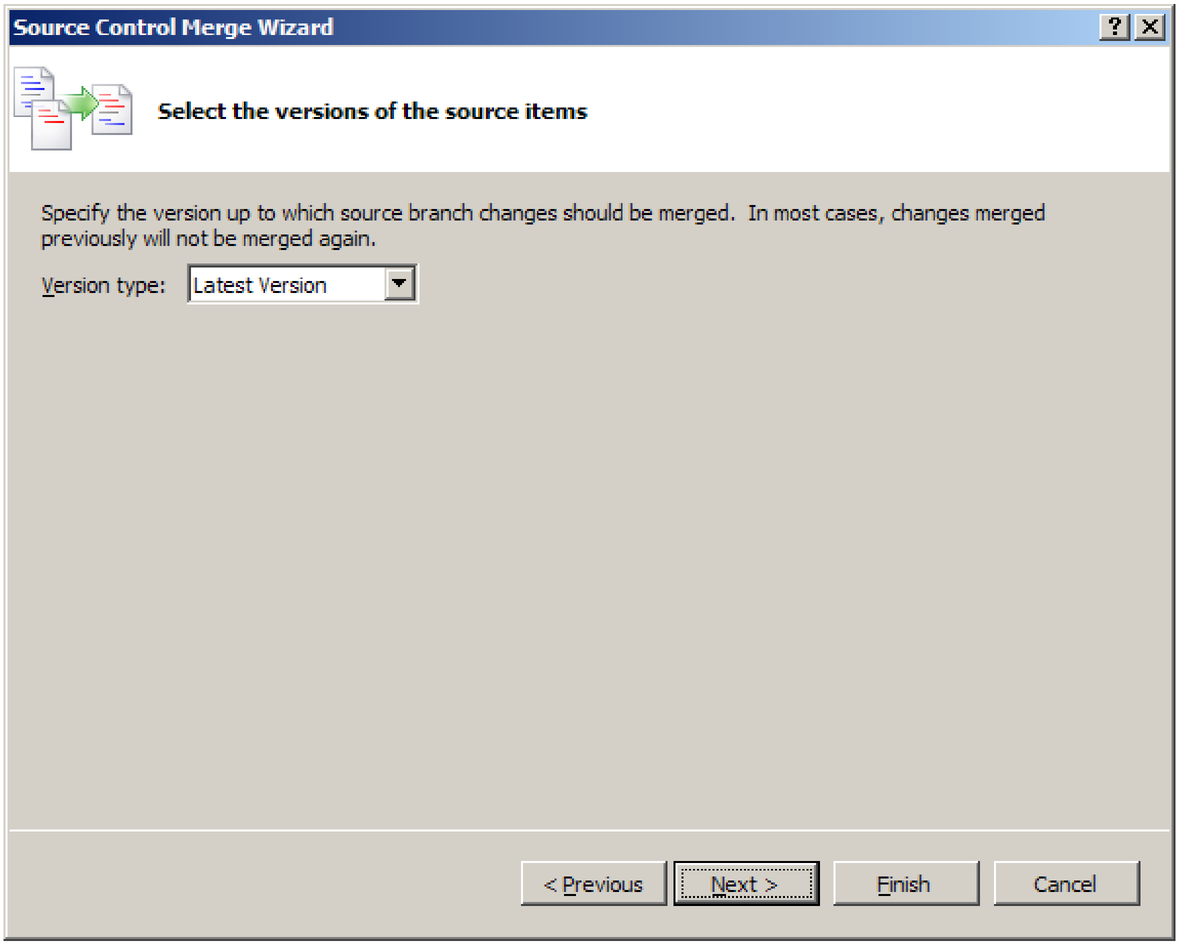
● All changes up to a specific version

○ Selected changesets

Select the target branch for the merge operation. The drop-down list contains all target branches applicable to the selected source branch.

Target branch: $/eBanking1/Dev

16. Click on “Next” button.

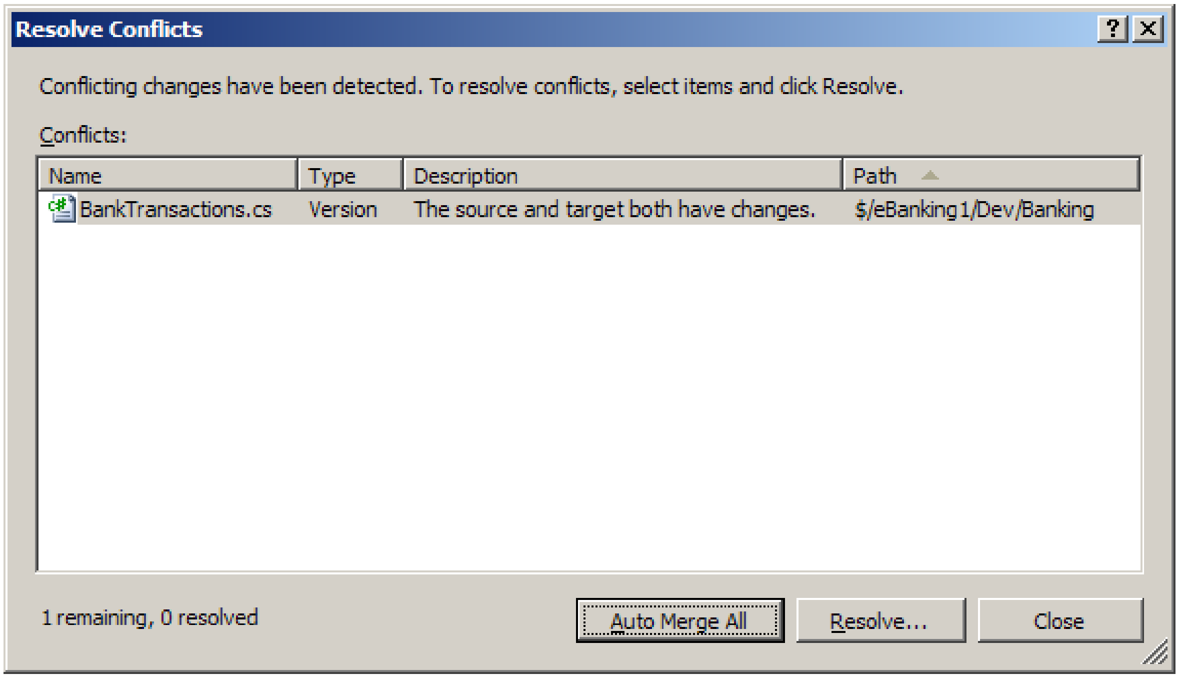


Source Control Merge Wizard
Select the versions of the source items
< Previous
Next >
Finish
Cancel

Specify the version up to which source branch changes should be merged. In most cases, changes merged previously will not be merged again.

Version type: Latest Version

17. Click on “Next” button and then click on “Finish” button.
18. You now notice that you are presented with a dialog to resolve conflicts.


Resolve Conflicts

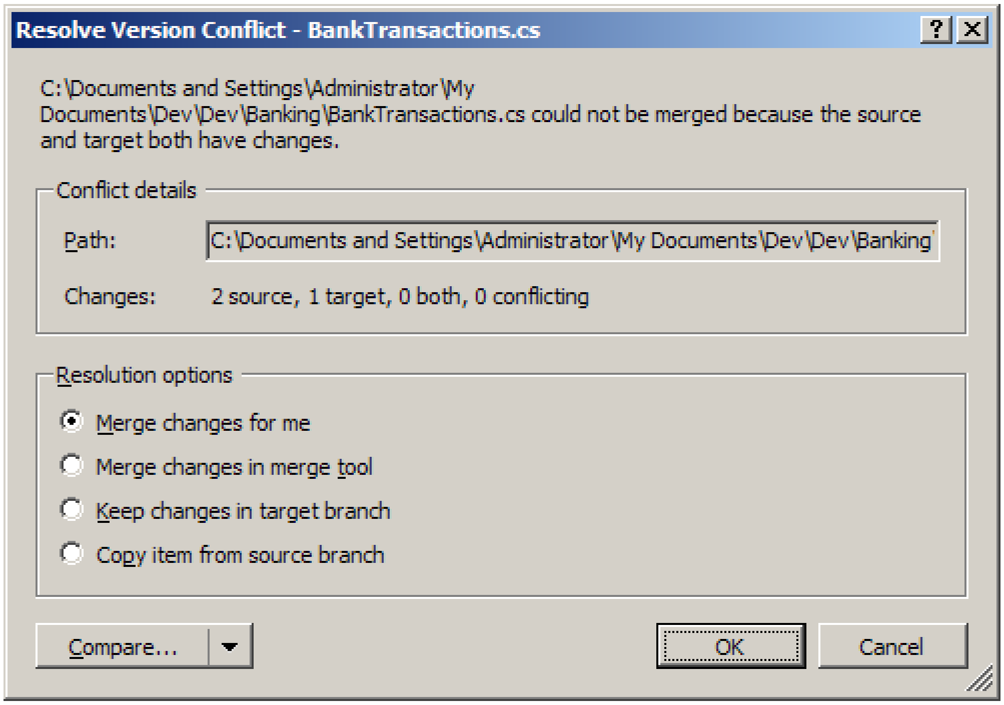
Conflicting changes have been detected. To resolve conflicts, select items and click Resolve.

Conflicts:

Name	Type	Description	Path
BankTransactions.cs	Version	The source and target both have changes.	$/eBanking1/Dev/Banking

1 remaining, 0 resolved

19. Click on "Resolve" button.


Resolve Version Conflict - BankTransactions.cs

C:\Documents and Settings\Administrator\My Documents\Dev\Dev\Banking\BankTransactions.cs could not be merged because the source and target both have changes.

Conflict details

Path: C:\Documents and Settings\Administrator\My Documents\Dev\Dev\Banking

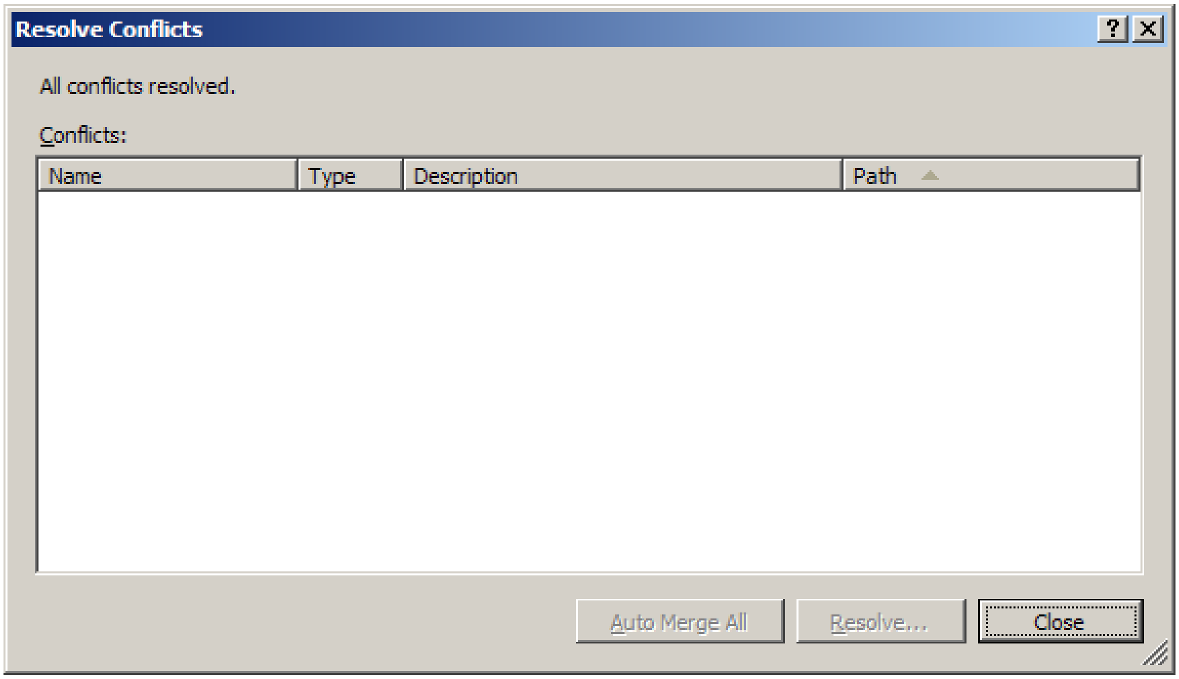
Changes: 2 source, 1 target, 0 both, 0 conflicting

Resolution options

● Merge changes for me
○ Merge changes in merge tool
○ Keep changes in target branch
○ Copy item from source branch

20. Click on "OK" button.

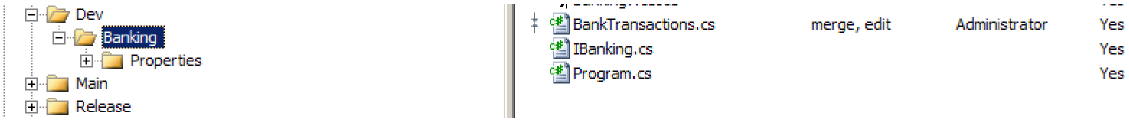
21. All conflicts are automatically resolved.



All conflicts resolved.

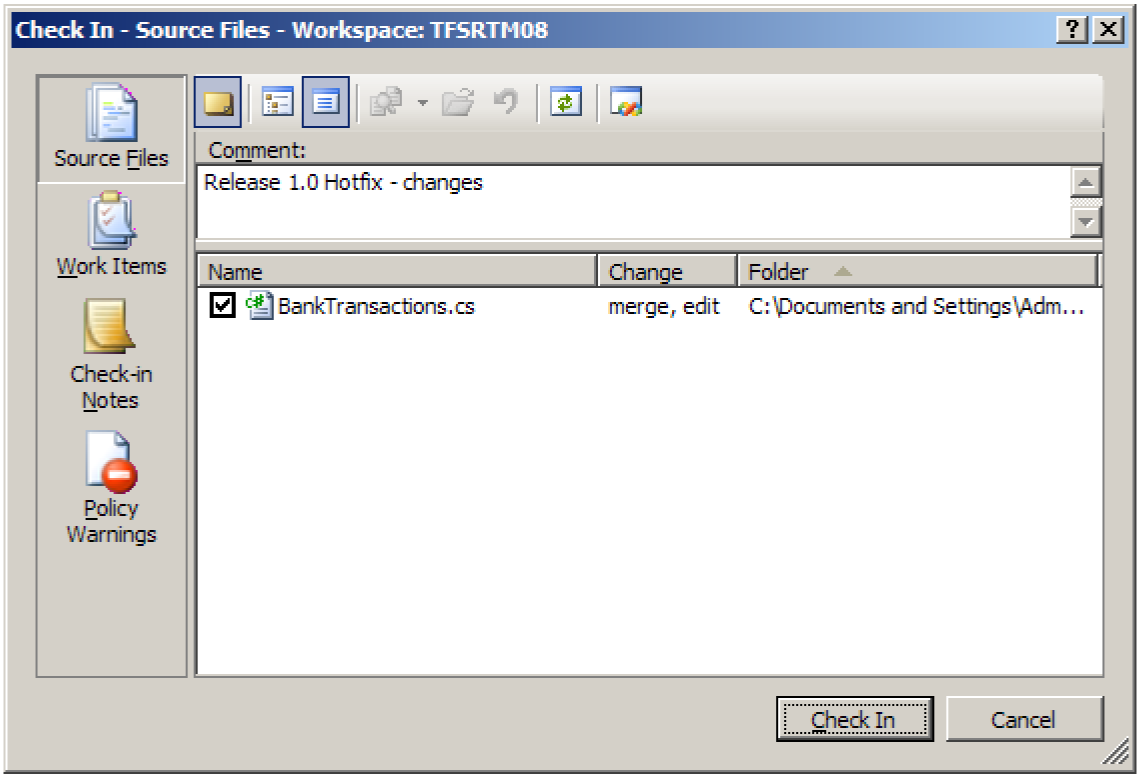
22. Click on “Close” button.

23. Notice that the files that are required to be merged are automatically checked out.



BankTransactions.cs	merge, edit	Administrator	Yes
IBanking.cs			Yes
Program.cs			Yes

24. Check-in the changes in the “Dev” branch.



Check In - Source Files - Workspace: TFSRTM08

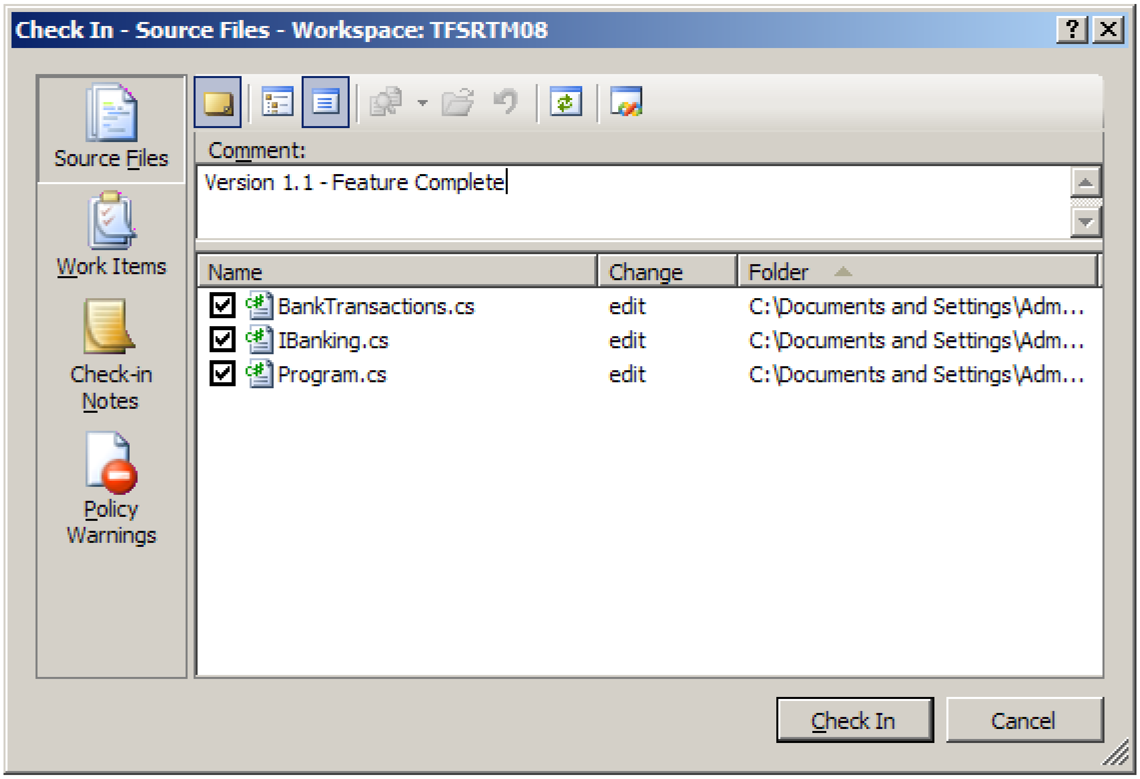
Comment: Release 1.0 Hotfix - changes

Name	Change	Folder
☑ BankTransactions.cs	merge, edit	C:\Documents and Settings\Adm...

Finish code for Release 1.1 & Merge Changes

1. The development continues for Release 1.1 and changes are made in the "Dev" branch. After quality checks are complete the code is now integrated with the "Main" branch.
2.

1. Checkout "BankTransactions.cs", "IBanking.cs" and "Program.cs" from the "Dev" branch.
2. Replace it with the contents of this Banking-Dev-1.zip file.
3. Check-in the changes.

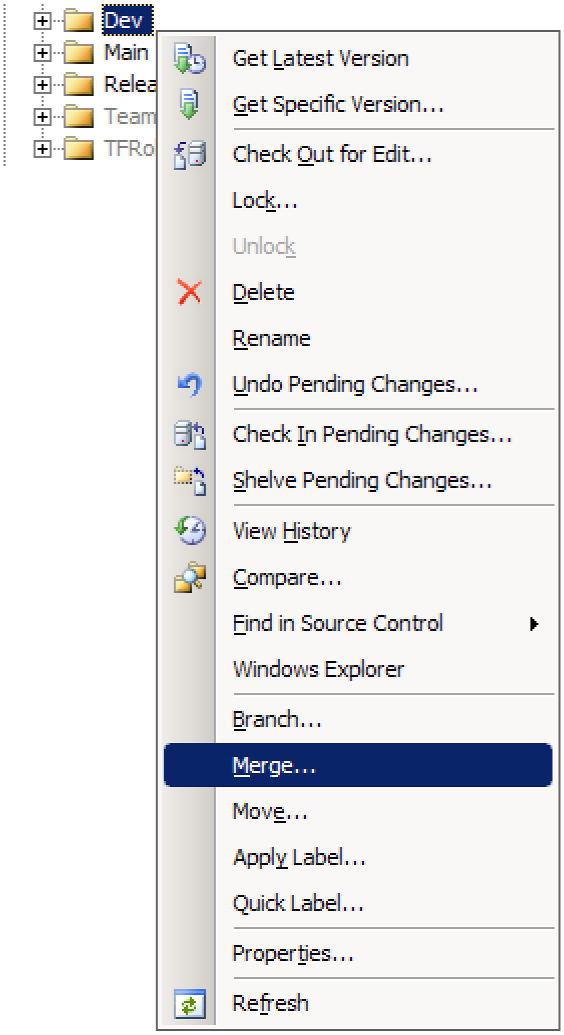


Check In - Source Files - Workspace: TFSRTM08

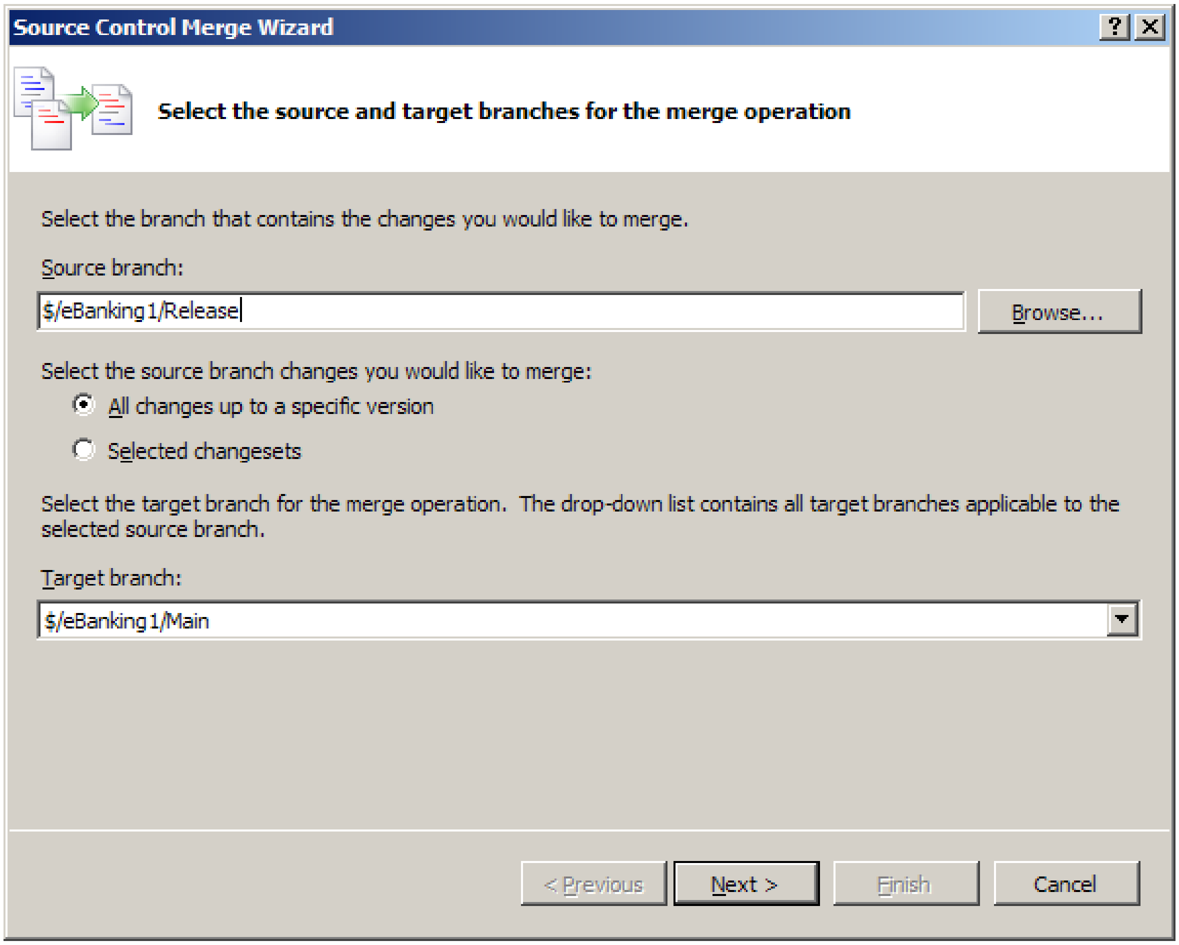
Comment:
Version 1.1 - Feature Complete

Name	Change	Folder
☑ BankTransactions.cs	edit	C:\Documents and Settings\Adm...
☑ IBanking.cs	edit	C:\Documents and Settings\Adm...
☑ Program.cs	edit	C:\Documents and Settings\Adm...

4. Merge the changes in "Dev" branch with the "Main" branch.



5. Verify that the target branch is “Main” and source branch is “Release”.



Source Control Merge Wizard

Select the source and target branches for the merge operation

Select the branch that contains the changes you would like to merge.

Source branch:

$/eBanking1/Release

Select the source branch changes you would like to merge:

● All changes up to a specific version

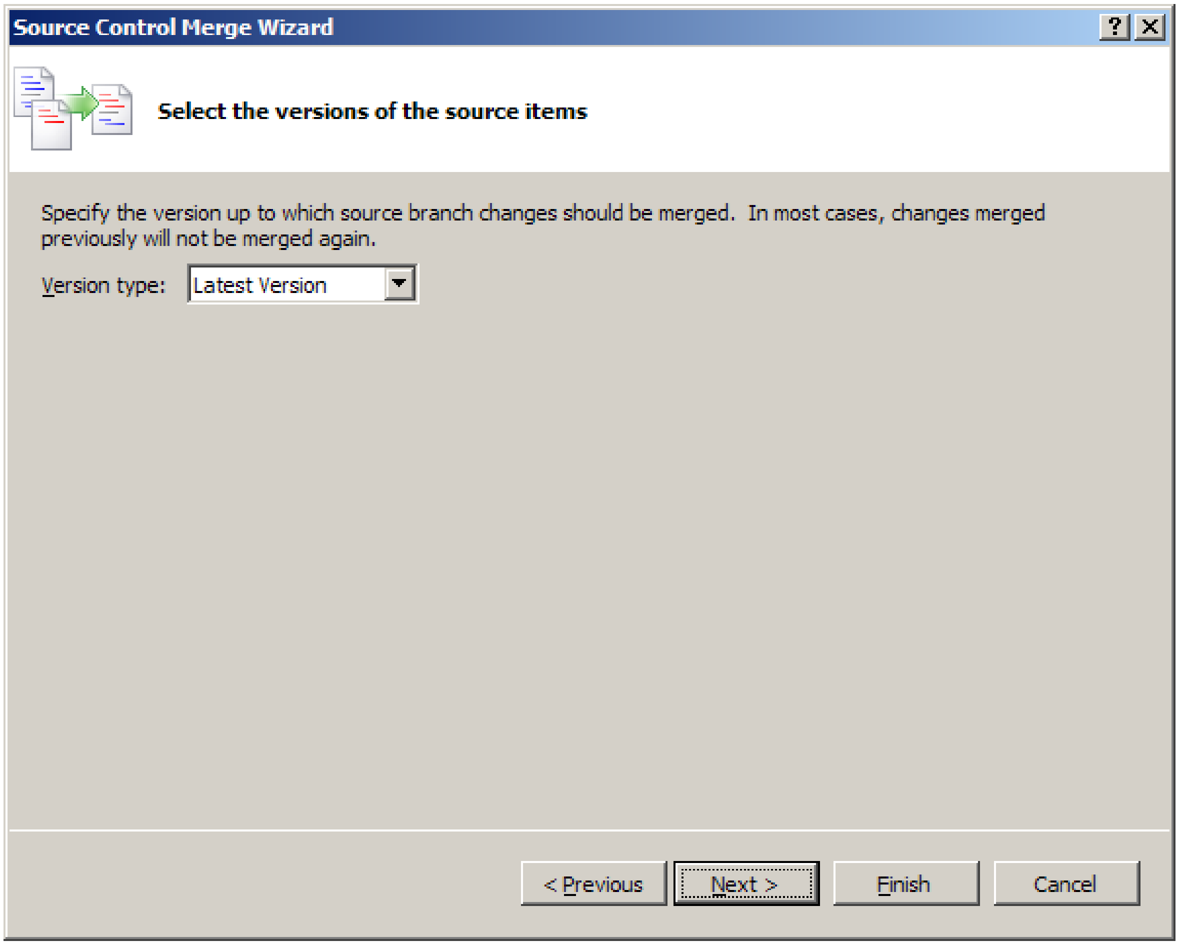
○ Selected changesets

Select the target branch for the merge operation. The drop-down list contains all target branches applicable to the selected source branch.

Target branch:

$/eBanking1/Main

6. Click on “Next” button

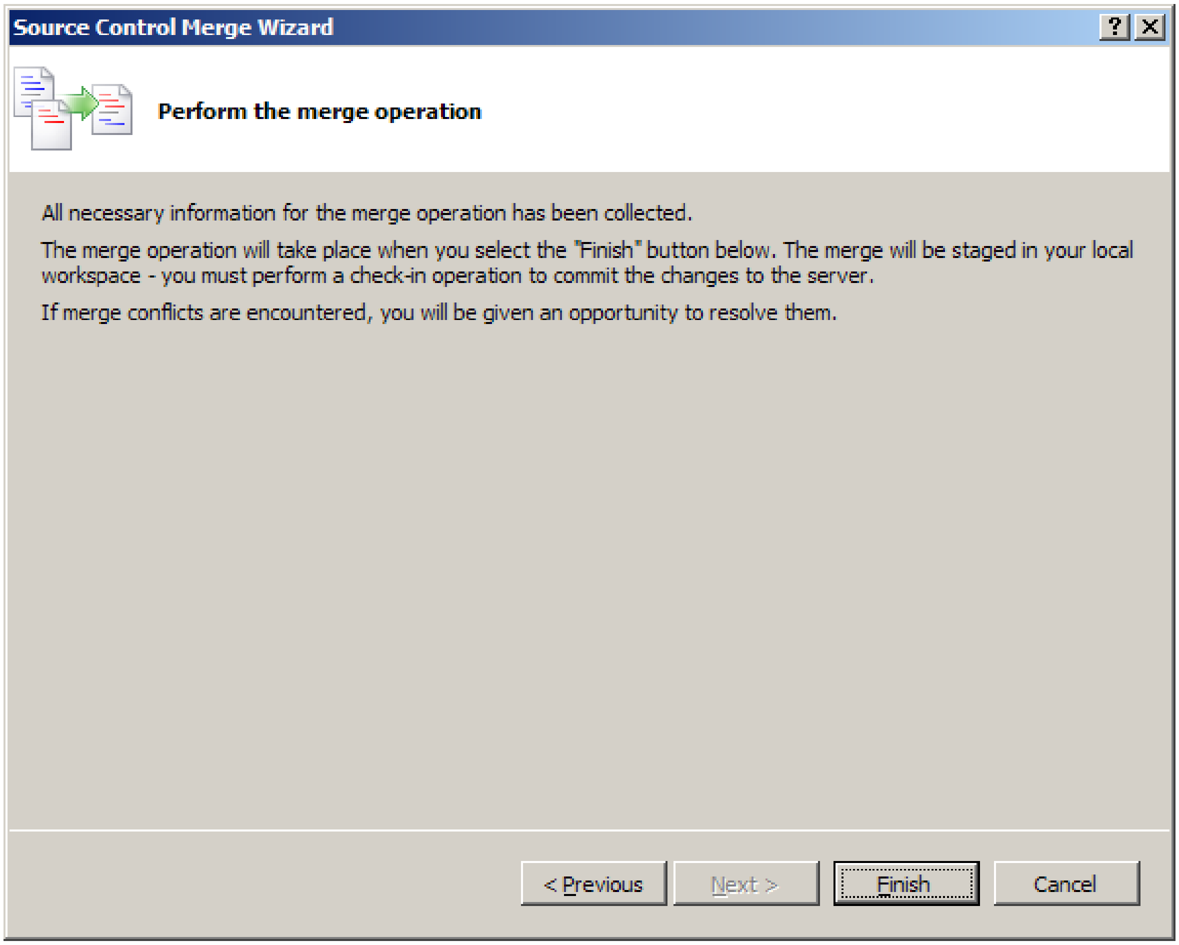


Select the versions of the source items

Specify the version up to which source branch changes should be merged. In most cases, changes merged previously will not be merged again.

Version type: Latest Version

7. Click on “Finish” button

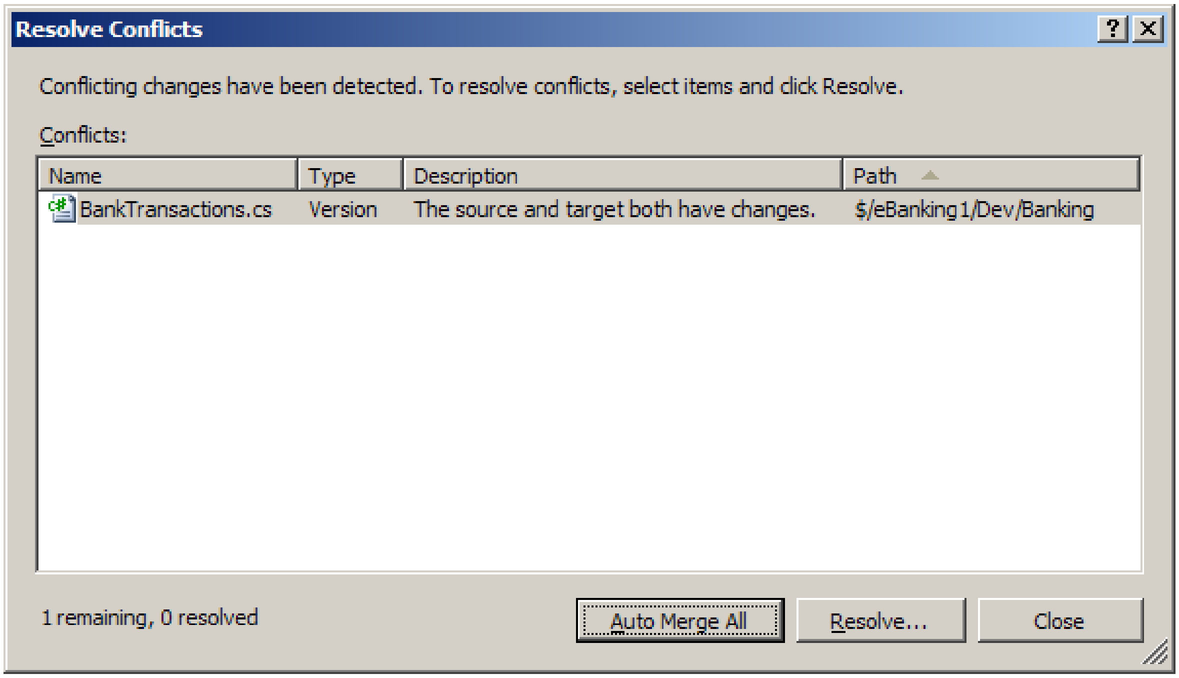


All necessary information for the merge operation has been collected.

The merge operation will take place when you select the "Finish" button below. The merge will be staged in your local workspace - you must perform a check-in operation to commit the changes to the server.

If merge conflicts are encountered, you will be given an opportunity to resolve them.

8. You now notice that you are presented with a dialog to resolve conflicts.



Resolve Conflicts

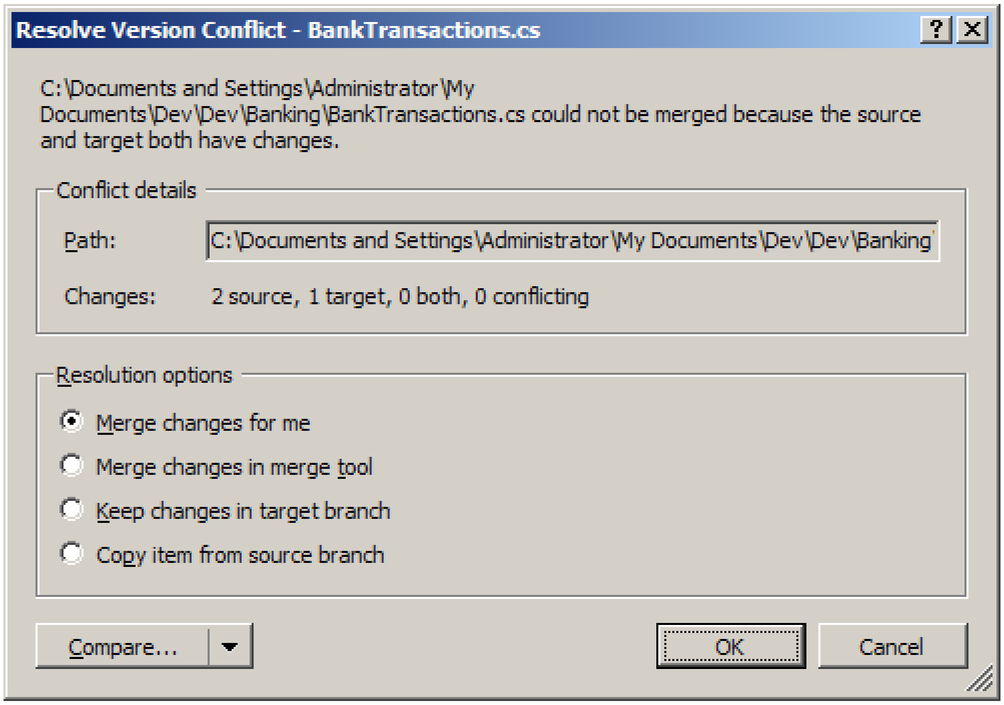
Conflicting changes have been detected. To resolve conflicts, select items and click Resolve.

Conflicts:

Name	Type	Description	Path
BankTransactions.cs	Version	The source and target both have changes.	$/eBanking1/Dev/Banking

1 remaining, 0 resolved

9. Click on “Resolve” button.



Resolve Version Conflict - BankTransactions.cs

C:\Documents and Settings\Administrator\My Documents\Dev\Dev\Banking\BankTransactions.cs could not be merged because the source and target both have changes.

Conflict details

Path: C:\Documents and Settings\Administrator\My Documents\Dev\Dev\Banking

Changes: 2 source, 1 target, 0 both, 0 conflicting

Resolution options

● Merge changes for me

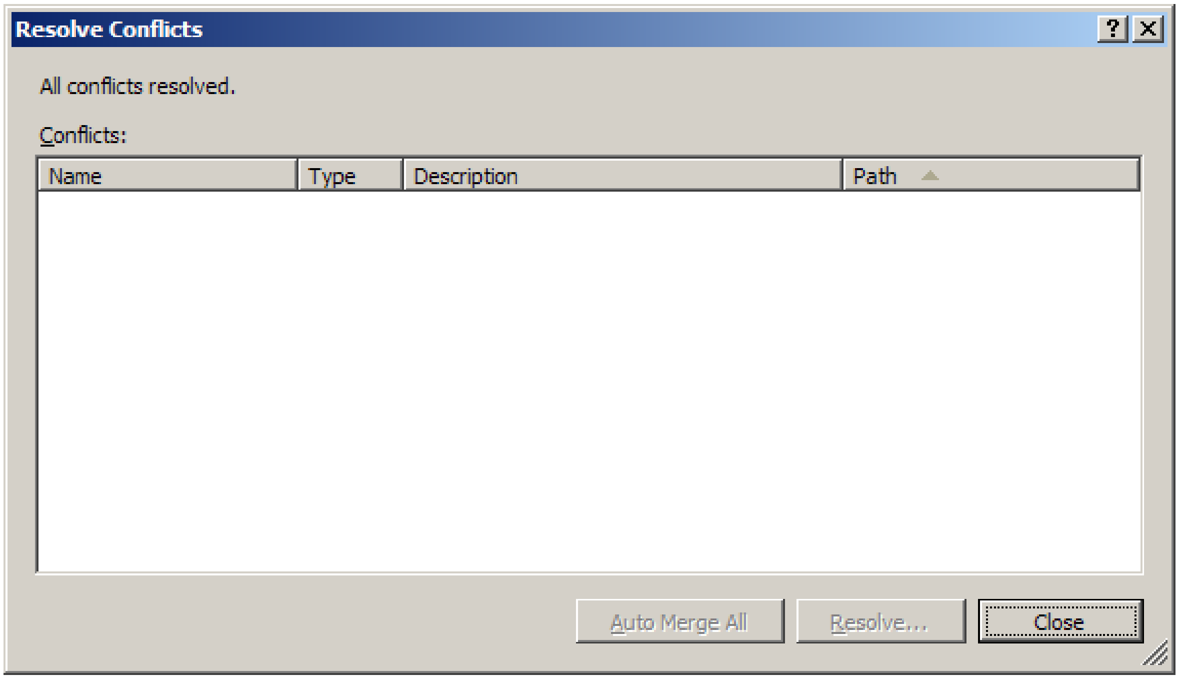
○ Merge changes in merge tool

○ Keep changes in target branch

○ Copy item from source branch

10. Click on “OK” button.

11. All conflicts are automatically resolved.



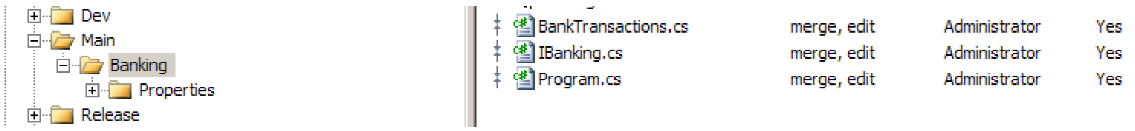
All conflicts resolved.

Conflicts:

Name	Type	Description	Path

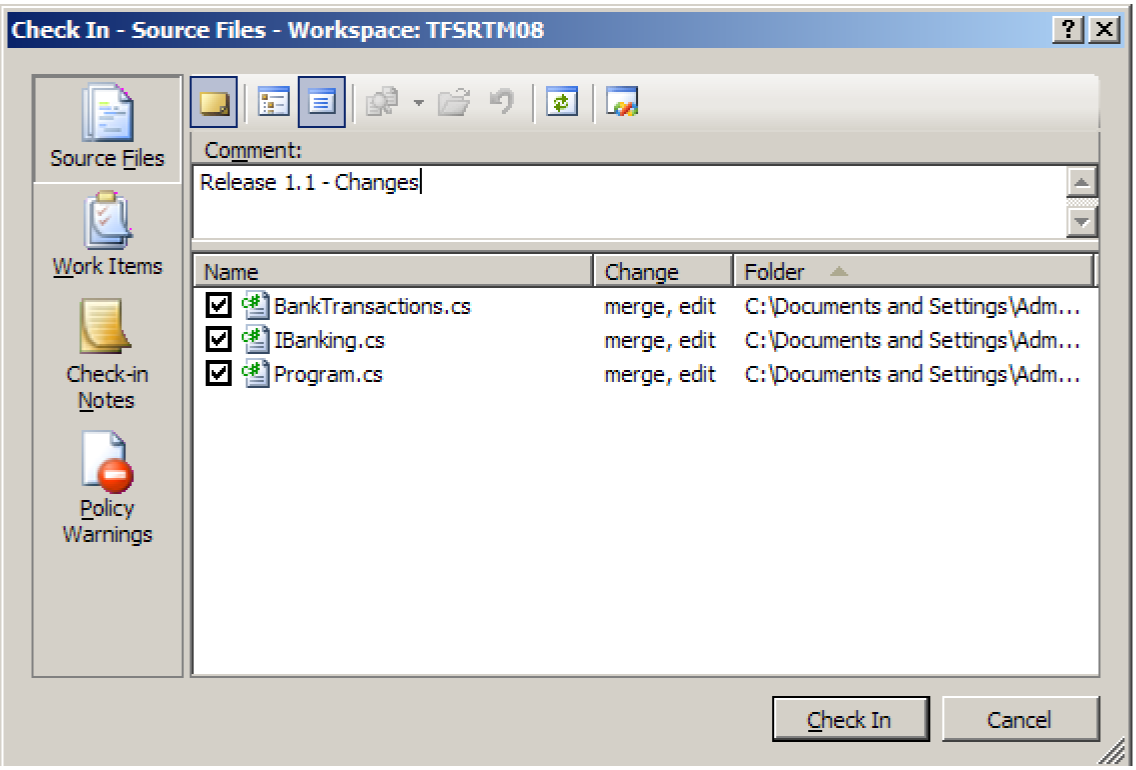
12. Click on “Close” button.

13. Notice that the files that are required to be merged are automatically checked out.



BankTransactions.cs	merge, edit	Administrator	Yes
IBanking.cs	merge, edit	Administrator	Yes
Program.cs	merge, edit	Administrator	Yes

14. Check-in the changes to “Main” branch.



Comment: Release 1.1 - Changes

	Name	Change	Folder
☑	BankTransactions.cs	merge, edit	C:\Documents and Settings\Adm...
☑	IBanking.cs	merge, edit	C:\Documents and Settings\Adm...
☑	Program.cs	merge, edit	C:\Documents and Settings\Adm...

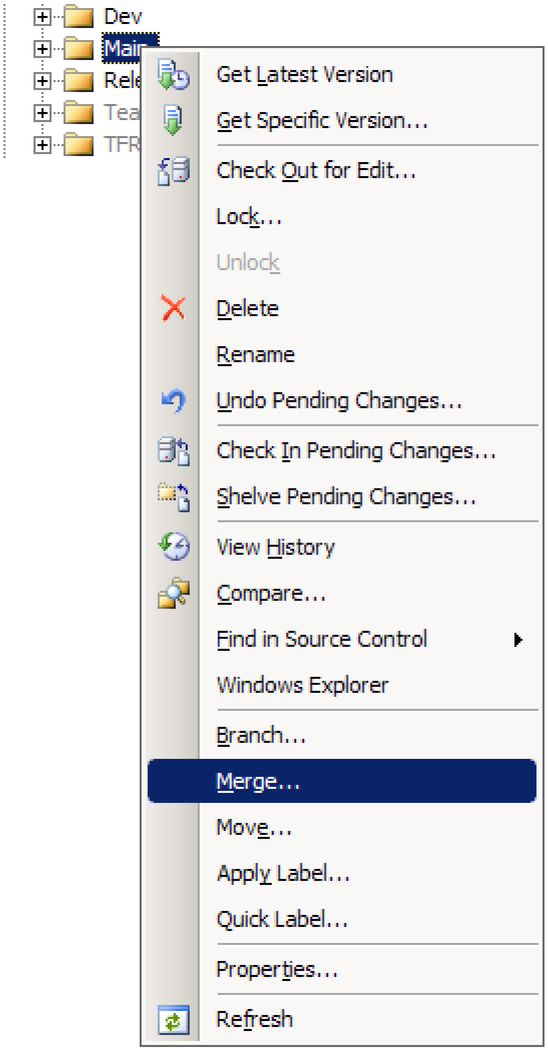
Stabilize code for Release 1.1 & Merge Changes

The code in the Main branch is stabilized and the changes made during the stabilization need to be merged back to the “Dev” branch while the development for the next release (Release 1.2) happens on the “Dev” branch. The steps to merge “Main” branch with “Release” is the same as provided earlier.

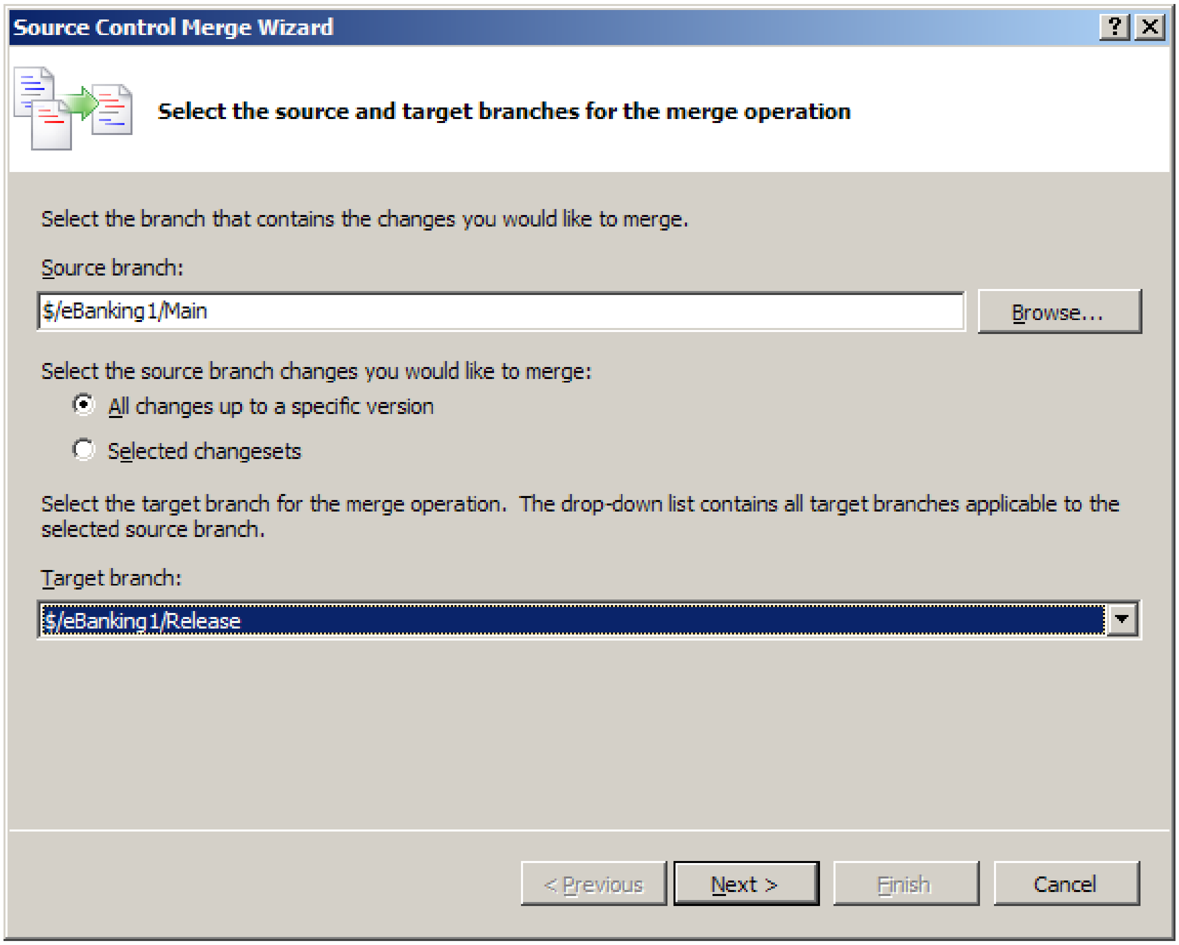
Release 1.1 to Production

The “Main” branch once stabilized is merged to “Release” branch from which the next Release (Release 1.1) will go live. The steps to merge the changes in “Main” with “Release” are given below.

1. Select the Merge option.



2. Make sure that “Main” branch is the source and “Release” branch is the target.



Select the source and target branches for the merge operation

Select the branch that contains the changes you would like to merge.

Source branch:

$/eBanking1/Main

Select the source branch changes you would like to merge:

● All changes up to a specific version

○ Selected changesets

Select the target branch for the merge operation. The drop-down list contains all target branches applicable to the selected source branch.

Target branch:

$/eBanking1/Release

3. The steps to complete the merge operation are the same as described above.
4. Check in the changes in the "Release" branch.
5. Further changes in the "Main" branch will be merged to both "Dev" & "Release" branch.
6. Finally label the "Release" branch as "Release 1.1" and complete the new release process (Go Live).

Summary

In this lab, you learnt the process of maintaining and managing a single branch for both Release & Maintenance.