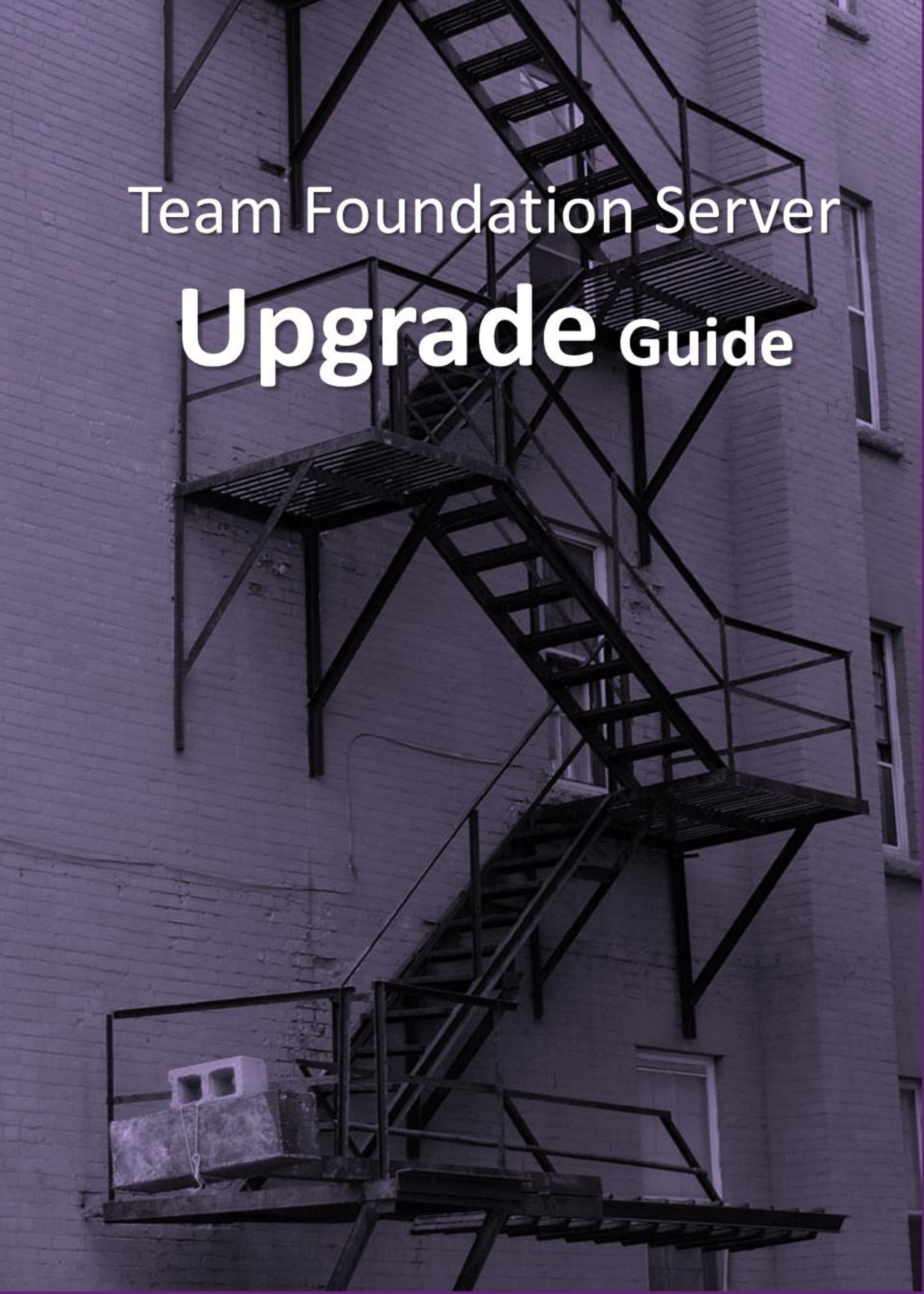
V3.3



Team Foundation Server Upgrade Guide

Visual Studio ALM Rangers

Microsoft

Visual Studio

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Foreword

When I first began working in the Team Foundation Server group last year, one of my first tasks was to install and upgrade my personal TFS deployment in order to experience the area of ownership I had just inherited from a customer's perspective. Even with a relatively simple deployment, I found the number of considerations I needed to manage to successfully complete this task, were much higher than I anticipated. I quickly gained an appreciation for both the setup and configuration space I was working in and for the TFS 2012 Rangers Upgrade Guide, which helped me through the process.

Since then, I have assisted many other groups with their upgrades, and have encountered innumerable environment permutations and customizations – I still see new ones every month. Configuring TFS is highly complex given that it can be deployed in a wide range of environments, from a small virtual machine to a distributed 10+ server topology. While our MSDN documentation does a good job of covering traditional, "happy path" scenarios, customer needs can diverge greatly from the norm. One of the main purposes of this guide is to comprehensively detail many of these special upgrade and migration considerations, even if you do not see your environment perfectly represented by one of our walkthroughs or checklists, you should be able to extract a solid framework for your upgrade, from preliminary preparation all the way through verification.

I am more convinced than ever of the utility of this undertaking. Upgrading is a process that every TFS user must execute at some point, and at the same time, it can be quite daunting. This document not only outlines workflows for TFS upgrades and migrations, but also provides peace of mind to administrators concerned with minimizing downtime and ensuring their business's important data is serviced correctly. With companies – including Microsoft – switching to a model of releasing features to their users more frequently, upgrades will only become a more common occurrence.

I am thrilled that the Rangers Upgrade Guide has been updated for TFS 2013, and am pleased to have been able to contribute to a project that I believe is extremely valuable, with a group of experts that are just as passionate about TFS as I am. I hope you find this resource as indispensable as I did when I started here at Microsoft.

Andrea Scripa – Program Manager, Team Foundation Server

Introduction

Welcome to the Team Foundation Server Upgrade Guide where we, the ALM Rangers, will take you on a guided journey through practical and scenario-based guidance for upgrading your existing Team Foundation Server (TFS) infrastructure to TFS 2013, walking through some of the common scenarios encountered during the upgrade process.

NOTE

The guidance is based on Visual Studio TFS 2013 and should be used in conjunction with documentation that accompanies the product and is available on the Microsoft Developer Network (MSDN) at http://msdn.microsoft.com.

Intended audience

We expect the majority of our audience personas to be **Dave** – TFS Server Administrator, **Jane** – Infrastructure specialist, **Garry** – Development Lead and **Paul** – Database Administrator. See ALM Rangers Personas and Customer Types[1] for more information on these and other personas.

The guide assumes a good knowledge of the TFS and an operational administration mindset – in other words, intermediate to advanced TFS Administrators.

What you'll need

The following prerequisites are needed and referenced in this guide as *'supported editions'*:

- TFS 2010 and 2012 as existing environment
- TFS 2013 as target environment

Visual Studio ALM Rangers

The Visual Studio ALM Rangers are a special group with members from the Visual Studio Product group, Microsoft Services, Microsoft Most Valuable Professionals (MVP) and Visual Studio Community Leads. Their mission is to provide out-of-band solutions to missing features and guidance. A growing Rangers Index is available online[2].

Contributors

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Acknowledgements

ALM Rangers never work alone, standing on the shoulders of giants. We would like to thank our families for their patience, the countless engineers who advised us and shared their knowledge, and content owners from MSDN and TechReady. Special thanks to Dawid Ciarach.

Additional ALM Rangers Resources

Understanding the ALM Rangers – http://aka.ms/vsarunderstand

Visual Studio ALM Ranger Solutions – http://aka.ms/vsarsolutions

[1] http://aka.ms/treasure4

[2] http://aka.ms/vsarindex

Chapter 1: What's New?

This section covers the various hardware and software requirements for TFS 2013, giving you the information you need to determine if your existing hardware and software configuration is sufficient.

System Requirements

✓ Supported ✘ No longer supported

This section covers the various software and hardware requirements for TFS 2013.

Environment Upgrade Blockers

TFS 2013 no longer supports these previously supported platforms:

- SharePoint 3.0
- Microsoft Office SharePoint Server 2007
- Project Server 2007
- SQL Server 2008 R2
- SQL Server 2012 with no Service Pack
- Windows Server 2008
- Windows Server 2008 R2 with no Service Pack

Windows Server 2012 with no service pack

Software Requirements

NOTE

Refer to System Requirements for Team Foundation Server for information on TFS 2010 [3], not covered in the tables below.

Server Operating System Requirements

Operating System	TFS 2012	TFS 2013
Windows Server 2008 [4] w/SP2 (Standard, Enterprise, Datacenter)	✓	✘
Windows Server 2008 [5] R2 w/SP1 (Standard, Enterprise, Datacenter)	✓	✓
Windows Server 2012 (Essentials, Standard, Datacenter)	✓	✓
Windows Small Business Server 2011 (Essentials, Standard, Premium Add-On)	✓	✓
Windows Home Server 2011	✓	✘
Windows Server 2012 R2 (Essentials, Standard, Datacenter)		✓

Table 1 – Server Operating System Requirements

NOTE

All server operating systems need to be x64.

[3] http://msdn.microsoft.com/en-us/library/dd578592(v=vs.100).aspx

[4] Windows Server 2008 Server Core not supported

[5] Windows Server 2008 R2 Server Core are not supported

Client Operating System Requirements for installing

Operating System	TFS 2012	TFS 2013
Windows 7 32-/64-bit (Home Premium, Professional, Enterprise, Ultimate)	✓	✗
Windows 7 32-/64-bit (Home Premium, Professional, Enterprise, Ultimate) + SP1	✓	✓
Windows 8 32-/64-bit (Basic, Pro, Enterprise)	✓	✓
Windows 8.1 (Basic, Pro, Enterprise)		✓

Table 2 – Client Operating System Requirements for installing TFS

SQL Server Requirements for

SQL Server Version	TFS 2012	TFS 2013
SQL Server 2008 R2 (Express, Standard Edition, Enterprise Edition)	✓	✗
SQL Server 2012 (Express[6], Standard Edition, Enterprise Edition)	✓	✗
SQL Server 2012 SP1	✓	✓

Table 3 – SQL Server Requirements

NOTE

We strongly recommend you install CU2 or KB 2793634 on top of SQL Server 2012 SP1. See SQL Server requirements for Team Foundation Server [7] for more information.

SharePoint Requirements TFS

SharePoint Version	TFS 2012	TFS 2013
Windows SharePoint Services 3.0 (Foundation, Standard, Enterprise)	✓	✗
Microsoft Office SharePoint Server 2007 (Foundation, Standard, Enterprise)	✓	✗
Microsoft SharePoint Server 2010 (Foundation, Standard, Enterprise)	✓	✓
Microsoft Office SharePoint Server 2010 (Foundation, Standard, Enterprise)	✓	✓
Microsoft SharePoint 2013 [8] (Foundation, Standard, Enterprise)	✓	✓
Microsoft Office SharePoint Server 2013 (Foundation, Standard, Enterprise)	✓	✓

Table 4 – SharePoint Requirements

Project Server Integration Support for TFS

Project Server Version	TFS 2012	TFS 2013
Project Server 2007	✓	✗
Project Server 2010	✓	✓
Project Server 2013	✓	✓

Table 5 – Project Server Requirements

Build OS Support for TFS

Operating System	TFS 2012	TFS 2013
Windows Server 2008 [9] w/SP2 (Standard, Enterprise, Datacenter)	✓	✗
Windows Server 2008 [10] R2 w/SP1 (Standard, Enterprise, Datacenter)	✓	✓
Windows Small Business Server 2011, with latest SP	✓	✓

[6] Team Foundation Server 2013 released with SQL Server 2012 Express SP1

[7] http://msdn.microsoft.com/en-us/library/Dd631889(v=vs.120).aspx

[8] Team Foundation Server 2013 released with SharePoint Foundation 2013

[9] Windows Server 2008 Server Core not supported

[10] Windows Server 2008 R2 Server Core are not supported

Operating System	TFS 2012	TFS 2013
Windows Server 2012 (Essentials, Standard, Datacenter)	✓	✓
Windows Server 2012 R2 (Essentials, Standard, Datacenter)	✓	✓
Windows 7 32-/64-bit (Home Premium, Professional, Enterprise, Ultimate), with latest SP	✓	✓
Windows 8 32-/64-bit (Basic, Pro, Enterprise)	✓	✓
Windows 8.1 (Basic, Pro, Enterprise)	✓	✓

Table 6 – Build OS Requirements

Lab Management Support for TFS

SCVMM Version	TFS 201	TFS 2013
SCVMM 2008 R2	✓	✓
SCVMM 2012 (RTM + SP1)	✓	✓
SCVMM 2012 R2		✓

Table 7 – Lab Management Requirements

Hardware Requirements

The following table lists the *minimum* hardware requirements for TFS 2013 (without SharePoint Products).

If you need to determine your hardware requirements based on capacity, please refer to the System Requirements for TFS [11] or TFS Planning Guide [12], both of which were referenced to build these compatibility tables.

The hardware requirements of TFS 2013 are not very different from the requirements of TFS 2012.

The following table summarizes the hardware requirements of TFS 2013:

Number of users	Configuration	CPU	Memory	Hard disk
< 250	Single-server [13]	1 single core processor at 2.13 GHz	2 GB	1 disk at 7.2k rpm 125 GB
250 to 500	Single-server	1 dual core processor at 2.13 GHz	4 GB	1 disk at 10k rpm 300 GB
500 to 2,200	Dual-server [14] Team Foundation Server Database Engine Server	 1 dual core Intel Xeon proc. at 2.13 GHz 1 quad core Intel Xeon proc. at 2.33 GHz	 4 GB 8 GB	 1 disk at 7.2k rpm 500 GB SAS disk array at 10k rpm 2 TB
2,200 to 3,600	Dual-server Team Foundation Server Database Engine Server	 1 quad core Intel Xeon proc. at 2.13 GHz 2 quad core Intel Xeon proc. at 2.33 GHz	 8 GB 16 GB	 1 disk at 7.2k rpm 500 GB SAS disk array at 10k rpm 3 TB

Table 8 - Hardware Requirements

[11] http://msdn.microsoft.com/en-us/library/vstudio/dd578592(v=vs.120).aspx

[12] http://aka.ms/treasure5

[13] TFS and the Database Engine on the **same** server

[14] TFS and the Database Engine on **different** servers

Chapter 2: Supported Upgrade Paths

Context	This section provides guidance on choosing an upgrade path when you upgrade your current TFS environment.
Personas	**Dave**, the TFS Administrator, performs the TFS upgrade, **Garry**, the Dev Lead, is one of the core users of the environment and **Jane**, the Infrastructure Specialist, owns access to the environment impacted by upgrade.

Recommended Upgrade Paths

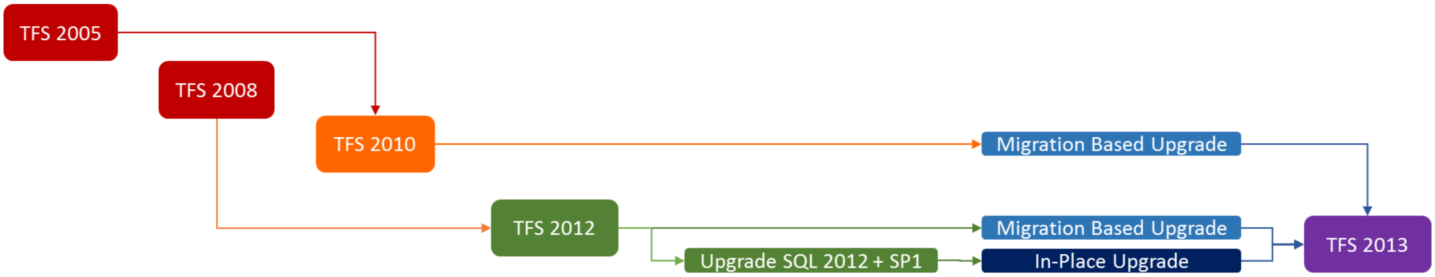


Figure 1 – Recommended Upgrade Paths

In-Place Upgrade Path

You can perform an in-place upgrade by doing an upgrade on the same hardware that was running the earlier version of TFS. You may need to uninstall the previous version of TFS first. If upgrading from TFS 2012 RTM or higher, the process of uninstalling is part of the TFS 2013 install. If upgrading from TFS 2010, the process of uninstalling is a manual step, then install TFS 2013 and then run the upgrade wizard. If you use an in-place upgrade, you will have a single TFS 2013 environment after the upgrade.

Migration-Based Upgrade Path

You can also perform a migration based upgrade by migrating your data to different hardware. When you use this path, you must copy your data to different hardware, install TFS 2013, and then run the upgrade wizard.

Use this upgrade path if you if you want your deployment to run on better hardware, new software (like the OS), or if you want to change the topology of your deployment. If you just want to test the upgrade then you should create a cloned environment and test on that. After moving and restoring your existing data to the new hardware, the data is autonomous allowing users to continue using the other environment.

Unlike previous versions of TFS, TFS 2013 only supports SQL 2012 + SP1. As with TFS 2012, TFS 2013 only supports 64-bit server operating systems. 32-bit client operating systems are still supported. The Figure 1 shows the recommended upgrade paths for a given TFS environment.

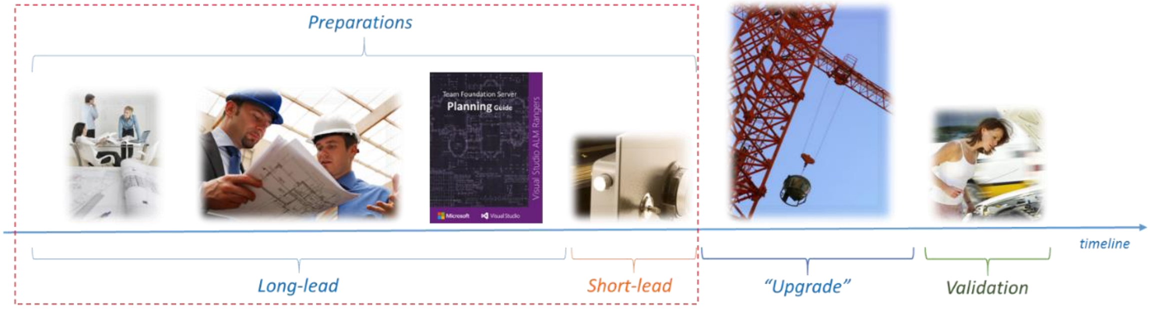
Chapter 3: Pre-Upgrade Checklist

NOTE

Peruse What does a well-maintained Team Foundation Server look like? [15] for an excellent article by Grant Holliday, which provides very helpful information for your operational TFS environment.

Two periods make up your pre-upgrade preparations.

- The first is a **long-lead** set of preparations where you plan, research and gather information so you are fully prepared to upgrade.
- The second is that **short-lead** timeframe right before actually kicking off the next version installation media.


Preparations
Team Foundation Server Planning Guide
Visual Studio ALM Rangers
timeline
Long-lead
Short-lead
"Upgrade"
Validation

Long lead preparations

Migration planning meetings

If you are upgrading from a previous version of TFS, chances are there are probably a number of users across your company who now rely on TFS as a critical tool in their daily work. Meetings with the infrastructure team that monitors and maintains TFS, the lead developers who store and build their source code in TFS, the lead testers who manage their testing cycles and test cases in TFS and the project managers, business analysts and stakeholders that monitor project progress in TFS will be important. All these groups of users will need to be aware of the upgrade and can help you reduce risk in conducting the upgrade.

Here are some things that each these groups can provide that will assist in the upgrade of their TFS:

- **Developers**
  - Clean up old workspaces that are no longer used. As developers come and go on a project, orphan workspaces inevitably occur. Cleaning these up can speed up the upgrade process.
  - Identify build dependencies. One of the trickier or work intensive elements of a TFS migration is ensuring that all the builds work after the migration.
- **Infrastructure \ DBA team**
  - Previous databases have grown over time - the question is how much. Long before the actual migration, a test backup and restore should be done if you are moving to new hardware. The backups tend to be larger than users think they will be, and if you are moving to a different part of the LAN, backing up, moving and restoring can take a significant chunk of time. This is a good time to test the movement of data so you know how long this step will take during the actual migration.
  - Are the target servers up-to-date and running the minimum operating versions of OS, SQL Server and SharePoint?

[15] http://blogs.msdn.com/b/granth/archive/2013/10/08/what-does-a-well-maintained-team-foundation-server-look-like.aspx

Planning your new instance

If you are moving to new hardware, it's important to revisit and plan the topology for your new instance. This is a good time to consider load balancing the front-end application tiers. On the other hand, if the current instance is on real metal, now is a good time to consider whether it makes sense to virtualize all or parts of your new instance. You could consider referring to the TFS Planning and DR Avoidance Guide [16] at this time to plan your TFS infrastructure.

Team Project Collection Planning

First, managing the size of an individual collection can make migration faster and easier. As a collection grows past the 100GB or 200GB size range, backup and movement of the database can be a significant problem. Now is a good time to consider breaking up the set of Team Projects into non-related collections. For more information please read the Split a Team Project Collection[17] MSDN article. Going to multiple collections in a large enterprise allows for scaling the database across multiple SQL server instances. This could be important if your SQL Server performance is starting to show signs of stress.

AlwaysOn Availability Groups [18]requires a small amount of TFS-specific configuration, which can help you provide high availability (HA) to TFS relational databases like Tfs_Configuration and Tfs_Collection by configuring the MultiSubnetFailover option. TFS support for AlwaysOn Availability Groups is an on or off proposition: if you use it, you must include your Tfs_Configuration database as well as all your Tfs_Collection databases in an availability group. If you add a team project collection in the future, the database for that collection must be added to an availability group in SQL Server. For more information please read the Use SQL Server 2012 Always On Availability Groups with Team Foundation Server[19] MSDN article.

SharePoint Migration Planning

If you are currently running Windows SharePoint Services, a migration of TFS is a good time to consider an upgrade to your SharePoint infrastructure, especially if you have had plans to upgrade from Windows SharePoint Services to a full SharePoint Server installation. SharePoint Services (WSS3.0) are not supported by TFS 2013.

TFS Best Practice Analyzer

Run the TFS Best Practice Analyzer tool on the old and the new topologies. This will help to:

- Verify that the deployment for TFS is configured according to recommended best practices
- Identify the source of problems in an unhealthy deployment
- Take a snapshot of the configuration of a deployment

You need to run the appropriate TFS Best Practices analyzer on the source and target system.

- TFS 2010 Power Tools [20]
- TFS 2012 Power Tools [21]
- TFS 2013 Power Tools [22]

[16] http://aka.ms/treasure5

[17] http://msdn.microsoft.com/en-us/library/vstudio/dd936158(v=vs.110).aspx

[18] http://technet.microsoft.com/en-us/library/ff877884.aspx

[19] http://msdn.microsoft.com/en-us/library/vstudio/jj662725.aspx

[20] http://visualstudiogallery.msdn.microsoft.com/c255a1e4-04ba-4f68-8f4e-cd473d6b971f

[21] http://visualstudiogallery.msdn.microsoft.com/b1ef7eb2-e084-4cb8-9bc7-06c3bad9148f

[22] http://visualstudiogallery.msdn.microsoft.com/f017b10c-02b4-4d6d-9845-58a06545627f

SQL Best Practice Analyzer

Run the latest version of the Best Practice Analyzer tool on the old and the new topologies. As of this writing, the latest version of the Microsoft® SQL Server® 2012 Best Practices Analyzer can be found here [23].

SQL Server Version Planning

If you have been running SQL Server Standard version, now is a good time to consider upgrading to the Enterprise version. The longer a company uses TFS, the more they tend to leverage its reporting features. Many features are only available in the Enterprise version of SQL Server that TFS can leverage.

Ensure your peruse the general comparison of SQL Editions [24], whereby we recommend that the Enterprise version of SQL Server 2012 SP1 be deployed.

SQL Server 2012 offers a new high availability (HA) feature that requires a Team Foundation Server-specific configuration, which can highly improve availability of database used by Team Foundation Server. Currently these High Availability features are available and supported for TFS 2013:

- Always On Failover Cluster Instances [25]
- Always On Availability Groups [26]
- SQL Mirroring [27]

Some of other features of Enterprise edition of SQL Server 2012 that can considerably improve overall functioning (performance and scalability) of Team Foundation Server are:

- Data Compression [28]
- Online indexing [29]
- Fast recovery
- Mirrored backups [30]
- Hot Add Memory and CPU
- No limitation in Compute capacity Used by Single instance and Memory Utilization

Checklists

Long lead pre-upgrade tasks

Step	Instructions
1 New install guide □ - Done	• Download the current installation and administration guides [31].
2 Schedule meetings □ - Done	• Schedule the migration planning meetings: Timing, Roles and Preparations. • You must plan these meetings between the stakeholders well in advance in order to encourage collaboration and stay on schedule.

[23] http://www.microsoft.com/en-us/download/details.aspx?id=29302

[24] http://www.microsoft.com/en-us/sqlserver/editions.aspx

[25] http://technet.microsoft.com/en-us/library/ms189134.aspx

[26] http://msdn.microsoft.com/en-us/library/vstudio/jj662725.aspx

[27] http://technet.microsoft.com/en-us/library/ms189852.aspx

[28] http://technet.microsoft.com/en-us/library/cc280449.aspx

[29] http://technet.microsoft.com/en-us/library/cc280449.aspx

[30] http://technet.microsoft.com/en-us/library/cc280449.aspx

[31] http://www.microsoft.com/en-us/download/details.aspx?id=29035

Step	Instructions
3 Plan server topology □ - Done	• Plan the server topology in terms of **availability**, **scalability** and **geographies**. • Draw up a detailed design of new infrastructure if you are planning a migration as well as an upgrade. Even though TFS can have a simple topology, when you factor in Reporting Services, SharePoint and build servers, a design is worth the investment in time.
4 Update environments □ - Done	• Update the environment versions, service packs and appropriate hotfixes for Windows OS, SQL Server, TFS, SharePoint and Client software. • If you are doing a migration based upgrade, you need to update both the source and the target environments. • Verify that all environments, including legacy and third party components, are compatible with the new version of TFS you wish to upgrade to. WARNING **WSS 3.0:** When you are running a WSS3.0 server with your existing environment and you want to upgrade to SharePoint Server 2013 you have to upgrade to SharePoint Server 2010 first. See page 48 for further information about SharePoint upgrade.
5 Research and plan TPC □ - Done	• Each TFS instance can have one or more Team Project Collections, which are the basic unit of recovery and isolation for TFS. See TFS Planning and DR Avoidance Guide [32] for more information. • Even though Team Project Collections were designed for internet-scale hosting facilities, if your databases are getting very large — to the point where backup and movement of data is getting risky — it might be a good time to break up the database into multiple collections.
6 Research and plan security □ - Done	• Existing TFS servers may not adhere to recommended AD security group guidelines. For example, TFS servers may have leveraged local server groups on the TFS servers, which is an issue when the new environment is to be load balanced
7 Validate accounts □ - Done	• For installing TFS 2013, TF Build or TFS Proxy, use service accounts. • As a best practice, TFS service accounts should not be members of the Windows Local Administrators group on the server where TFS is installed. NOTE By default, every component uses a built-in account (such as Network Service) as its service account. You can change this account to a user account when you install the component, but you must ensure that any user accounts that you use have the Log on as a service permission. If you use domain accounts for your service accounts, you should use a different identity for the report reader account. • If you are installing a component in a workgroup, you must use local accounts for service accounts. • These are service accounts identities for TFS and its components: ○ Reporting → TFSREPORTS ○ TFS → TFSSERVICE ○ Team Foundation Build → TFSBUILD ○ TFS Proxy → TFSPROXY ○ SharePoint Products → WSSSERVICE ○ SQL Server → SQLSERVICE For more info, read the Accounts required for installation of Team Foundation Server [33] MSDN article.

[32] http://aka.ms/treasure5

[33] Accounts required for installation of Team Foundation Server

Step	Instructions
8 Test builds □ - Done	• Your test plan should include everything that's needed for a smooth migration to a new version of TFS. The upgrade tools can port existing build definitions, but you should consider other factors as well. Do you want to install additional components on build machines? Would you ever re-configure using batch or PS scripts for post-build events? What about security permissions for pre- or post-build execution, such as folder/cache cleanup, IIS deployment, IIS reset, SQL DB access, and so forth?New build servers might be moving from 32-bit to 64-bit. If there are Java builds involved, there might be new TF build extension targets that have new versions. References to them might require new references.
9 Review ports □ - Done	• Review required ports and make sure the network team acknowledges that all are open in the target environment. You can find more information here [34].

Table 9 – Long lead pre-upgrade task checklist

Short lead pre-upgrade tasks

Step	Instructions
1 Backup □ - Done	• Backup current TFS data using Backup/Restore PowerTool or using Scheduled Backups (available as part of TFS 2012 Update 2) NOTE The Backup/Restore PowerTool isn't supported on releases where Scheduled Backups is available (TFS 2012.2 or later). You can use Scheduled Backups in the same way you would have previously used the Backup/Restore PowerTool. When upgrading to TFS 2013 from a release that uses the PowerTool, your PowerTool settings will be automatically configured into Scheduled Backups as part of your upgrade, and the PowerTool will be uninstalled.
2 Backup encryption key □ - Done	NOTE Reporting Services uses an encryption key to secure sensitive data that is stored in the report server database. To ensure that you have continued access to encrypted data, it's important that you create a backup of the encryption key in case you need to restore it later due to changes in the service account or as part of a planned migration. • Single-server deployment ○ Backup the encryption key for SQL Server Reporting Services using the Reporting Services Configuration tool or the RSKEYMGMT command-line tool, provided by SQL Server. • Multi-server deployment ○ You must backup the encryption key using the RSKEYMGMT command-line tool. Refer to rskeymgmt Utility (SSRS) [35] for more information.
3 Uninstall TFS □ - Done	• This step might not be necessary, depending on the Upgrade method selected, and which version of TFS you are upgrading from. • Uninstalling TFS does not alter the databases.

Table 10 – Short lead pre-upgrade task checklist

References

- System Requirements for TFS [36]

REVIEW

Any upgrade of TFS, regardless of how basic or complex, whether in-place or including hardware migration, needs to be planned. That planning should start long before the migration happens and should include all parties of the TFS ecosystem, meaning all the user roles as well as infrastructure roles.

[34] http://msdn.microsoft.com/en-us/library/dd578664(v=vs.120).aspx

[35] http://msdn.microsoft.com/en-us/library/ms162822(v=sql.110).aspx/css

[36] http://msdn.microsoft.com/en-us/library/dd578592(v=vs.120).aspx

Chapter 4: Upgrade Walkthroughs

WARNING

Ensure that you perform a full backup and verify the restore before considering an upgrade. An upgrade failure could leave the environment in a corrupt, non-reversible state.

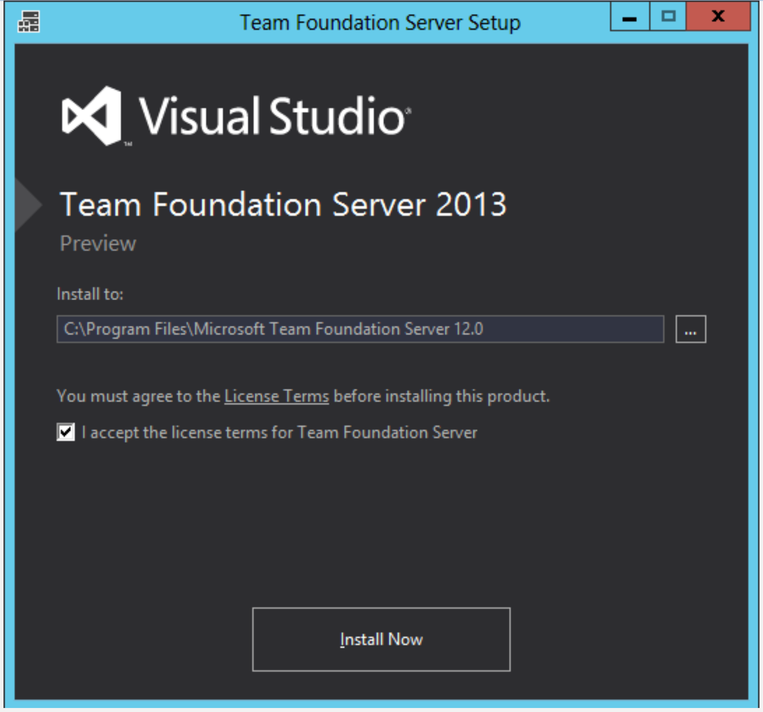
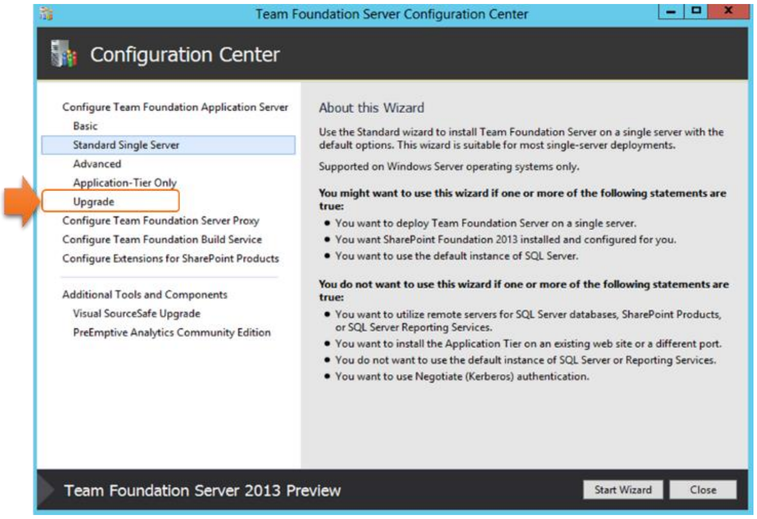
In-place Upgrade

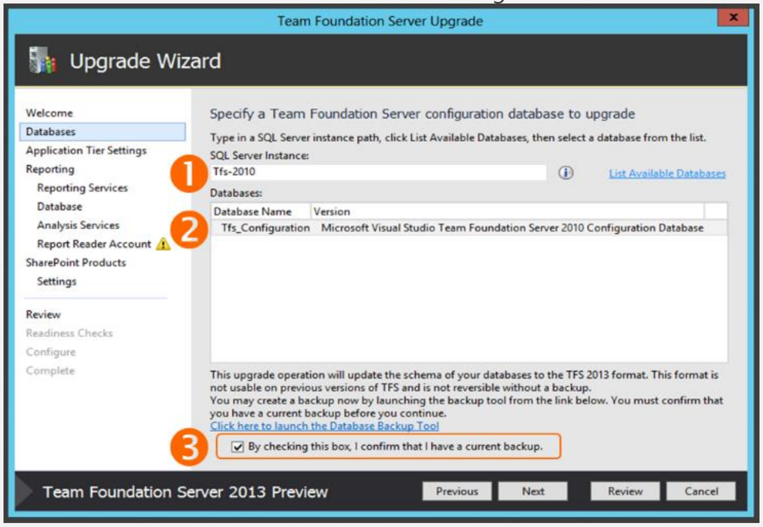
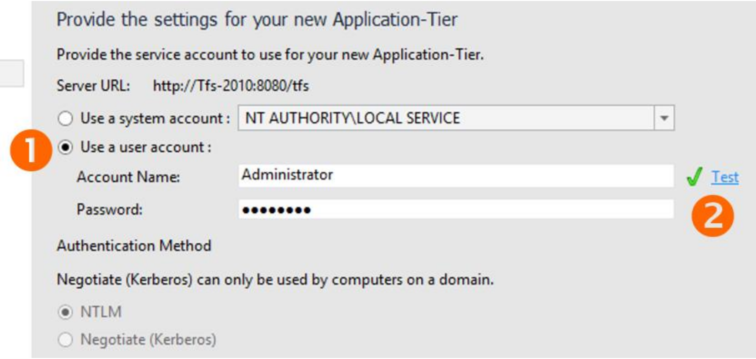
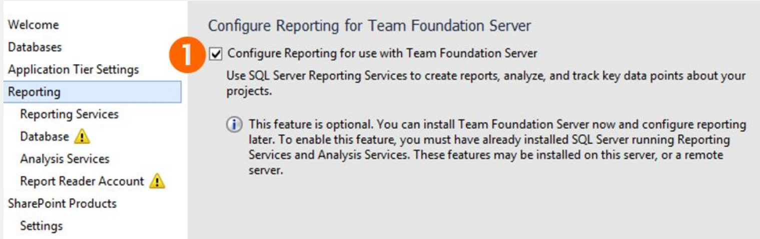
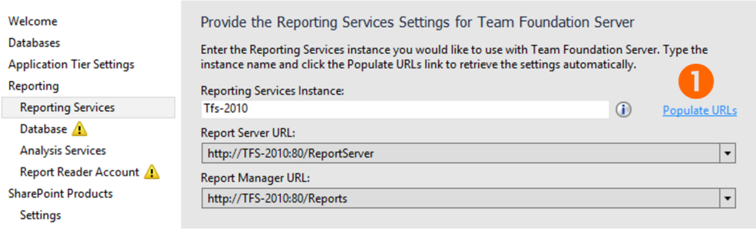
Context	Scenario for an in-place upgrade from TFS 2010 or TFS 2012 to TFS 2013, without doing any infrastructural changes to the environment. **This is the recommended upgrade path.** It's neither harder nor riskier than the migration based upgrade if practiced on a cloned environment. The in-place upgrade is the tested much more frequently by the product team than migration or attach upgrades. You are not changing any other variables in the underlying infrastructure TFS relies on prior to upgrade; this isn't necessarily true for migrations and can cause unforeseen issues.
Version	TFS 20**10** → TFS 20**13** TFS 20**12** → TFS 20**13**
Persona	**Dave**, the TFS Administrator, performs the TFS upgrade. **Jane**, the Infrastructure Specialist, owns and fine-tunes the environment impacted by the upgrade.

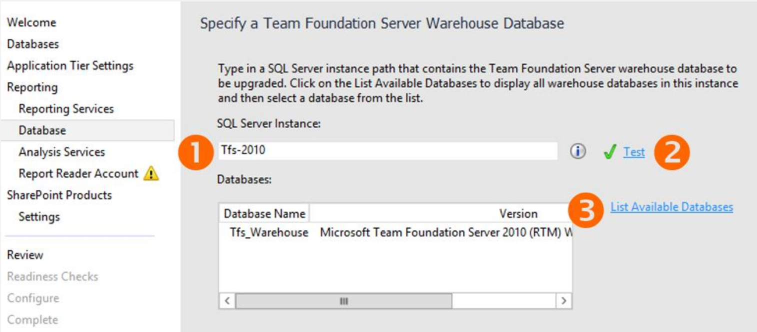
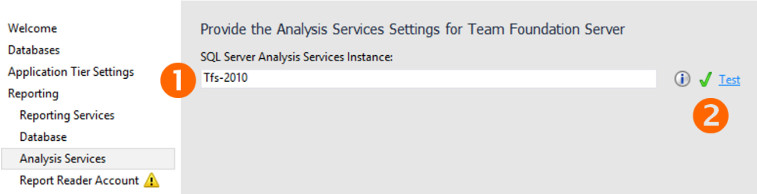
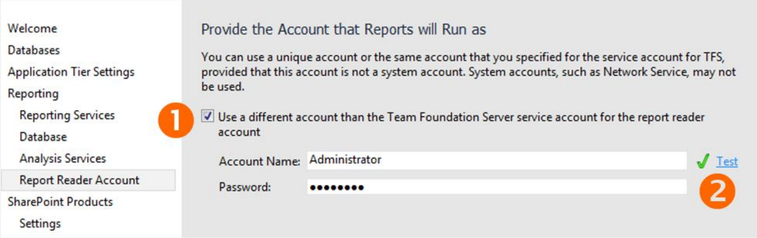
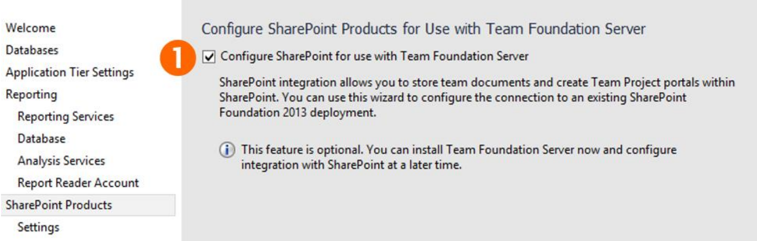
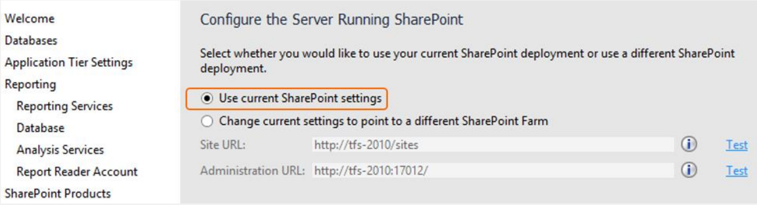
Table 11 – Overview: In-place upgrade from TFS 2010 or TFS 2012 to 2013

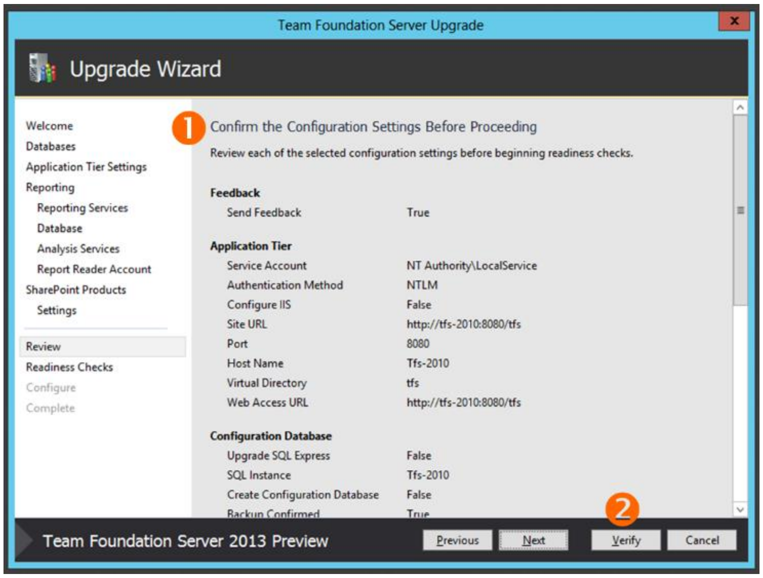
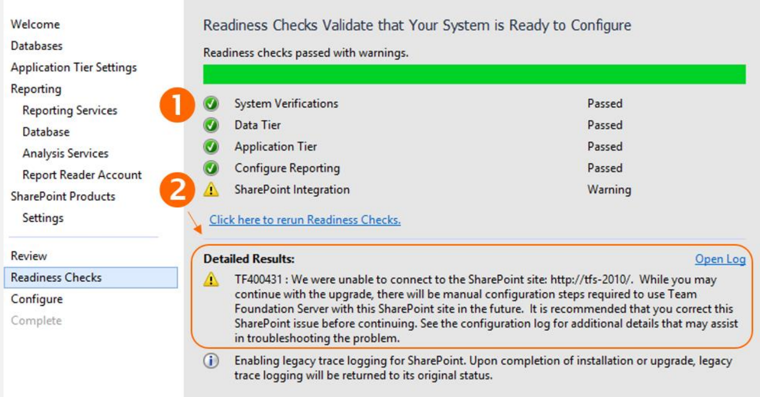
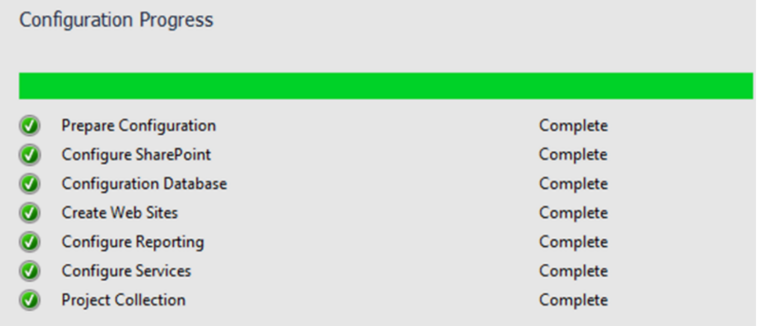
Walkthrough

Step	Instructions
1 Prepare ☐ - Done	Complete the pre-upgrade checklist. See page 10 for details. Quiesce **every** application tier in the farm Note: Post the installation of .Net 4.5.1, the system may restart. Post restart, TFS services that were halted by Quiesce may start again and TFS may be available for a brief amount of time.
2 Uninstall TFS ☐ - Done	TFS 2010 only: • TFS databases will **not** be impacted. • TFS configuration settings will **not** be persisted and must be documented.
3 Upgrade OS/SQL/WSS ☐ - Done	You may need to update your operating system or other dependencies in your environment such as SQL Server and SharePoint Server to meet the pre-requisite requirements.
4 Install TFS ☐ - Done	Run the **tfs_server.exe** from the TFS 2013 installation media or use the web installer.

Step	Instructions
	 Team Foundation Server Setup Visual Studio Install Now Team Foundation Server 2013 Preview Install to: C:\Program Files\Microsoft Team Foundation Server 12.0 You must agree to the License Terms before installing this product. ☑ I accept the license terms for Team Foundation Server
5 Upgrade TFS □ - Done	Select the **Team Foundation Server Configuration Center**, select **Upgrade** and start the wizard. NOTE The setup may automatically detect that the environment should be upgraded, in which case you can skip this step.  Team Foundation Server Configuration Center Configuration Center Configure Team Foundation Application Server Basic Standard Single Server Advanced Application-Tier Only Upgrade Configure Team Foundation Server Proxy Configure Team Foundation Build Service Configure Extensions for SharePoint Products Additional Tools and Components Visual SourceSafe Upgrade PreEmptive Analytics Community Edition Team Foundation Server 2013 Preview Start Wizard Close About this Wizard Use the Standard wizard to install Team Foundation Server on a single server with the default options. This wizard is suitable for most single-server deployments. Supported on Windows Server operating systems only. **You might want to use this wizard if one or more of the following statements are true:** • You want to deploy Team Foundation Server on a single server. • You want SharePoint Foundation 2013 installed and configured for you. • You want to use the default instance of SQL Server. **You do not want to use this wizard if one or more of the following statements are true:** • You want to utilize remote servers for SQL Server databases, SharePoint Products, or SQL Server Reporting Services. • You want to install the Application Tier on an existing web site or a different port. • You do not want to use the default instance of SQL Server or Reporting Services. • You want to use Negotiate (Kerberos) authentication.

Step	Instructions
6 SQL Server Instance ☐ - Done	Select the SQL instance that contains the configuration database from TFS.  Team Foundation Server Upgrade Upgrade Wizard Specify a Team Foundation Server configuration database to upgrade Type in a SQL Server instance path, click List Available Databases, then select a database from the list. SQL Server Instance: Tfs-2010 Databases: Database Name: Tfs_Configuration — Version: Microsoft Visual Studio Team Foundation Server 2010 Configuration Database This upgrade operation will update the schema of your databases to the TFS 2013 format. This format is not usable on previous versions of TFS and is not reversible without a backup. You may create a backup now by launching the backup tool from the link below. You must confirm that you have a current backup before you continue. Click here to launch the Database Backup Tool ☑ By checking this box, I confirm that I have a current backup. Team Foundation Server 2013 Preview ❶ Type the **SQL Server Instance** name where the TFS configuration database is. ❷ Select **List Available Databases** and click on the configuration database in the list ❸ Check **By checking this box, I confirm that I have a current backup**.
7 Account information ☐ - Done	 Provide the settings for your new Application-Tier Provide the service account to use for your new Application-Tier. Server URL: http://Tfs-2010:8080/tfs ○ Use a system account : NT AUTHORITY\LOCAL SERVICE ● Use a user account : Account Name: Administrator ✓ Test Password: •••••••• Authentication Method Negotiate (Kerberos) can only be used by computers on a domain. ● NTLM ○ Negotiate (Kerberos) ❶ Enter the account information for TFS 2013 to use. ❷ **Test** the credentials.
8 Reporting ☐ - Done	 Configure Reporting for Team Foundation Server ☑ Configure Reporting for use with Team Foundation Server Use SQL Server Reporting Services to create reports, analyze, and track key data points about your projects. ⓘ This feature is optional. You can install Team Foundation Server now and configure reporting later. To enable this feature, you must have already installed SQL Server running Reporting Services and Analysis Services. These features may be installed on this server, or a remote server. ❶ Optionally select the check box to **Configure Reporting**.
8.1 Report Server ☐ - Done	 Provide the Reporting Services Settings for Team Foundation Server Enter the Reporting Services instance you would like to use with Team Foundation Server. Type the instance name and click the Populate URLs link to retrieve the settings automatically. Reporting Services Instance: Tfs-2010 Report Server URL: http://TFS-2010:80/ReportServer Report Manager URL: http://TFS-2010:80/Reports ❶ Click **Populate URLs** to verify the Report Server Instance and automatically retrieve the URLs. ⓘ Continue only if validation passes.

Step	Instructions
8.2 Warehouse Database □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Settings Review Readiness Checks Configure Complete 1 2 3 Test List Available Databases Specify a Team Foundation Server Warehouse Database Type in a SQL Server instance path that contains the Team Foundation Server warehouse database to be upgraded. Click on the List Available Databases to display all warehouse databases in this instance and then select a database from the list. SQL Server Instance: Tfs-2010 Databases: Database Name: Tfs_Warehouse — Version: Microsoft Team Foundation Server 2010 (RTM) W ❶ Specify the **SQL Server Instance** that contains you warehouse database. ❷ Select **Test** to verify the SQL Server Instance. ❸ Select **List Available Databases**, and then select the correct warehouse database.
8.3 Analysis Services □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account 1 2 Test Provide the Analysis Services Settings for Team Foundation Server SQL Server Analysis Services Instance: Tfs-2010 ❶ Specify the **SQL Server Analysis Services Instance**. ❷ Select **Test** to verify the SQL Server Analysis Service instance. ⓘ Continue only if validation passes.
8.4 Reporting Account □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Settings 1 2 Test Provide the Account that Reports will Run as You can use a unique account or the same account that you specified for the service account for TFS, provided that this account is not a system account. System accounts, such as Network Service, may not be used. ☑ Use a different account than the Team Foundation Server service account for the report reader account Account Name: Administrator Password: •••••••• ❶ Specify the **report reader account**. ❷ Select **Test** to verify the SQL Server Analysis Service instance. ⓘ Continue only if validation passes.
9 SharePoint □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Settings 1 Configure SharePoint Products for Use with Team Foundation Server ☑ Configure SharePoint for use with Team Foundation Server SharePoint integration allows you to store team documents and create Team Project portals within SharePoint. You can use this wizard to configure the connection to an existing SharePoint Foundation 2013 deployment. ⓘ This feature is optional. You can install Team Foundation Server now and configure integration with SharePoint at a later time. ❶ Optionally select the check box to **Configure SharePoint Products**.
9.1 Configure SharePoint Server □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Test Test Configure the Server Running SharePoint Select whether you would like to use your current SharePoint deployment or use a different SharePoint deployment. ● Use current SharePoint settings ○ Change current settings to point to a different SharePoint Farm Site URL: http://tfs-2010/sites Administration URL: http://tfs-2010:17012/ Select **Use current SharePoint settings** to use the same SharePoint server as before the in-place upgrade.

Step	Instructions
10 Confirm Configuration □ - Done	 Team Foundation Server Upgrade Upgrade Wizard Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Settings Review Readiness Checks Configure Complete Confirm the Configuration Settings Before Proceeding Review each of the selected configuration settings before beginning readiness checks. **Feedback** Send Feedback True **Application Tier** Service Account NT Authority\LocalService Authentication Method NTLM Configure IIS False Site URL http://tfs-2010:8080/tfs Port 8080 Host Name Tfs-2010 Virtual Directory tfs Web Access URL http://tfs-2010:8080/tfs **Configuration Database** Upgrade SQL Express False SQL Instance Tfs-2010 Create Configuration Database False Backup Confirmed True Team Foundation Server 2013 Preview Previous Next Verify Cancel ❶ Confirm all of the **Configuration Settings**. ❷ **Verify** the configuration settings.
11 Verify □ - Done	 Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Settings Review Readiness Checks Configure Complete Readiness Checks Validate that Your System is Ready to Configure Readiness checks passed with warnings. ✓ System Verifications Passed ✓ Data Tier Passed ✓ Application Tier Passed ✓ Configure Reporting Passed ⚠ SharePoint Integration Warning Click here to rerun Readiness Checks. **Detailed Results:** Open Log ⚠ TF400431 : We were unable to connect to the SharePoint site: http://tfs-2010/. While you may continue with the upgrade, there will be manual configuration steps required to use Team Foundation Server with this SharePoint site in the future. It is recommended that you correct this SharePoint issue before continuing. See the configuration log for additional details that may assist in troubleshooting the problem. ⓘ Enabling legacy trace logging for SharePoint. Upon completion of installation or upgrade, legacy trace logging will be returned to its original status. ❶ **Verify** that all readiness have passed without warnings. ❷ In case of a **warning**, as shown, peruse the **detailed results** and resolve the issue. ⓘ When all readiness have passed without warnings, click **Configure**.
12 Project Collection Configuration □ - Done	 Configuration Progress ✓ Prepare Configuration Complete ✓ Configure SharePoint Complete ✓ Configuration Database Complete ✓ Create Web Sites Complete ✓ Configure Reporting Complete ✓ Configure Services Complete ✓ Project Collection Complete Click Next and monitor the Project Collection configuration progress.

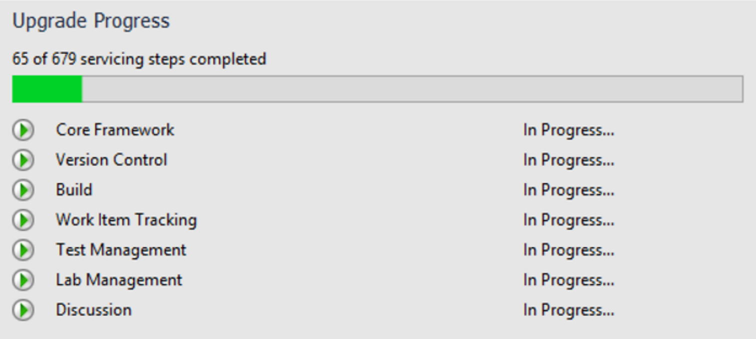
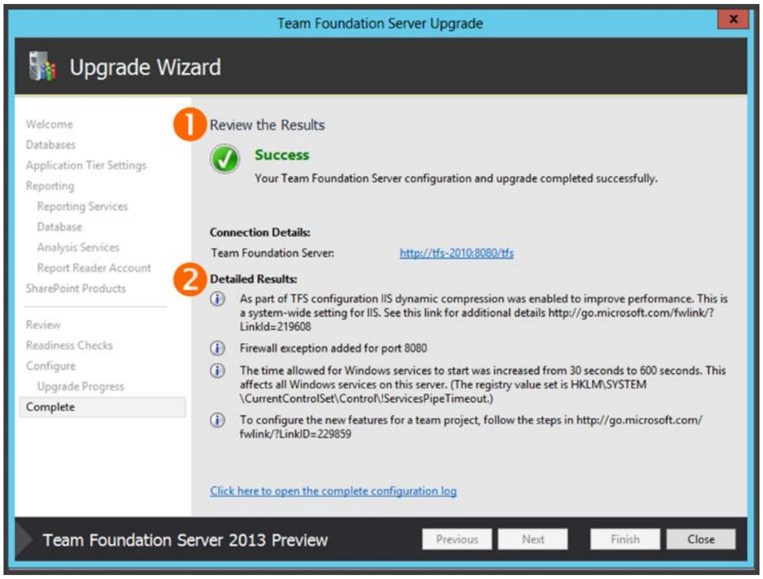
Step	Instructions
13 Upgrade Process □ - Done	 Upgrade Progress 65 of 679 servicing steps completed Core Framework In Progress... Version Control In Progress... Build In Progress... Work Item Tracking In Progress... Test Management In Progress... Lab Management In Progress... Discussion In Progress... Monitor the upgrade process. The process can take a substantial amount of time, depending on the amount of TFS history, which is why a pre-upgrade dry-run is recommended.
14 Validate Upgrade □ - Done	 Team Foundation Server Upgrade Upgrade Wizard Welcome Databases Application Tier Settings Reporting Reporting Services Database Analysis Services Report Reader Account SharePoint Products Review Readiness Checks Configure Upgrade Progress Complete 1 2 Team Foundation Server 2013 Preview Previous Next Finish Close Review the Results Success Your Team Foundation Server configuration and upgrade completed successfully. Connection Details: Team Foundation Server: http://tfs-2010:8080/tfs Detailed Results: As part of TFS configuration IIS dynamic compression was enabled to improve performance. This is a system-wide setting for IIS. See this link for additional details http://go.microsoft.com/fwlink/?LinkId=219608 Firewall exception added for port 8080 The time allowed for Windows services to start was increased from 30 seconds to 600 seconds. This affects all Windows services on this server. (The registry value set is HKLM\SYSTEM\CurrentControlSet\Control\!ServicesPipeTimeout.) To configure the new features for a team project, follow the steps in http://go.microsoft.com/fwlink/?LinkID=229859 Click here to open the complete configuration log ❶ Review the upgrade process results. ❷ Review the detailed result and take corrective actions if needed.
15 Upgrade Build Infrastructure □ - Done	Upgrade Build Server(s). See Set up Team Foundation Build Service [37]for further information.
16 Upgrade process template □ - Done	Upgrade your team project templates to the latest. You can accomplish this by following one of the links below. Later in this guide: Upgrading Process Template using PowerShell, page 60. MSDN Article: Configure features after a TFS upgrade [38]
17 Verify □ - Done	Complete the post-upgrade checklist. See page 52 for details.

Table 12 – Walkthrough: In-place upgrade from TFS 2010 or TFS 2012 to TFS 2013

[37] http://msdn.microsoft.com/en-us/library/ee259687(v=vs.120).aspx

[38] http://msdn.microsoft.com/en-us/library/vstudio/ff432837.aspx

Roll Back In-place Upgrade

Context	In this scenario, we would like to roll back and return to a previous version of TFS where we have installed or attempted to install TFS 2013. A rollback is required if the in-place upgrade to TFS 2013 failed or puts your environment in an undesired state.
Version	TFS 20**13** → TFS 20**12** TFS 20**13** → TFS 20**10**
Persona	**Dave**, the TFS Administrator, performs the TFS rollback in-place upgrade. **Jane**, the Infrastructure Specialist, owns and fine-tunes the environment impacted by the upgrade.

Table 13 – Overview: Roll Back In-place Upgrade

WARNING

TFS stores all of its state information in the database and it's therefore critical that a full backup be created. There is no "downgrade script" that will allow you to roll back your deployment in the event that an upgrade fails; the only way to put your server back into a healthy state will be to restore your backups.

WARNING

If rolling back to **TFS 2010** make sure you **check** what the **supported versions** of **dependencies** are, even if your TFS rollback works on later technology than originally used, it may not be supported. For help on what versions of dependencies are supported for older versions of TFS you can use the below links or contact Microsoft.
See Installing Prerequisites for Team Foundation Components [39] for more information on TFS 2010.
See Installing Prerequisites for Team Foundation Components [40] for more information on TFS 2012.

Walkthrough

Step	Instructions
1 Rollback the In-Place TFS 2013 installation □ - Done	Because rolling back to the previous version of TFS requires a reinstall of the previous version TFS bits, you will first need to uninstall the binaries from the Servers where the TFS 2013 Upgrade was attempted. This includes all the application tiers, build servers and proxies. You can Uninstall the TFS Binaries from the "Programs and Features" option in the Control Panel.
2 Stop all dependent services and installations □ - Done	There are many services and applications that depend on the restored databases as part of the rollback, including TFS Proxies, Build Controllers and Agents, SharePoint and Reporting Services. Stop all of these dependencies before continuing.
3 Ensure the environment is fully supported □ - Done	Ensure that all the dependencies in your TFS environment are supported by the version of TFS that you are rolling back to as outlined in section **System Requirements**, page 6.

[39] http://msdn.microsoft.com/en-us/library/dd631921(v=vs.100).aspx

[40] http://msdn.microsoft.com/en-us/library/hh561426.aspx

Step	Instructions
4 Restore the backups of your early TFS databases □ - Done	Restore the old databases that were in place prior to our upgrade attempt. If backups were taken manually by taking services offline and using your DBA team's standard backup procedures, restoring them won't require any special operations. This will just be standard SQL Server database restoration. If you used the TFS Backup Tool, please follow the steps on MSDN for restoring using the Back up and Restore Data for TFS [41].
5 Install previous TFS version □ - Done	If you are not going to attempt another upgrade and you need to restore the previous version, you are back to a standard configuration stage for that version of TFS. Install the old version of TFS.
6 Reconfigure previous TFS version □ - Done	Reconfigure the previous version of TFS. For this, you will have to Configure Team Foundation Server Using the Application-Tier Only Configuration Wizard [42].
7 Reporting Services and SharePoint □ - Done	Because the TFS installation and upgrade does not install SharePoint or Reporting Services, rolling back those installations is an independent part of the rollback procedure. If you did not upgrade those installations, you will only need to attach the restored databases. WARNING There is no official documentation for "downgrading" of SSRS and downgrading after major version upgrade is **not** supported. The only way to downgrade SSRS would be backing up old deployment and recovering from the backup in case of downgrade. Please consider following documentation for migration procedure which might be used instead of upgrade: http://technet.microsoft.com/en-us/library/a6fc56c1-c504-438d-a2b0-5ed29c24e7d6#bkmk_nativemode_migration_overview

Table 14 – Walkthrough: Roll Back In-place Upgrade

REVIEW

Rolling back a failed or undesired TFS upgrade is really an easy process. First, you need to stop any dependent services and applications. Then you remove any installation bits from the failed upgrade, rollback dependencies (WSS, OS and SQL) to supported versions, drop any databases that were present during the upgrade, and restore the databases from the previous installation. Finally, configure and reattach the collections from the previous version of TFS and restore dependent applications.

[41] http://msdn.microsoft.com/en-us/library/jj620932.aspx

[42] http://msdn.microsoft.com/en-us/library/vstudio/ee259684.aspx

Migration Based Upgrade

Context	Scenario for an upgrade from TFS 2010 to TFS 2013, with infrastructural changes to the environment. We recommend you consider in the in-place upgrade as the recommended upgrade option.
Version	TFS 20**10** → TFS 20**13** TFS 20**12** → TFS 20**13**
Persona	**Dave**, the TFS Administrator, performs the TFS migration based upgrade. **Jane**, the Infrastructure Specialist, owns and fine-tunes the environment impacted by the upgrade.

Table 15 – Overview: Roll Back In-place Upgrade

WARNING

WSS 3.0: When you are running a WSS3.0 server with your existing environment and you want to upgrade to SharePoint Server 2013 you have to upgrade to SharePoint Server 2010 first. See page 48 for further information about SharePoint upgrade.

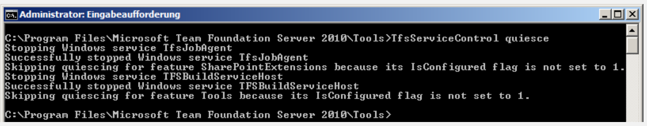
Preparations

Peruse the TFS Planning and DR Avoidance Guide [43] to review your infrastructure requirements. You should, as a bare minimum, as yourself the following questions:

- Should I change to a virtual environment?
- Should I change from / to single / dual server environment?
- What are the needs in performance?
- Are there other Migrations outstanding (see WSS 3.0 Issues below)

Walkthrough

<table>
<tr><th>Step</th><th>Instructions</th></tr>
<tr><td>1
Prepare
☐ - Done</td><td>Complete the pre-upgrade checklist. See page 10 for details.</td></tr>
<tr><td>2
Stop TFS Services
☐ - Done</td><td>You can skip the following steps 2 and 3 if you are using Scheduled Backups or the TFS Power Tools to perform the database backup.

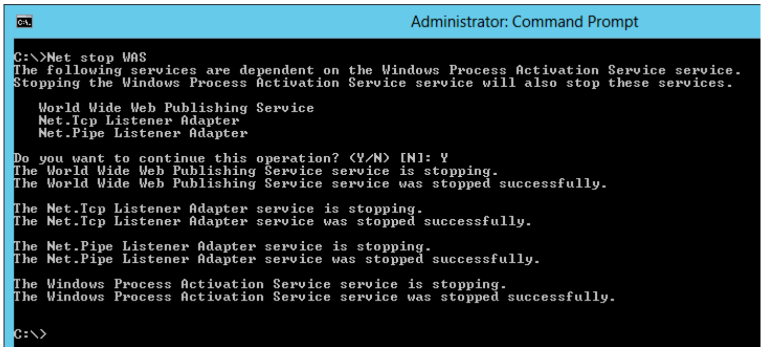


```
C:\Program Files\Microsoft Team Foundation Server 2010\Tools>TfsServiceControl quiesce
Stopping Windows service TfsJobAgent
Successfully stopped Windows service TfsJobAgent
Skipping quiescing for feature SharePointExtensions because its IsConfigured flag is not set to 1.
Stopping Windows service TFSBuildServiceHost
Successfully stopped Windows service TFSBuildServiceHost
Skipping quiescing for feature Tools because its IsConfigured flag is not set to 1.

C:\Program Files\Microsoft Team Foundation Server 2010\Tools>
```

- Open **CMD**
- cd %programfiles%\Microsoft Team Foundation Server 2010\Tools
- **TFSServiceControl quiesce**
</td></tr>
</table>

[43] http://aka.ms/treasure5

<table>
<tr><th>Step</th><th>Instructions</th></tr>
<tr><td>2.1
Stop the Webserver
□ - Done</td><td>

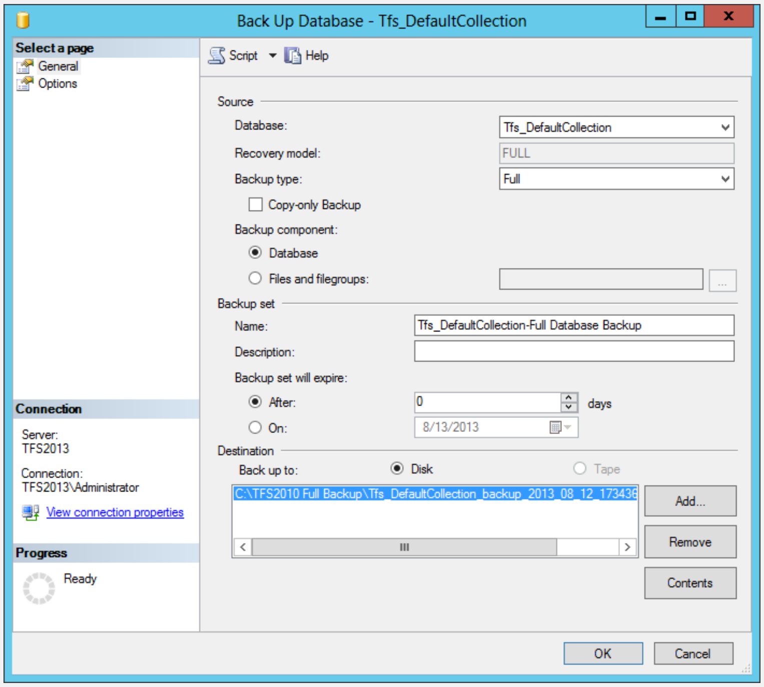


Administrator: Command Prompt

```
C:\>Net stop WAS
The following services are dependent on the Windows Process Activation Service service.
Stopping the Windows Process Activation Service service will also stop these services.

   World Wide Web Publishing Service
   Net.Tcp Listener Adapter
   Net.Pipe Listener Adapter

Do you want to continue this operation? (Y/N) [N]: Y
The World Wide Web Publishing Service service is stopping.
The World Wide Web Publishing Service service was stopped successfully.

The Net.Tcp Listener Adapter service is stopping.
The Net.Tcp Listener Adapter service was stopped successfully.

The Net.Pipe Listener Adapter service is stopping.
The Net.Pipe Listener Adapter service was stopped successfully.

The Windows Process Activation Service service is stopping.
The Windows Process Activation Service service was stopped successfully.

C:\>
```

- Type **net Stop WAS**
- Enter **Y** when prompted and then press **enter**

</td></tr>
<tr><td>3
Backup Databases
□ - Done</td><td>



Back Up Database - Tfs_DefaultCollection

Source
Database: Tfs_DefaultCollection
Recovery model: FULL
Backup type: Full
□ Copy-only Backup
Backup component:
● Database
○ Files and filegroups:
Backup set
Name: Tfs_DefaultCollection-Full Database Backup
Description:
Backup set will expire:
● After: 0 days
○ On: 8/13/2013
Destination
Back up to: ● Disk ○ Tape
C:\TFS2010 Full Backup\Tfs_DefaultCollection_backup_2013_08_12_173436

Connection
Server:
TFS2013
Connection:
TFS2013\Administrator
View connection properties
Progress
Ready

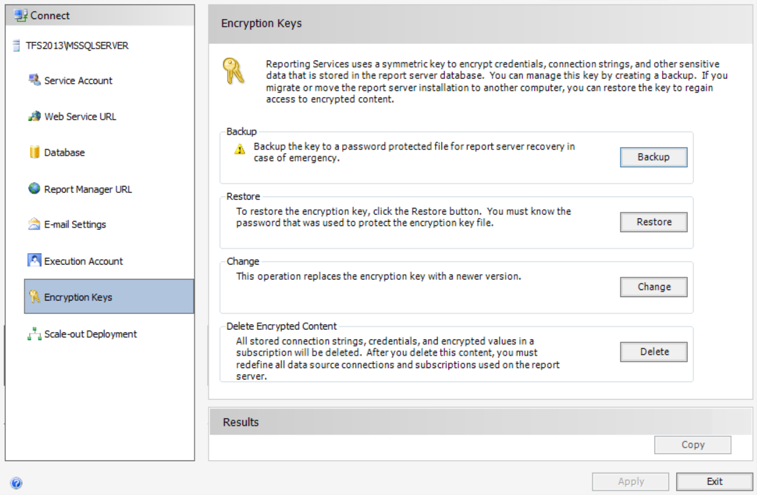
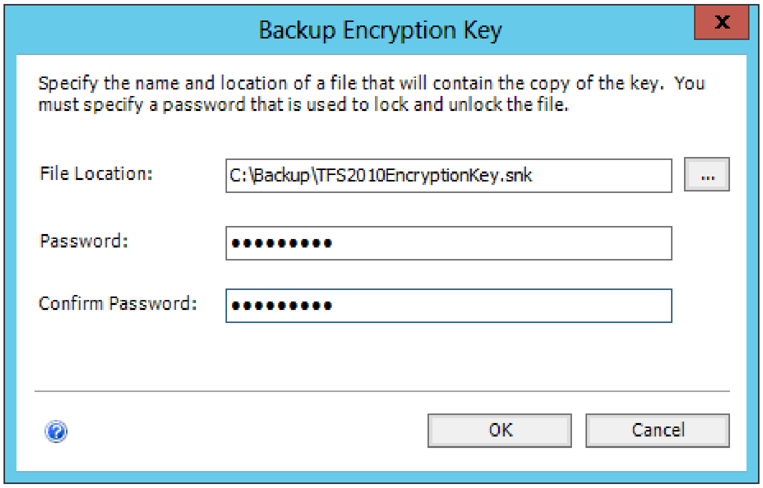
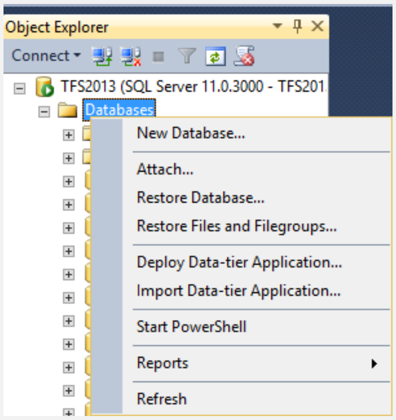
- Start SQL Server Management Studio
- Choose **Database Engine**
- Select **Task** -> **Back Up** from database context menu
- Configure **full** backup

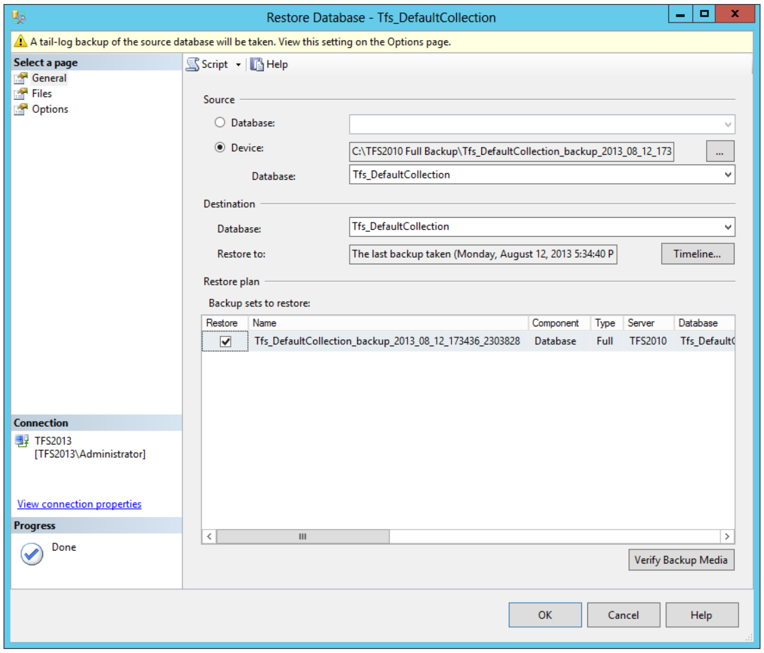
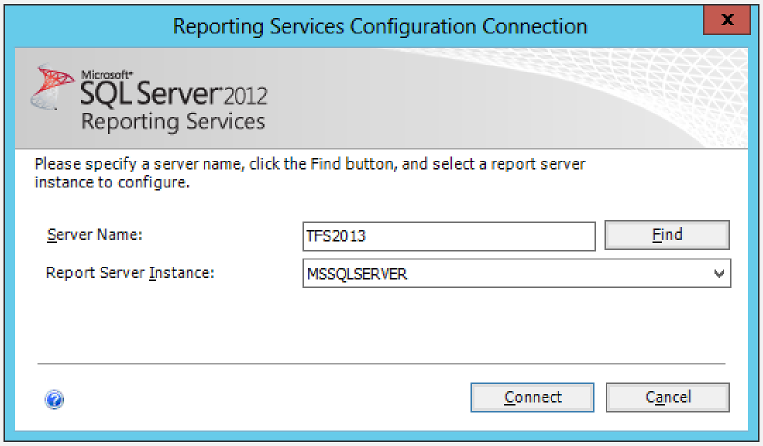
</td></tr>
<tr><td>3.1
Backup Databases
□ - Done</td><td>

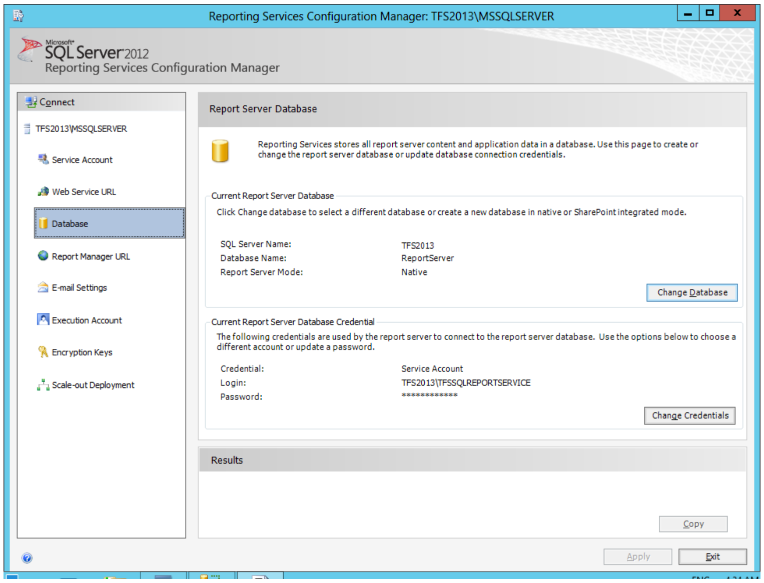
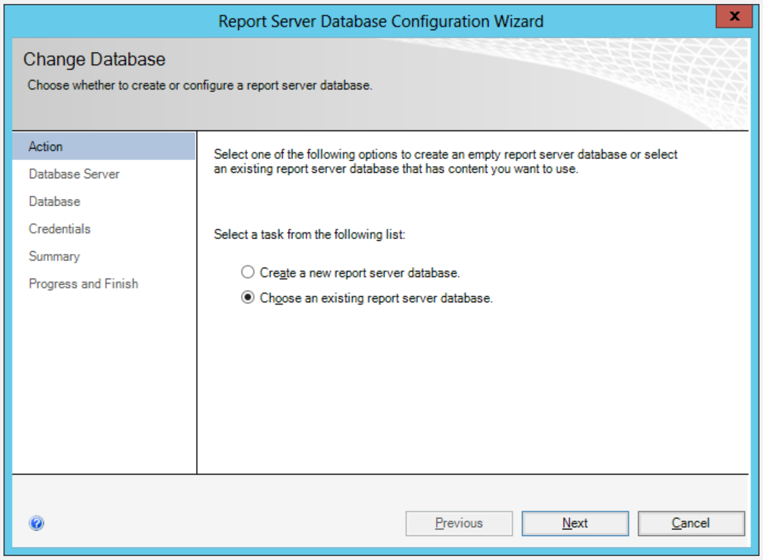
Create database backups for the following databases using the same method.

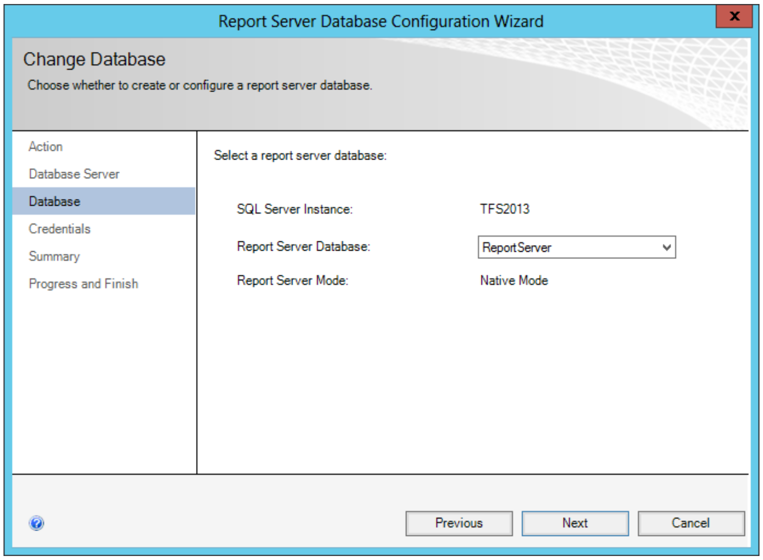
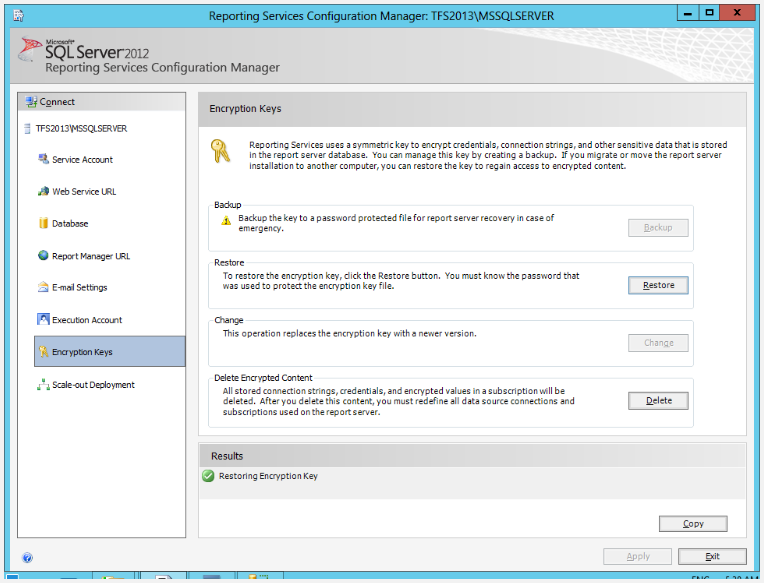
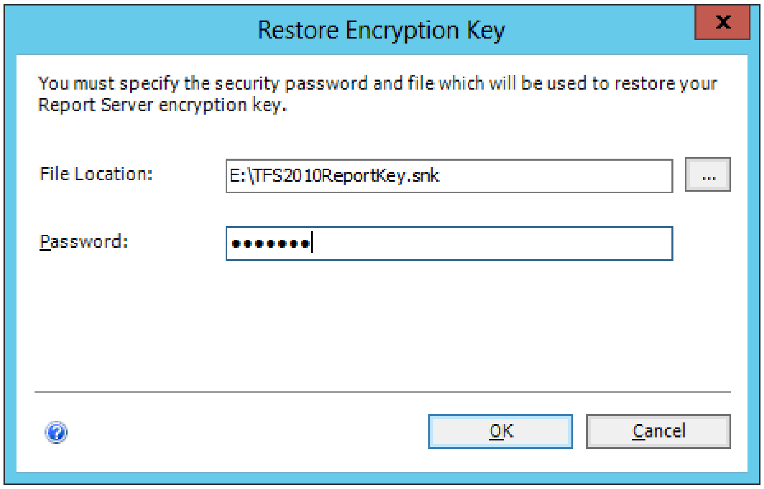
- **TFS Databases**
  - Tfs_Configuration
  - All collection databases (e.g. Tfs_DefaultCollection)
- **Reporting Databases**
  - ReportServer
  - ReportServerTempDB
  - Tfs_Warehouse
- **SharePoint Databases**
  - WSS_AdminContnet
  - WSS_Config
  - WSS_Content

</td></tr>
</table>

Step	Instructions
4 Backup reporting encryption key ☐ - Done	Open Reporting Services Configuration Management, select reporting server instance and backup **reporting encryption** key.  Encryption Keys Reporting Services uses a symmetric key to encrypt credentials, connection strings, and other sensitive data that is stored in the report server database. You can manage this key by creating a backup. If you migrate or move the report server installation to another computer, you can restore the key to regain access to encrypted content. Backup: Backup the key to a password protected file for report server recovery in case of emergency. Restore: To restore the encryption key, click the Restore button. You must know the password that was used to protect the encryption key file. Change: This operation replaces the encryption key with a newer version. Delete Encrypted Content: All stored connection strings, credentials, and encrypted values in a subscription will be deleted. After you delete this content, you must redefine all data source connections and subscriptions used on the report server. Connect TFS2013\MSSQLSERVER Service Account Web Service URL Database Report Manager URL E-mail Settings Execution Account Encryption Keys Scale-out Deployment Backup Restore Change Delete Results Copy Apply Exit • Open Reporting Services Configuration Management • Select Encryption Keys • Choose Backup
4.1 Backup reporting encryption key ☐ - Done	 Backup Encryption Key Specify the name and location of a file that will contain the copy of the key. You must specify a password that is used to lock and unlock the file. File Location: C:\Backup\TFS2010EncryptionKey.snk Password: ●●●●●●●●● Confirm Password: ●●●●●●●●● • Define file save location • Enter **Password** to secure the encryption key • **Copy** Encryption Key file to new Server
5 Restore Databases ☐ - Done	• Start SQL Server Management Studio, connect to Database Engine and restore all databases to new database server  Object Explorer Connect TFS2013 (SQL Server 11.0.3000 - TFS201 Databases New Database... Attach... Restore Database... Restore Files and Filegroups... Deploy Data-tier Application... Import Data-tier Application... Start PowerShell Reports Refresh

Step	Instructions
	• Open Microsoft **SQL** Server Management Studio • Connect to **Database Engine** • Select Databases -> **Restore Database**
5.1 Configure database restore □ - Done	 Restore Database - Tfs_DefaultCollection A tail-log backup of the source database will be taken. View this setting on the Options page. Select a page: General, Files, Options Source ○ Database: ● Device: C:\TFS2010 Full Backup\Tfs_DefaultCollection_backup_2013_08_12_173 Database: Tfs_DefaultCollection Destination Database: Tfs_DefaultCollection Restore to: The last backup taken (Monday, August 12, 2013 5:34:40 P Restore plan Backup sets to restore: Restore: ☑ Name: Tfs_DefaultCollection_backup_2013_08_12_173436_2303828 Component: Database Type: Full Server: TFS2010 Database: Tfs_Default(Connection: TFS2013 [TFS2013\Administrator] View connection properties Progress: Done • Select **Device** • Choose database **backup file** and select OK. • Perform for **each** Database
6 Restore Reporting □ - Done	 Reporting Services Configuration Connection Microsoft SQL Server 2012 Reporting Services Please specify a server name, click the Find button, and select a report server instance to configure. Server Name: TFS2013 Report Server Instance: MSSQLSERVER • Start **Reporting Service** Configuration

Step	Instructions
6.1 Change Report Database □ - Done	 Reporting Services Configuration Manager: TFS2013\MSSQLSERVER Microsoft SQL Server 2012 Reporting Services Configuration Manager Report Server Database Reporting Services stores all report server content and application data in a database. Use this page to create or change the report server database or update database connection credentials. Current Report Server Database Click Change database to select a different database or create a new database in native or SharePoint integrated mode. SQL Server Name: TFS2013 Database Name: ReportServer Report Server Mode: Native Current Report Server Database Credential The following credentials are used by the report server to connect to the report server database. Use the options below to choose a different account or update a password. Credential: Service Account Login: TFS2013\TFSSQLREPORTSERVICE Password: ************ Connect TFS2013\MSSQLSERVER Service Account Web Service URL Database Report Manager URL E-mail Settings Execution Account Encryption Keys Scale-out Deployment Change Database Change Credentials Results Copy Apply Exit - Choose **Database** form left side - Choose **change** Database
6.2 Restore type □ - Done	 Report Server Database Configuration Wizard Change Database Choose whether to create or configure a report server database. Select one of the following options to create an empty report server database or select an existing report server database that has content you want to use. Select a task from the following list: ○ Create a new report server database. ● Choose an existing report server database. Action Database Server Database Credentials Summary Progress and Finish Previous Next Cancel - Select Choose an **existing** report server database

Step	Instructions
6.3 Select Database □ - Done	 Report Server Database Configuration Wizard Change Database Choose whether to create or configure a report server database. Action Database Server Database Credentials Summary Progress and Finish Select a report server database: SQL Server Instance: TFS2013 Report Server Database: ReportServer Report Server Mode: Native Mode Previous Next Cancel - Select previous restored database (per default **ReportServer**)
7 Restore Encryption Key □ - Done	 Reporting Services Configuration Manager: TFS2013\MSSQLSERVER Microsoft SQL Server 2012 Reporting Services Configuration Manager Connect TFS2013\MSSQLSERVER Service Account Web Service URL Database Report Manager URL E-mail Settings Execution Account Encryption Keys Scale-out Deployment Encryption Keys Reporting Services uses a symmetric key to encrypt credentials, connection strings, and other sensitive data that is stored in the report server database. You can manage this key by creating a backup. If you migrate or move the report server installation to another computer, you can restore the key to regain access to encrypted content. Backup Backup the key to a password protected file for report server recovery in case of emergency. Restore To restore the encryption key, click the Restore button. You must know the password that was used to protect the encryption key file. Change This operation replaces the encryption key with a newer version. Delete Encrypted Content All stored connection strings, credentials, and encrypted values in a subscription will be deleted. After you delete this content, you must redefine all data source connections and subscriptions used on the report server. Results Restoring Encryption Key Backup Restore Change Delete Copy Apply Exit - Select **Encryption Keys** from left side - Choose the Restore button
7.1 Restore Encryption Key □ - Done	 Restore Encryption Key You must specify the security password and file which will be used to restore your Report Server encryption key. File Location: E:\TFS2010ReportKey.snk Password: ●●●●●●●

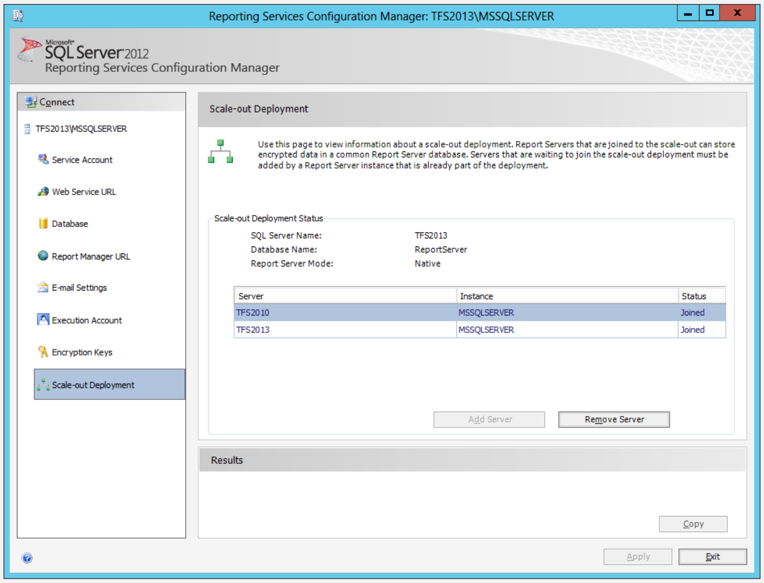
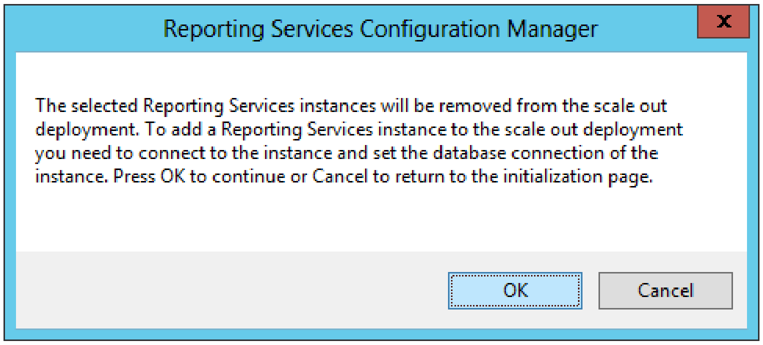
Step	Instructions
	• Select Reporting **encryption key** file backup from old server • Enter **password** you set when backing up • Click **OK**
8 Remove Report Server Scale-out Deployment ☐ - Done	 Reporting Services Configuration Manager: TFS2013\MSSQLSERVER Scale-out Deployment Use this page to view information about a scale-out deployment. Report Servers that are joined to the scale-out can store encrypted data in a common Report Server database. Servers that are waiting to join the scale-out deployment must be added by a Report Server instance that is already part of the deployment. Scale-out Deployment Status SQL Server Name: TFS2013 Database Name: ReportServer Report Server Mode: Native Server Instance Status TFS2010 MSSQLSERVER Joined TFS2013 MSSQLSERVER Joined Microsoft SQL Server 2012 Reporting Services Configuration Manager Connect TFS2013\MSSQLSERVER Service Account Web Service URL Database Report Manager URL E-mail Settings Execution Account Encryption Keys Scale-out Deployment Add Server Remove Server Results Copy Apply Exit • Select **scale-out Deployment** from left side • Choose **old** report server entry from table • Click **Remove Server** button
8.1 Remove Report Server Scale-out Deployment ☐ - Done	 Reporting Services Configuration Manager The selected Reporting Services instances will be removed from the scale out deployment. To add a Reporting Services instance to the scale out deployment you need to connect to the instance and set the database connection of the instance. Press OK to continue or Cancel to return to the initialization page. • Click **OK** to continue
9 Install SharePoint ☐ - Done	Install and upgrade SharePoint Server. See page 48 for further information.
10 Install TFS ☐ - Done	Go to “In-place Upgrade”, page 15 and start at step **4 – Install TFS** and complete the **in-place upgrade** walkthrough.

Table 16 **– Walkthrough: In-place upgrade from TFS 2010 or TFS 2012 to TFS 2013**

Clone TFS 2012 for Test Upgrades

Context	To help reduce the chance of failure and to keep the length of the maintenance window to a minimum during the upgrade process, it's always a good practice to test the upgrade process on a cloned environment that matches the production environment as good closely as possible. One of the most useful benefits you get from this kind of testing is the estimate of the upgrade process duration. This will help you to properly plan the maintenance window and prepare adequate resources for the production upgrade. The main goal of this chapter is to describe the steps to prepare the test environment so that you achieve this in the shortest possible time and with minimum impact on the production environment.
Version	TFS 20**12**
Persona	**Dave**, the TFS Administrator, performs the TFS clone. **Jane**, the Infrastructure Specialist, owns and fine-tunes the environment impacted by the clone.

Table 17 – Clone TFS 2012 to test in-place upgrade

Useful Reference Information

- Team Foundation Installation Guide for Visual Studio 2012 [44]
- TfsConfig ChangeServerID Command [45]
- Back Up TFS [46]

Understanding the clone process

The primary focus of this chapter is on cloning TFS 2012.

Cloning the TFS environment is in many aspects similar to moving the environment to new hardware but leaving the original one active.

The main differences between cloning and moving the environment to a new hardware are the following:

- When moving the environment, you need to stop the Team Foundation services on the original server so that no more changes can be done to the data that is being moved. When you are cloning, you do not need to stop the production environment so you are actually cloning a snapshot given by the time of the backup used.
- When you are moving the environment, you can just move the TFS bits and continue using external systems (SharePoint, Reporting Services) in their original locations. When cloning, you must not reference any of the production external system – you must clone them as well and update the references.

NOTE

Cloning means both environments will stay running and you must change the internal IDs of the cloned TFS so that client tools do not get confused.

Two main things you want to avoid when cloning your environment:

- Impacting your production in any way – unplanned outage or reducing the performance.
- Leaving any references from the cloned environment to an external component in production – SharePoint, Reporting Services, Project Server, Team Build Drop Locations and Symbol Servers. All components need to be cloned and references between them updated! Otherwise, you will get data corruption!

Some steps can be simplified by using cloning software or, in case of Virtual environment, by imaging techniques. In such cases, you need to ensure you create new names and IDs for the servers or use network isolation for the cloned system from the production domain.

[44] http://www.microsoft.com/en-us/download/details.aspx?id=29035

[45] http://msdn.microsoft.com/en-us/library/ee349259.aspx

[46] http://msdn.microsoft.com/en-us/library/ms253070.aspx

Another option for fast and consistent testing would be physical-to-virtual cloning that would let you reuse your virtual environment instead of acquiring new hardware. However, it might be hard to match the performance capabilities of your physical environment by the virtual one.

A more lightweight option to the complete clone can be as well a clean installation of TFS and migration of the main Team Project Collections using detach/attach operation from team Foundation Administration console. This will probably result in a configuration that isn't exactly the same as the production environment but still can provide some estimates regarding the duration of the upgrade process. Even so, you need to be careful about a few aspects, which are described in this walkthrough.

External Systems

In TFS 2012, the external systems like SharePoint, Project Server and SQL Server Reporting Services are loosely coupled and they will follow their own specific upgrade path. Often, they can stay on the same version when TFS is upgraded. When you clone the system, you need to clone these environments as well and you need to make sure that the new TFS environment does not point to any production system.

Usually, you want to test the upgrade of all parts of the environment to see that everything —reports, portals, etc.— is correctly working. However, if your main concern is the core TFS services like Version Control, Work Items, and Builds, you may greatly simplify the cloning of your environment by excluding some of the external systems. After you clone TFS, you should only remove the external relations from your TFS Instance and Project Collections.

Team Foundation Alert SOAP Handlers

One particularly dangerous area for cloning is related to Team Foundation Alert SOAP handlers, which are usually web or WCF services that are registered to receive specific events from TFS (check-in, build finished, wok item changed) and based on that, these Team Foundation Alert SOAP handlers perform some action – often, again, on the Team Foundation data. You need to ensure that the subscriptions in cloned environments are updated, otherwise you may find yourself in a situation where events from the wrong environment. A related concern is regarding email subscriptions – do you want the users to receive emails from the cloned environment?

Team Build Definitions – drop locations, symbol servers, deployment

Another area that can be forgotten when cloning the environment is Team Build definitions. They specify things like drop locations, symbol server and other custom deployment targets, which are not updated automatically by the database cloning and need to be manually updated so that they do not point to production.

Scenario

Although this walkthrough is quite general regarding the Team Foundation environment complexity, it has been tested and tuned mostly on a standard dual tier installation:

- Application Tier
  - Windows Server 2008 R2, SP1
  - SQL Server 2012, SP1 - Reporting Services only
  - SharePoint Foundation 2010
  - TFS 2012 Update 2
- Data Tier server
    - Windows Server 2008 R2, SP1
    - SQL Server 2012, SP1 – Database Engine and Analysis Services
  - Team Build server
    - Windows Server 2008 R2, SP1
    - TFS 2012 Update 2 – Team Foundation Build Service feature
  - Team Foundation Proxy
    - Windows Server 2008 R2, SP1
    - TFS 2012 Update 2 – Team Foundation Proxy feature

The installation and configuration was run using mostly the default values.

Even if you have a more complex, customized or distributed environment, you should still be able to follow the procedure because it was written in general way. Consider the special customizations you made to your environment. If any of these had to be manually set after configuration, you will likely need to perform these steps in your cloned environment. If they point to other resources in production, you will need to update these pointers. If the software versions you are using differ from the ones in this walkthrough, you may want to look for documentation online on how to perform the steps below, as the workflows may differ.

The expected result of this walkthrough should be a completely mirrored environment running on the same domain with servers having different NetBIOS names but otherwise equally configured as the original servers.

If you need to clone to a different domain you will need to handle additional steps, especially security related tasks, in case there is no full trust configured between the domains.

Walkthrough

Step	Instructions
1 Prepare the hardware ☐ - Done	• Choose as exact the same hardware to create your clone for meaningful runtime results. For only testing the feasibility a less powerful or even virtual environment is also sufficient. However, we recommend an exact copy for medium to large environments because of migration time. • The duration of the upgrade process might not be an issue in small or medium environments but if your TFS databases have tens or hundreds of GB of data, it might take significantly longer. In these cases, you probably want to know approximately how long the maintenance window will be. Therefore, the hardware on which your cloned testing environment runs should be similar to the production environment so that you can plan for the upgrade process to take the same amount of time. This relates to memory, processor power, disks, network interfaces etc. • Special care needs to be taken around the storage configuration. Regarding the physical configuration, you again want to get identical set of disks like in production. Putting all data on a single disk or using logical partitions instead of physical drives will lead to inaccurate results. Regarding the size, you should mirror the sizes of production storage or at least reflect the used space but you may need additional space for the database backups to be restored as well.
2 Installing Operating system on the new servers ☐ - Done	• You should install the same version OS for all software components in your environment—including service packs and hotfixes. Even if you plan to upgrade some components when upgrading TFS (SQL2008 to SQL 2008 R2 for example) this should be part of upgrade testing, but the clone itself should be created with identical software versions, just like the original environment. • First, you need to install the same version and edition of the operating system and apply the same Service Pack and hotfixes that were installed on the corresponding original servers. You can find out the version and service level of the operating system using the following tools: • Run **winver** from command line on the original server • Windows Update or WSUS • Microsoft Baseline Security Analyzer [47] • Add or Remove Programs – Show Updates or Programs And Features – View Installed Updates
3 Prepare User and Service Accounts ☐ - Done	• Verify that the account that you will use to install TFS is a member of the Administrators security group on the servers where you will install TFS and other components like Reporting Services, SharePoint, SQL Server etc. The account used to install other server components must be System Administrator (sysadmin) on all SQL Server Instances where TFS databases are hosted and if you plan to configure SharePoint Products, you must be a member of the Farm Administrators group on the SharePoint Central Administration site. This can be easily achieved by using this account for installation of all components on all the servers. • For installing and configuring other software components, you need to have ready the service accounts and passwords that will be used to run system services and access the products resources. • See your Disaster Recovery Plan documentation or the exact setting on the production servers: • On the Data Tier servers, run **SQL Server Configuration Manager** – **SQL Server services**, and check your service identities.

[47] http://www.microsoft.com/download/en/details.aspx?id=7558

Step	Instructions
	- On the SharePoint server check the **SharePoint 2010 Timer service (SPTimerv4)** Windows service identity - On the Application Tier server, run the **Team Foundation Administration Console** and in the **Application Tier** section look up the **Service Account** (TFSSERVICE) under **Application Tier Summary** and the **Reader Account** (TFSREPORTS) under **Reporting Services Summary** - On the Team Build server, run the **Team Foundation Administration Console** and in the **Build Configuration** section, click Build service **Properties** and see **Credentials** for configure with the same credentials on the cloned environment. - On the TFS Proxy server, run the **Team Foundation Administration Console** and in the **Proxy Server** section, check the **Service Account.**
4 Installing required software on the new Data Tier server □ - Done	- The collation settings of your database must be compatible with TFS, and you have to be careful when moving between Enterprise and other editions due to data compression, but the edition does not have to be the same. If you restore a TPC to a later version of SQL, the database will generally be upgraded to that version automatically, that means changes the databases to function with the current version of TFS, see more about Supported Version and Edition Upgrades of SQL Server 2012. - You could also upgrade your instance before the move rather than after the move, if you want to split up the downtime. But be careful if you are upgrading from 2010. You must to upgrade everything at the same time because TFS 2010 and TFS 2013 do not have any supported SQL versions in common. - To verify this on your original SQL Server you can: - Run **SQL Server Configuration Manager** – **SQL Server services** to see which components and SQL Instances are running on the server and under which service accounts. - In **SQL Server Management Studio** you can right-click Database Engine or Analysis Services connection, select **Properties** and click **View connection properties** to see product version, edition, language and collation. Alternatively, run **SELECT @@VERSION** on your SQL Server instance to find out the version, service pack and edition of the SQL Server and **SELECT SERVERPROPERTY('Collation')** - to find out the server collation. - In addition, you need a proper storage configuration that is equivalent to your production environment– installation directory, system databases data and transaction logs directories (tempdb specifically), user databases data and transaction logs directories and Analysis Services data directory. You can find this information in **SQL Server Management Studio** connected to your production server: - Right-click the Database Engine connection and select **Properties**. In **General** tab see **Root Directory** property for installation directory and in **Database Settings** tab see the default database locations. - Right-click each SQL Server database (system/user) and select **Properties**, see **Files** for the actual location of the database files. Alternatively run **select * from sys.database_files** on each database. - Right-click Analysis Services connection, select **Properties** and in **General** tab see **DataDir** property for the default data location. Note as well **LogDir, BackupDir** and **TempDir** (Show Advanced) properties for other files locations. - Right-click Analysis Services database (Tfs_Analysis), select **Properties** and see **Storage Location** – if empty, it follows the server default configuration see previous check. If not empty and different from the server's default configuration then you need to provide this one when restoring Analysis Services database in **Cloning the databases (backup /** restore), on page 34. - You need to install SQL Server with all necessary components (equivalent to production). If your production data tier hosts Reporting Services as well you should install it within this step and skip the installation of this component **Install required software on the new Application Tier server**, on page 34, but make sure that you select **Install, but do not configure the report server**. - Follow the steps in the TFS Installation Guide [48] – provide components, instance name, collations, service accounts and file locations (Data Directories) . - Follow the steps in the TFS Installation Guide [49] – provide components, instance name, collations, service accounts and file locations (Data Directories) according to the findings from the checks above: - **Scenario: Installing TFS on a Single-Server** ○ **Installing Prerequisites for Team Foundation Components**

[48] http://www.microsoft.com/en-us/download/details.aspx?id=29035

[49] http://www.microsoft.com/en-us/download/details.aspx?id=29035

Step	Instructions
	▪ **SQL Server** NOTE If your environment is more distributed than in this walkthrough, for example you have Analysis Services on a dedicated server or you have Project Collection databases across multiple servers or you use Failover Cluster, you need to make sure that you install the corresponding versions and components on the new servers that mirror your production environment with the same principles described here.
5 Install required software on the new Application Tier server □ - Done	• On the Application Tier you need to configure and install the following components: • If you will install SharePoint Foundation 2013 or SharePoint Server 2013, we recommends read first SharePoint 2013: Install Prerequisites Offline or Manually on Windows Server 2012 [50]. • SQL Server Reporting Services (if your Reporting Services is on a data tier server you have probably installed them already in **Installing required software on the new Data Tier server**, on page 33. • If neither Reporting Services nor any other SQL Server Component is installed on the Application Tier server, you must install at least the SQL Server Client Tools Connectivity to enable warehouse processing if you will use reporting features. • IIS can be configured for you by the SharePoint and/or TFS installation see **Install the Application Tier on the new hardware** on page 38, but still you need to make sure the IIS configuration on the new server is the same as the original one. • You won't be able to install SharePoint Products and Reporting Services as part of the installation of the application tier when you move it to a new server even though you might have done it this way when installing the original environment. • SharePoint Foundation is free and can be downloaded from the download center, or included with TFS. • You need to assure the same version, edition, configuration, service pack and hotfixes as on the original server. You can verify this: • IIS6 (WS2003): **Add or Remove Programs** - **Add/Remove Windows Components** • IIS7 (Win7, WS2008, WS2008R2): **Programs and Features** - **Turn Windows features on or off** (client OS), **Server Manager** – **Roles** – **Web Server** (server OS) • SQL Server Reporting Services – go to **Reporting Services Configuration Manager** to find the version and edition. See How to determine the version and edition of SQL Server and its components [51] for more details about SQL versions. • SharePoint - You can go to SharePoint Central Administration and find the version and configuration database name and location in **Operations** - **Servers in Farm**. See http://technet.microsoft.com/en-us/sharepoint/ff800847.aspx (note the link on right for SharePoint 2010) for more details on SharePoint versions and updates. • You can install these components as described in Team Foundation Installation Guide: • **Scenario: Installing TFS on a Single-Server** ○ **Installing Prerequisites for Team Foundation Components** ▪ **Internet Information Services** ▪ **SharePoint products** • Manually Install SharePoint products for Team Foundation Server [52]. NOTE Make sure you use the same settings regarding the web site and application pool configuration like in production but use different name for the content database because we will be importing the production one in Step 6: Cloning the databases (backup/restore) and you would get name collision.
6 Cloning the databases (backup / restore)	• The TFS environment backup and restore is based on SQL databases. For creating the cloned environment, the main task is getting the copy of the production databases. Both ways – "detach, copy, attach" and "backup, restore"— are possible but the first one requires an outage of the system. • You must restore all databases to the same point in time, or the databases will be out of synchronization. For more information, see as well Back Up TFS [53].

[50] http://social.technet.microsoft.com/wiki/contents/articles/14582.sharepoint-2013-install-prerequisites-offline-or-manually-on-windows-server-2012-a-comprehensive-guide.aspx

[51] http://support.microsoft.com/kb/321185

[52] http://msdn.microsoft.com/en-us/library/vstudio/dd578615.aspx

[53] http://msdn.microsoft.com/en-us/library/ms253070.aspx

Step	Instructions
□ - Done	• In larger environments, cloning the databases can be a difficult and lengthy task given the size of the databases. Caution should be taken not to impact the performance of the production environment. • The recommended way for the cloning scenario is to use the standard regular backups created for your environment. For testing purposes, the data need not to be completely up-to-date so you can take only the latest full database backups without applying the differential or all the transactional log backups (if marked transactions are used you still need to apply the transaction log backup immediately following the full database backup!). • There are certain practices that you should be aware of: ◦ Do not perform full database backup during the business hours (if you are concerned about the additional IO traffic created) ◦ Do not back up to the same storage where the production database files are located. Use a dedicated disk or a network share. ◦ Consider improving the backup speed by using compression (SQL Server 2012 Enterprise, Standard and Business Intelligence editions). See Backup Compression (SQL Server) [54] • On the new data tier server(s), you need to restore the Team Foundation Server Databases [55]. NOTE You may get name collision for this database in case you used the same name for the content database when creating the new web application in Step 5: Installing required software on the new Application Tier server. You can solve it either by using different name for restored one but get difference from the production or removing the content database before restoring the production one as described in Step 7: Redirect SharePoint Products to the New Location of the Content Database (step 1-7). • On the server that is running SQL Server Analysis Services, if you have one configured for your deployment: ◦ Tfs_Analysis – note that this isn't a SQL Server Relational database but SQL Server Analysis Services database. Although in **Step 17** **Configure Reporting and SQL Server Analysis Services** we will rebuild this database we still need to restore it on the new Analysis Services server otherwise steps **Step 11** **Change the Ownership of the Moved Databases** and **Step 12** **Update All Service Accounts** will fail! • Various techniques can be used to restore the databases. You can do it manually, using T-SQL scripts, third party tools, or TFS backup tools. The preferred way for your environment should be documented in your Disaster Recovery Plan. • To restore a database manually from SQL Server Management Studio follow these steps: ◦ Under Database Engine connection right-click **Databases** and point to **Restore Database**. The **Restore Database** dialog box opens. ◦ In **To Database** specify the database name you want to restore. ◦ Under **Source for restore**, click **From Device**, and then click the ellipsis button (**…**). ◦ In the **Specify Backup** dialog box, specify the location of the backup file, and then click **OK**. The first backup that you restore must be a full backup, followed by the differential backup, and then the transaction log backups, in the order in which they were created. ◦ Under **Select the backup sets to restore**, specify the backup sets to restore. Make sure that you restore the full, differential, and transaction log databases if you created marked transaction backup sets. ◦ In the **Select a page pane**, click **Options**, and then select the **Overwrite the existing database** check box. ◦ In the **Restore the database files as** list, verify that the paths match your required database paths. ◦ Under **Recovery state**, perform one of the following steps: ▪ If you are using marked transactions or just applying additional transaction logs, click **Leave the database non-operational, and do not roll back uncommitted transactions. Additional transaction logs can be restored. (RESTORE WITH RECOVERY)**. ▪ If you are not using marked transactions and you are not applying additional transaction logs, click **Leave the database ready to use**. ◦ Click **OK**. A progress icon appears.

[54] http://technet.microsoft.com/en-us/library/bb964719.aspx

[55] http://msdn.microsoft.com/en-us/library/ms400720.aspx

Step	Instructions
	• When the **SQL Server Management Studio** dialog box appears and confirms successful restoration, click **OK** to return to **Object Explorer**. • If you are using marked transactions or applying additional transaction logs, right-click the database that you just restored, point to **Tasks**, point to **Restore**, and then click **Transaction Log**. The **Restore Transaction Log** window opens. • On the **General** page, make sure that the appropriate database is selected in the **Database** list. • Under **Restore source**, click **From file or tape**, and then click the ellipsis button (**…**). • In the **Specify Backup** dialog box, specify the location of the transaction log backup file, and then click **OK**. • Under **Select the transaction log to restore**, select the check box next to the log that you want to restore. • If you are using marked transactions under **Restore to**, click **Marked transaction**. The **Select Marked Transaction** window opens. • In the **Select the marked transaction to stop the restore at** list, select the check box next to the transaction mark that you want to use for the restoration, and then click **OK**. **Important:** you must use the same transaction mark that has the same date and time for all databases to successfully restore the data. • In the **Restore Transaction Log** window, click **OK**. A progress icon appears. • When the **SQL Server Management Studio** dialog box appears and confirms successful restoration, click **OK**. For more information, see the following page on the Microsoft Web site: Applying Transaction Log Backups [56]. • To backup and restore Analysis Service database manually in SQL Server Management Studio follow these steps: • Under production Analysis Services connection right-click Tfs_Analysis database and point to **Backup Database**. The **Backup Database** dialog box opens. • In **Backup File** provide the backup file name and location. • Let **Apply compression** checked and if needed **Encrypt backup file** as well – you need to provide a password then. • Click **OK** and wait until backup finishes. • Under cloned Analysis Services connection right-click **Databases** and point to **Restore Database**. The **Restore Database** dialog box opens. • In **Backup File** provide the path to the backup file created in the previous steps. • In **Restore Database** provide the database name (Tfs_Analysis) • If you need specific storage location (other than the server default) set **Storage location** • If the backup file was encrypted provide the password in **Password**. • Click **OK** and wait until restore finishes. See How to back up your databases using TFS backup tool [57] for more information.
7 Redirect SharePoint Products to the New Location of the Content Database □ - Done	• After you have cloned the content database for SharePoint Products (WSS_Content) to the new server, you must redirect the server that is running SharePoint Products to the new location of that database. This database must be operational before you can reconfigure TFS with the new locations of its databases. • Following is the procedure for SharePoint Foundation 2010. To perform the procedure, you must be a member of the Administrators group on the server that hosts SharePoint Products: • Log on to the server that is running SharePoint Foundation 2010 open Computer Manager, and make sure that the following components are started: • IIS Admin Service (IISADMIN) • HTTP SSL (HTTPFilter) • SharePoint 2010 Timer service (SPTimerv4) • World Wide Web Publishing Service (W3SVC) • SharePoint Central Administration (application pool) • SharePoint Central Administration (Web site)

[56] http://go.microsoft.com/fwlink/?LinkId=115460

[57] http://msdn.microsoft.com/en-us/library/vstudio/jj620932.aspx

Step	Instructions
	- Click **Start**, point to **Administrative Tools**, and then click **SharePoint Central Administration**. The **Central Administration** window opens. - Click the **Application Management** tab and then click **Content Databases**. The **Manage Content Database** page opens. - Click **WSS_Content**. The **Manage Content Database Settings** page opens. NOTE WSS_Content is the default name. Your installation might use a custom name for this database - Select the **Remove content database** check box, and then click **OK**. NOTE This step detaches the database but does not delete any content. You should delete the database manually. - In the warning dialog box that appears, click **OK.** - In **Manage Content Database Settings**, click **OK** to confirm your changes. - Open the **Command Prompt** window (use **Run as administrator** if UAC enabled), and change directories to the SharePoint Foundation 2010 bin directory. By default, you can find this directory in **%programfiles%\Common Files\microsoft shared\web server extensions\14\BIN**. - Type the following command to add a content database: **stsadm -o addcontentdb -url http://***SharePointServerName* **-databaseserver** *newDataTierServerName* **-databasename** *WSS_Content* NOTE WSS_Content is the default name. Make sure that the name that you type matches the name of the content database that you have restored in Step 6: Cloning the databases (backup/restore). - Type the following command to change the permission policy so that TFS can access the content database (*DomainName\UserName is TFSService account*): **stsadm.exe -o addpermissionpolicy -url http://***SharePointServerName* **-userlogin** *DomainName\UserName* **–permissionlevel "full control"** - Type the following command to restart Internet Information Services: **iisreset** - (Optional) If you backed up any custom site definitions, custom site templates, or custom Web parts for SharePoint Products that you want to keep, restore these components now. For more information, see this page on the Microsoft Web site: Recommendations for data protection and recovery (SharePoint Foundation 2010) [58]. - Click **Start**, point to **Administrative Tools**, and click **Services.** - If not started already, right-click **SharePoint 2010 Timer service (SPTimerv4)**, and click **Start**.
8 Configure Reporting Services □ - Done	- In **Step Install required software on the new Application Tier server** we have installed but not configured SQL Server Reporting Services and in **Step Cloning the databases (backup /** restore) we restored the Reporting Services databases from the original environment. Now we will configure Reporting Services on the new server so that they will use the restored databases: - Start the **Reporting Services Configuration Manager** and open a connection to the report server. - On the **Service Account** page, provide the same credentials that are used in production. Click **Apply**. - On the **Web Service URL** page, provide the same url(s) that are used in production. Click **Advanced** for additional URLs. Click **Apply**. - On the **Database** page, click **Change Database**. - Click **Choose an existing report server database**. Click **Next**. - Select the SQL Server that now hosts the report server database and click **Test Connection**. Click **Next**. - In **Database Name**, select the report server database that you want to use. Click **Next**. - In **Credentials**, specify the credentials that the report server will use to connect to the report server database. Click **Next**. - Click **Next** and then **Finish**

[58] http://go.microsoft.com/fwlink/?LinkId=115274

Step	Instructions
	• On the **Report Manager URL** page, provide the same url(s) that are used in production. Click **Advanced** for additional URLs. Click **Apply**. • Click **Exit**. • On the server open a Command Prompt (Run as administrator if UAC enabled). • Go to SQL Server tools directory. For x86-based systems, the default directory is %ProgramFiles%\Microsoft SQL Server\100\Tools\binn. For x64-based systems, the default directory is Program Files(x86)\Microsoft SQL Server\100\Tools\binn. • Type the following command to list installation IDs of Reporting Services: **RSKeyMgmt -l** • In the list, find the installation ID (GUID) that corresponds to the old data-tier server. • Type the following command to remove that installation ID, where DTInstanceID corresponds to the old data-tier server GUID: **RSKeyMgmt** –r DTInstanceID NOTE Do not remove the installation ID that corresponds to the new data-tier server • Start again the **Reporting Services Configuration Manager** and open a connection to the report server. • On the **Encryption Keys** page click **Restore** • Select the file that contains backup of the production encryption key – you have either this backup already or you can get it from production Reporting Services. • Click **OK** and click **Apply.** NOTE If your production Reporting Services have Email, Execution Account or Scale Out deployment configured you need to provide the same configuration in the cloned environment as well.
9 Install the Application Tier on the new hardware □ - Done	• In order to gain access to the command-line tools for TFS, you must install them by installing Team Foundation Server on the computer that will be the application-tier server. You may want to use several of these tools before you can configure the server as the application-tier server. • Install if your production Reporting Services have Email, Execution Account or Scale Out deployment configured you need to provide the same configuration in the cloned environment as well. On the new server according to the Team Foundation Installation Guide but make sure that you cancel the configuration wizard. • You can complete the configuration wizard for the new application-tier server after the preparation steps are complete. • You need to apply any Service Packs and hotfixes needed to match the production Team Foundation version otherwise you won't be able to connect to the TFS configuration database in **Step Configure the Application Tier on the New Hardware.** You can find this version when you launch the Team Foundation Administration Console on a production Application Tier server and look up the details in the Application Tier Summary tab. NOTE In a Network Load Balancing (NLB) setup you may have multiple Application Tier servers. It may not be necessary to install the same number of nodes as in production but more than one is recommended if you use NLB.
10 Redirect TFS to its databases □ - Done	• You must redirect TFS to its moved databases. You must run the RemapDBs command if any of the following conditions is true: • The Tfs_Analysis or the Tfs_Warehouse database is hosted on a different server from Tfs_Configuration. • You are using a named instance to host your databases. • You have one or more collection databases hosted on a different server from the configuration database. • To redirect TFS to its databases: • Log on to the new application-tier server for Team Foundation, open a Command Prompt window (Run as administrator if UAC enabled), and change directories to *Drive*:\%programfiles%\Microsoft Team Foundation Server 2010\Tools. • Type the following command, where *ServerName* is the name of the instance of SQL Server that hosts the configuration database for TFS, *Tfs_Configuration* is the name of the restored configuration database for TFS, and ServerName2 is the name of the server that hosts the remote collection. You can have as many *ServerName* parameters as you have servers configured in your deployment. You can specify *ServerName* in either *ServerName* or *ServerName\InstanceName* format. You must specify the instance name if you are

Step	Instructions
	not using the default instance: **TFSConfig RemapDBs /DatabaseName:***ServerName;TFS_Configuration* **/SQLInstances:***ServerName,ServerName2* **/AnalysisInstance:***ServerName2* **/AnalysisDatabaseName:***DatabaseName* NOTE In /SQLInstances, you must specify all of the instances, separated by commas, of SQL Server that host databases for TFS. For more information, see the RemapDBs Command. • If you have multiple application-tier servers you need to run this command only on one of them.
11 Change the Ownership of the Moved Databases □ - Done	• You must use the **TFSConfig Accounts ResetOwner** command to change the database owner login for the moved databases to the current user only if the users are different from production. Before you perform the next sequence of steps, make sure that the user account with which you are logged on is an appropriate account. For example, you can use the same account with which TFS was installed, referred to in the installation guide as TFSSETUP. At a minimum, you must use an account that is a member of the **Team Foundation Administrators** group in TFS and a member of the **sysadmin** group in SQL Server. • To change the ownership of the restored databases to the current user: • On the new application-tier server open a Command Prompt window, and change directories to *Drive*:\%programfiles%\Microsoft Team Foundation Server 2010\Tools. • Type the following command, where *ServerName* (in either *ServerName* or *ServerName\InstanceName* format) is the name of the instance of SQL Server that hosts the databases for TFS and *DatabaseName* is the name of the configuration database (by default, Tfs_Configuration): **TFSConfig Accounts /ResetOwner /SQLInstance:***ServerName* **/DatabaseName:***DatabaseName* If you specify the configuration database, this command will change the ownership for all of the databases of TFS. NOTE If you have multiple application-tier servers you need to run this command only on one of them.
12 Update All Service Accounts □ - Done	• You must update the service account for TFS (TFSService) and the data sources account (TFSReports). Even if these accounts have not changed, you must update the information to help ensure that the identity and the format of the accounts are appropriate for the new server. • To update service accounts: • Log on to the new application-tier server for Team Foundation, open a Command Prompt window (Run as administrator if UAC enabled), and change directories to *Drive*:\%programfiles%\Microsoft Team Foundation Server 2010\Tools. • At the command prompt, type the following command to add the service account for Team Foundation, where *DatabaseName* is the name of the configuration database (by default, Tfs_Configuration) and *AccountName* is TFSService account: **TfsConfig Accounts /add /AccountType:ApplicationTier /account:***AccountName* **/SQLInstance:***ServerName* **/DatabaseName:***DatabaseName* • At the command prompt, type the following command to add the data sources account, where *DatabaseName* is the name of the configuration database (by default, Tfs_Configuration) and *AccountName* is TFSReports account: **TfsConfig Accounts /add /AccountType:ReportingDataSource /account:***AccountName* **/SQLInstance:***ServerName* **/DatabaseName:***DatabaseName* • For more information, see Accounts Command [59].
13 Change Server IDs □ - Done	• **This is very important step for the cloning scenario.** Since the both production and cloned environment will be running concurrently and may be accessed by the same clients, you need to change the internal IDs of the cloned TFS so that they do not duplicate the original environment. To do this, run **TfsConfig ChangeServerID** command as described in ChangeServerID Command [60]

[59] http://msdn.microsoft.com/en-us/library/ms253107.aspx

[60] http://msdn.microsoft.com/en-us/library/ee349259.aspx

Step	Instructions
	• Log on to the new application-tier server for Team Foundation, open a Command Prompt window (Run as administrator if UAC enabled), and change directories to *Drive*:\%programfiles%\Microsoft Team Foundation Server 2010\Tools. • Run the following command where *ServerName* is SQL Server Instance name and *DatabaseName* is the name of the configuration database (by default, Tfs_Configuration): **TFSConfig ChangeServerID /SQLInstance:***ServerName* **/DatabaseName:***Tfs_Configuration*
14 Configure the Application Tier on the New Hardware □ - Done	• After you prepare the servers for your TFS application and data tiers, you must configure the application tier on the new server using the Application-Tier Only Wizard. • To configure a server as the Application Tier server open the administration console, and restart the application-tier only wizard. For more information and step-by-step procedures follow the Team Foundation Installation Guide**: How to: Configure Team Foundation Server Using the Application-Tier Only Configuration.**
15 Update the URL for the Application Tier Server □ - Done	• You need to update the URL for the new application tier server in the administration console: • On the new application tier server open the administration console for Team Foundation. For more information, see Open the Team Foundation Administration Console [61] • In the navigation bar, click **Application Tier**, and then click **Change URLs**. The **Change URLs** window opens. • In **Notification URL**, type the URL for the new application-tier server, and then click **OK**. NOTE If for any reason Server URL (should be localhost) is pointing to the production server or production NLB URL, change it to the corresponding value, too. • Under **Application Tiers** you may still see production application tier without any option to remove it but this isn't an issue because it will never connect to the cloned database.
16 Configure SharePoint Products □ - Done	• As part of cloning to a new server, you must install and configure the extensions for SharePoint Products on your new SharePoint server. You must also reconfigure the settings for the SharePoint Web applications that the deployment uses so that it does not point anymore to the production environment but to its cloned equivalent. • To install extensions and configure the settings for SharePoint Web applications: • Open the Team Foundation Installation Guide, and follow the instructions to install and configure the TFS Extensions for SharePoint Products on the server. For more information, see Extensions for SharePoint Products [62]: • **Scenario: Installing TFS Using Existing Infrastructure or More than One Server** ○ **Using an Existing Infrastructure for Prerequisites** ▪ **Extending Existing Deployments** • **How to: Install TFS Extensions for SharePoint Products –** unless you installed it already in **Configure the Application Tier on the New Hardware**, on page 40. • **How to: Configure TFS Extensions for SharePoint Products** • You need to apply as well any Service Packs and hotfixes needed to match the production Team Foundation version on the server where TFS Extensions for SharePoint are installed. • On the new application tier server open the administration console for Team Foundation. • In the navigation bar, click **SharePoint Web Applications**. • In the **SharePoint Web Applications** list, click the Web application on the production server that has been cloned, and then click **Change**. • In **Friendly Name**, **Web Application URL** and **Central Administration URL**, change the values to reflect the URLs on the new server. If necessary, change the value of **Default location for team project collection sites** to the new default location for this Web application. Click **OK**. • Check the SharePoint Team Portals in a web browser and if not working properly, run **Repair Connection** from **SharePoint Web Applications** section in Team Foundation Administration Console.

[61] http://msdn.microsoft.com/en-us/library/dd273718.aspx

[62] http://msdn.microsoft.com/en-us/library/dd631915.aspx

Step	Instructions
	• If TFS is on a different server than SharePoint Products, you must also configure access to TFS by opening the administration console that is on the server that is running SharePoint Products and expanding the Extensions node. For more information about how to configure SharePoint Web applications as part of your deployment, see Add a SharePoint Web Application to Your Deployment [63] and Interactions Between SharePoint Products and TFS [64]. • If your deployment topology and security requirements allow it, add the service account for Team Foundation (TFSService) to the **Farm Administrators** group. For more information, see Interactions Between SharePoint Products and TFS [65] and Service Accounts and Dependencies in TFS [66].
17 Configure Reporting and SQL Server Analysis Services ☐ - Done	• Make sure that the new TFS installation does not point back to the production Reporting Services or Analysis Services instances. • You can skip this procedure if you are not using a server that is running SQL Server Reporting Services as part of your deployment. If your deployment uses a report server, you must redirect TFS to its location, restart the warehouse, and manually rebuild the database for Analysis Services. • To configure the settings for Reporting: • Open the administration console for Team Foundation. • In the navigation bar, click **Reporting**. • On the **Reporting** page, click **Edit**. • In the **Take Offline** dialog box, click **OK**. The **Reporting** dialog box opens. • Select the **Use Report Server** check box. • Click the **Warehouse** tab, and, in **Server**, type or click the new name of the report server. • In **Database**, type the name of the warehouse database for TFS. By default, this database is named Tfs_Warehouse. • (Optional) Click **Test Connection** to make sure that the database that you specified is valid. • Click the **Analysis Services** tab. • In the **Server** list, type or click the name of the new server that is running SQL Server Analysis Services. • In **Database**, type the name of the Analysis Services database for TFS. By default, the name of this database is Tfs_Analysis. • If you are not using the default instance for the database, select the **Specify nondefault instance** check box, and then type or click the name of the instance. • (Optional) Click **Test Connection** to make sure that the database that you specified is valid. • In **Username** and **Password**, type the account name and password (if any) for the data sources account (TFSReports). • On the **Reports** tab, in the **Server** list, type or click the name of the new report server, and then click **Populate URLs**. • In **Username** and **Password**, type the account name and password (if any) for the data sources account (TFSReports). • In **Default Path**, type the relative path for storing reports, and then click **OK**. • In the Team Foundation Administration console, click **Start Jobs** to restart reporting. • Open a Command Prompt window, and change directories to %ProgramFiles%\Microsoft Team Foundation Server 2010\Tools. • Type the following command to rebuild the database for Analysis Services: **TFSConfig RebuildWarehouse /AnalysisServices /ReportingDataSourcePassword:***Password* *Password* is the password for the data sources account for Reporting Services (TFSReports). Wait until the command is successfully completed. • The warehouse will start processing within a few minutes. Analysis Services processing is by default scheduled to run every 2 hours. If you need to accelerate this you can: • On application tier open warehouse control web service in a web browser: http://localhost:8080/tfs/TeamFoundation/Administration/v3.0/WarehouseControlService.asmx

[63] http://msdn.microsoft.com/en-us/library/dd236907.aspx

[64] http://msdn.microsoft.com/en-us/library/ms253177.aspx

[65] http://msdn.microsoft.com/en-us/library/ms253177.aspx

[66] http://msdn.microsoft.com/en-us/library/ms253149.aspx

Step	Instructions
	• Run **ProcessWarehouse** with empty parameters. • Run **GetProcessingStatus** with empty parameters periodically until all Warehouse Sync jobs finished with status Succeeded. • Run **ProcessAnalysisDatabase** with parameter **Full**. • Run **GetProcessingStatus** with empty parameters periodically until Full Analysis Database Sync job finished with status Succeeded.
18 Configure Project Server Integration □ - Done	• Another external system you may integrate with TFS is Project Server. In such case for isolating cloned installation of the Project Server or at least dedicated Web Application may be required. This isn't covered here. • You can skip this procedure if the deployment that you are moving isn't integrated with Microsoft Project Server. For more information, see Microsoft TFS 2010 and Microsoft Project Server Integration Feature Pack [67]. • If you intend to continue the integration between the projects and collections and cloned Project Server, you must register the instance of Project Web Access or Project Web App (PWA) with the application-tier server for your moved deployment. • To integrate the moved deployment with Project Server: • Register an instance of cloned Project Web Access or Project Web App with the moved deployment of TFS by using the **TFSAdmin ProjectServer /RegisterPWA** command with the **/tfs**, **/force**, and **/pwa** options. After you have registered the instance, you must wait for the data to synchronize. This process happens automatically on a predetermined schedule. For more information, see Overview of the Synchronization Process for TFS and Project Server Integration [68], Changing the Configuration of Your Deployment [69], Registering an Instance of PWA to TFS [70], and Removing a Component from Participating in Data Synchronization [71].
19 Clone Build servers □ - Done	• The production build server farm can be as simple as a single server or as complex as having hundreds of them. Unless having a particular performance or configuration concern, you probably do not need to clone all of them for Team Foundation Upgrade testing. It may be enough to pick up one or more servers with the most typical configuration. • Before you start running the builds in the cloned environment – and this can be as soon as a build server is available for scheduled builds - you need to update all build definitions to avoid accessing production environment especially regarding: • **Drop location** – build numbers won't be unique which may result in conflicts and overwritten outputs. • **Symbol Servers** – access to the symbol server won't be synchronized and can result in conflicts. • **Custom deployment actions** – different types of conflicts possible, broken testing environments etc. • Depending on the number of build definitions this can be achieved either manually or by using the Team Foundation API. • Follow the steps in Team System Installation Guide to install and configure your build service: • **Scenario: Installing Team Foundation Build Service – when configuring the original production server will be found** – select option **Replace an existing build machine** • You need to apply as well any Service Packs and hotfixes needed to match the production Team Build service version. NOTE Additional software may be required depending on your application build process specific requirements. Typically, you install Visual Studio, custom or third party MSBuild extensions and other products supporting building and deploying various aspects of the software solutions.
20 Clone Team Foundation Proxy servers □ - Done	• In your production environment, one or more TFS Proxy servers can be used. Unless you have a particular performance or configuration concern, you probably do not need to clone all of them for Team Foundation Upgrade testing. It may be enough to only pick up one or more of them. • Follow the steps in Team System Installation Guide to install and configure your build service: • **Scenario: Installing TFS Proxy**

[67] http://msdn.microsoft.com/en-us/library/gg455680.aspx

[68] http://msdn.microsoft.com/en-us/library/gg412649.aspx

[69] http://msdn.microsoft.com/en-us/library/gg636820.aspx

[70] http://msdn.microsoft.com/en-us/library/gg412639.aspx

[71] http://msdn.microsoft.com/en-us/library/gg412644.aspx

Step	Instructions
	• You also need to apply any Service Packs and hotfixes needed to match the production Team Foundation Proxy version. NOTE If you configured your production proxy for a specific Version Control cache location you may need to do that in the cloned system as well during the configuration.
21 Configure Team Explorer ☐ - Done	• If you registered your proxies for automatic configuration based on user domain site you may need to configure it for your cloned environment as well using tf.exe proxy command
22 Verify Permissions for Users, Groups, and Service Accounts ☐ - Done	• After you clone your environment, make sure that all users, groups, and service accounts for your deployment are configured with the permissions that they require to function correctly on each server. • Depending on the purpose of the cloning you do not necessarily need complete permission setup equal to production. Usually only service accounts and users who will be accessing the cloned environment (testing the upgrade for example) which often is only a small subset of the production users will need the permissions. In some cases, it may even be desirable for the other users to not be able to connect to the cloned environment so that they cannot interfere with the testing. Nevertheless, if your goal is to have an environment as equal as possible to production, or if you want to involve a larger part of your production users in testing, you need to take care of this task completely. • Because most permission settings are saved in the product's databases, they are automatically cloned but some permissions cannot be automatically migrated. For example, Team Foundation administrators must be members of the local **Administrators** group on the application-tier server to open the administration console, so you must add them manually to that group. SharePoint farm level and SQL Server or Analysis Services server level permissions are not migrated by database migration. • To verify permissions: • Log on to all new servers and make sure local **Administrators** group contains the same users and groups like the corresponding servers in production. • On the new Application Tier, server run the **Team Foundation Administration Console** and in the **Application Tier** section under **Administration Console Users** for each listed user run **Reapply** • With **SQL Server Management Studio** connect to all the new SQL server instances, go to **Security** – **Logins** and **Server Roles** and make sure they contain same users like on the corresponding production SQL Servers • With **SQL Server Management Studio** connect to the new Analysis Services instance ○ Go to the Instance **Properties** - **Security** and make sure **Server Administrators** contain same users like on the corresponding production Analysis services ○ For the Tfs_Analysis database go to **Roles** under this database and make sure they contain the same users like production Analysis database • Run **SharePoint Central Administration** on the new SharePoint server and check the same users that are in production are also configured in: ○ **Operations** - **Security Configuration** - **Update farm administrator's group** ○ **Application Management** - **Application Security** - **Policy for Web application** ○ **Application Management** - **SharePoint Site Management** - **Collection Administrators** • For more information, see Add Users to Team Projects [72], Set Administrator Permissions for Team Project Collections [73], Set Administrator Permissions for TFS [74], and Service Accounts and Dependencies in TFS [75].
23 Client Configuration ☐ - Done	• Thanks to **Change Server IDs** the production and cloned TFSs will appear to the clients as two independent environments. They can just add the cloned environment as an additional TFS. • The only issue is that the production and cloned environments will overlap with their Version Control workspace mappings and the key users can accessing both these environment for validate the cloned environment, the clients will have to update the mappings for one of them – most probably the cloned one. • This can be done manually on the client machine:

[72] http://msdn.microsoft.com/en-us/library/bb558971.aspx

[73] http://msdn.microsoft.com/en-us/library/dd547204.aspx

[74] http://msdn.microsoft.com/en-us/library/bb552341.aspx

[75] http://msdn.microsoft.com/en-us/library/ms253149.aspx

Step	Instructions
	• Open Visual Studio and connect to TFS – menu **Team** – **Connect To Team Foundation Server** • Open **Manage Workspaces** dialog from menu **File** – **Source Control – Workspaces** • For each workspace in the list click **Edit** and: ○ For each **Working folder** change the **Local Folder** to a new location that does not overlap with any other Team Foundation environment. • Click **OK**, then **Close** • The other option, which is more suitable for larger number of users, would be to prepare this for all the possible users using Team Foundation API but this would require that there are some conventions in client folder structures that would allow you to specify the correct local folder locations for all the users. • Another option would be to completely delete all workspaces using tf.exe, the Team Foundation API, or third party tools (Attrice [76] for example) and let the users accessing the cloned environment recreate them at new locations. This may have a drawback that it can significantly reduce the size of the TFS databases and provide incorrect results when testing the upgrade especially regarding the length of the operation.
24 Additional Steps □ - Done	• Depending on how you configured and customized your production environment and which of these features you want to clone, some additional steps may be required. These are some examples: • Clone SCVMM server and Lab Management environments • Close Test Controllers and Agents used by your environment • Configuring backups of the cloned databases – this may or may not be necessary depending on the importance of the cloned environment • TFS Power Tools installation and possible Backup configuration • Custom TFS controls for handling events in the environment (placed in *Drive*:\%ProgramFiles%\Microsoft Team Foundation Server 2010\Application Tier\Web Services\bin\Plugins) • Custom Team Foundation Alerts SOAP Handlers ○ If you want to use them you need to clone them as well – usually these are Web or WCF services. WARNING 1. In any case you must reconfigure (or remove) the subscriptions otherwise cloned TFS may call these handlers in production! 2. You must reconfigure (or remove) the subscriptions otherwise cloned TFS may call these handlers in production! • Team Foundation Alerts Email Subscriptions – if you do not want that the production users receive notification emails from the cloned system you need to remove the subscriptions or disable Email Alerts in Team Foundation administration Console • Cloning custom or third party application and tools that use TFS if you want to test how they work with an upgraded environment – TFS Integration Tools, etc. • You may need to install additional client tools for testing the upgrade in the cloned environment to see how they work after upgrade like custom check-in policies, custom work item fields • May want to practice upgrading process templates. We have special docs now that outline the upgrade paths that will require an update: Learn more about new features [77], Configure features after a TFS upgrade [78]

Table 18 – Walkthrough: Clone TFS 2012 to test in-place upgrade

[76] http://www.attrice.info/cm/tfs/index.htm

[77] http://msdn.microsoft.com/en-us/library/vstudio/jj635155.aspx

[78] http://msdn.microsoft.com/en-us/library/vstudio/ff432837.aspx

Move TFS Collection to TFS 2013 using TFSConfig /Attach

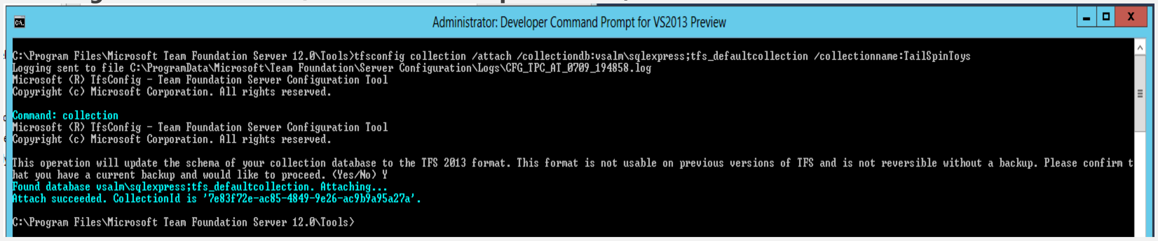
Context	This is a typical scenario for moving and upgrading a TFS 201x Team project Collection to an existing TFS 2013 farm. This scenario is useful when only some project collections of an existing farm are ready to upgrade to TFS 2013 and others wish to continue on the existing farm. **This method is NOT encouraged for users who are ready to upgrade all TPCs of the existing farm**, since the Detach / Attach operations have to do lots of additional work beyond upgrade and have proved less reliable. When issues occur in the Detach / Attach operations they are typically related to *users* and *group memberships* or to *permissions*.
Version	TFS 20**10** → TFS 20**13** TFS 20**12** → TFS 20**13**
Persona	**Dave**, the TFS Administrator, performs the TFS upgrade, and **Jane**, the Infrastructure Specialist, who owns access to environment impacted by upgrade.

Table 19 – Move TFS Collection to TFS 2013 using TFSConfig /Attach

Preparation

TFS 2013 environment needs to be up and running.

Walkthrough

Step	Instructions
1 Prepare □ - Done	• Detach the TFS TPC The TPC can be detached either from TFS Administration Console or by using the TFSConfig Collection /detach [79] command. • Backup the TPC database using SQL. Refer Backing and Restoring SQL Database [80] for more information. See Migration Based Upgrade on page 23 for more details on the backup and restore. • Restore TPC database to TFS 2013 data tier NOTE: As an alternative you can as well detach, copy and reattach the database. See Move a Team Project Collection [81] for more information. You would want this alternative if you still want to use this collection in your old deployment (for example, you want to keep it around for servicing purposes, or you're forking a project and keeping one team on the old version).
2 Attach collection □ - Done	• To upgrade and attach the restored collection, execute the following steps: ○ Open Command prompt and navigate to the location of **TFSConfig.exe** (default location %programfiles%\Microsoft Team Foundation Server 12.0\Tools) ○ Run the following command to attach the TPC ○ **tfsconfig collection attach /collectionDB:<sqlInstance>;<databaseName>**  • See the TFSConfig Collection Commands [82]for more information.

Administrator: Developer Command Prompt for VS2013 Preview

```
C:\Program Files\Microsoft Team Foundation Server 12.0\Tools>tfsconfig collection /attach /collectiondb:vsalm\sqlexpress;tfs_defaultcollection /collectionname:TailSpinToys
Logging sent to file C:\ProgramData\Microsoft\Team Foundation\Server Configuration\Logs\CFG_TPC_AT_0709_194858.log
Microsoft (R) TfsConfig - Team Foundation Server Configuration Tool
Copyright (c) Microsoft Corporation. All rights reserved.

Command: collection
Microsoft (R) TfsConfig - Team Foundation Server Configuration Tool
Copyright (c) Microsoft Corporation. All rights reserved.

This operation will update the schema of your collection database to the TFS 2013 format. This format is not usable on previous versions of TFS and is not reversible without a backup. Please confirm t
hat you have a current backup and would like to proceed. (Yes/No) Y
Found database vsalm\sqlexpress;tfs_defaultcollection. Attaching...
Attach succeeded. CollectionId is '7e83f72e-ac85-4849-9e26-ac9b9a95a27a'.

C:\Program Files\Microsoft Team Foundation Server 12.0\Tools>
```

[79] http://msdn.microsoft.com/en-us/library/ee349263%28v=vs.120%29.aspx

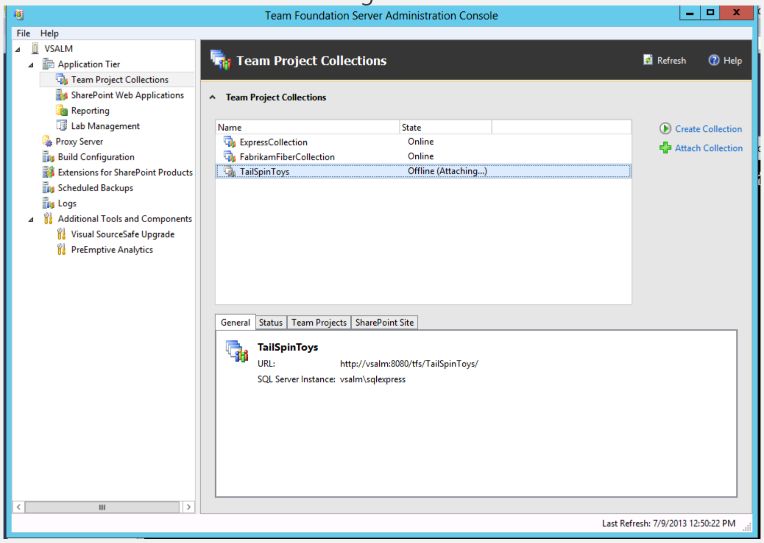
[80] http://msdn.microsoft.com/en-us/library/ms187048(v=sql.105).aspx

[81] http://msdn.microsoft.com/en-us/library/vstudio/dd936138.aspx

[82] http://msdn.microsoft.com/en-us/library/ee349263%28v=vs.120%29.aspx

<table>
<tr><th>Step</th><th>Instructions</th></tr>
<tr><td></td><td>

- While the command line is attaching and upgrading the collection, the TFS Administration Console will also indicate that the collection is being serviced.



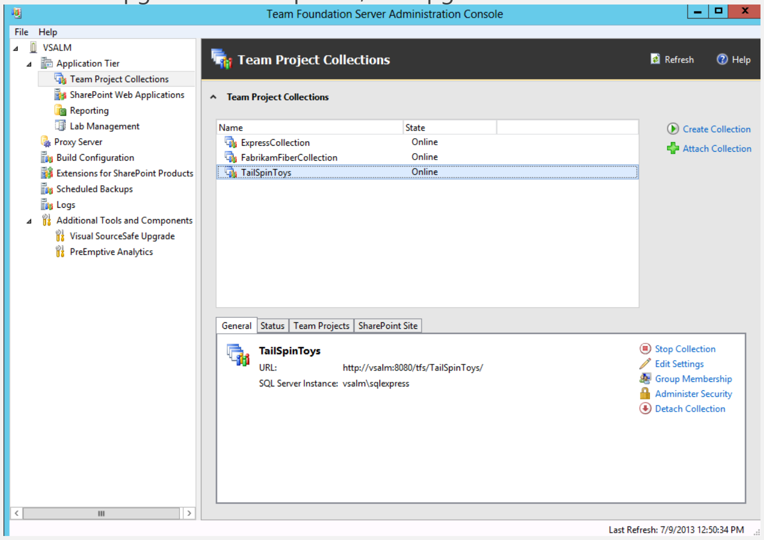
Team Project Collections

Name	State
ExpressCollection	Online
FabrikamFiberCollection	Online
TailSpinToys	Offline (Attaching...)

TailSpinToys
URL: http://vsalm:8080/tfs/TailSpinToys/
SQL Server Instance: vsalm\sqlexpress

Last Refresh: 7/9/2013 12:50:22 PM

- Once the Upgrade has completed, the upgraded TPC will be available for use.



Team Project Collections

Name	State
ExpressCollection	Online
FabrikamFiberCollection	Online
TailSpinToys	Online

TailSpinToys
URL: http://vsalm:8080/tfs/TailSpinToys/
SQL Server Instance: vsalm\sqlexpress

Last Refresh: 7/9/2013 12:50:34 PM

</td></tr>
<tr><td>3
Adjust Report settings
□ - Done</td><td>

- Post upgrade, the TFS reports are **not** moved to the new farm.
  The reports have to be manually moved to the new report server and the connection string have to be updated to point to the new TFS Data Source.
- To move reports:
  - Upload each report that you want to move to the appropriate folder in Report Manager .The following link provides more information: Uploading Files to a Folder [83].
  - In Report Manager, edit each report to change the data source to the new report server. The following link provides more information How to: Configure Data Source Properties for a Report [84].

</td></tr>
<tr><td>4
Adjust SharePoint settings
□ - Done</td><td>

- To integrate SharePoint with the new TPC, first follow the steps mentioned in the section **Upgrade SharePoint**, page 48, to upgrade the existing SharePoint farm to work with TFS 2013.
- If the original SharePoint Farm isn't supported by TFS 2013, you will have to move the content of the SharePoint collection to a new farm, which TFS 2013 supports.

</td></tr>
</table>

[83] http://go.microsoft.com/fwlink/?LinkID=177729

[84] http://go.microsoft.com/fwlink/?LinkID=177730

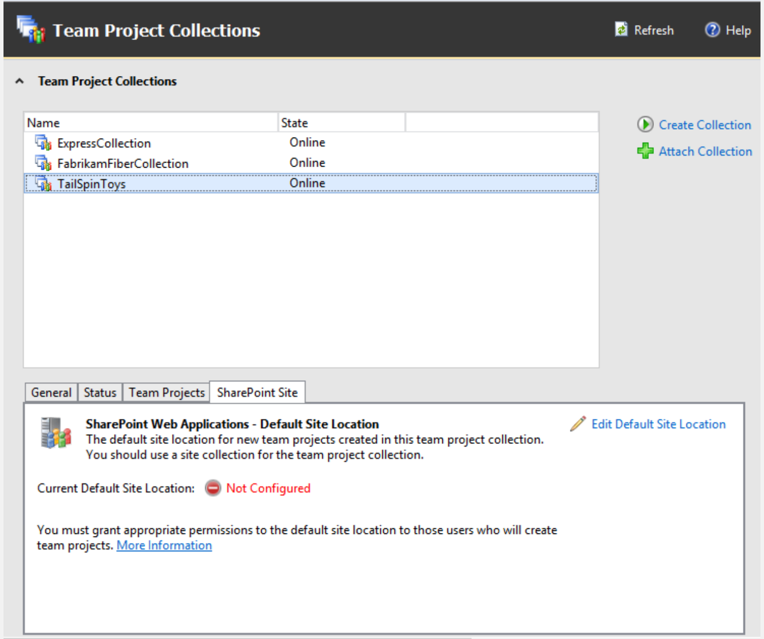
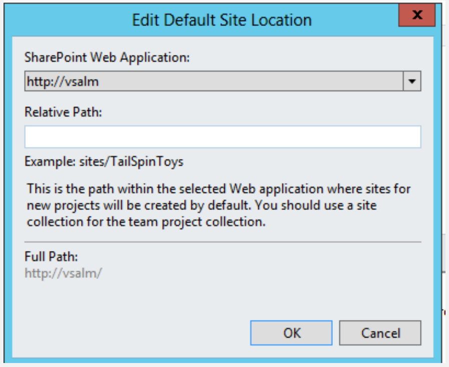
Step	Instructions
	• Once the SharePoint farm has been upgraded and the contents of the site collections are available, navigate to the TFS Administration Console and select the newly Upgrade TPC and click on the **SharePoint Site** Tab.  Team Project Collections Refresh Help Team Project Collections Create Collection Attach Collection General Status Team Projects SharePoint Site Edit Default Site Location Name — State ExpressCollection — Online FabrikamFiberCollection — Online TailSpinToys — Online **SharePoint Web Applications - Default Site Location** The default site location for new team projects created in this team project collection. You should use a site collection for the team project collection. Current Default Site Location: Not Configured You must grant appropriate permissions to the default site location to those users who will create team projects. More Information • On the **SharePoint Site** tab, select **Edit Default Site Location.** In the resulting dialog box, select the **SharePoint Web Application Name** from the drop-down list. Enter the **Relative Path** of the site collection and click **OK**.  SharePoint Web Application: http://vsalm Relative Path: Example: sites/TailSpinToys This is the path within the selected Web application where sites for new projects will be created by default. You should use a site collection for the team project collection. Full Path: http://vsalm/

Table 20 – Walkthrough: Move TFS Collection to TFS 2013 using TFSConfig /Attach

Upgrade SharePoint

Context	This is a typical scenario for upgrading SharePoint Foundation 2010 to SharePoint Foundation 2013 with TFS 2013.
Version	TFS 20**10** → TFS 20**13** TFS 20**12** → TFS 20**13**
Persona	**Dave**, the TFS Administrator, performs the TFS upgrade. **Jane**, the Infrastructure Specialist, owns and fine-tunes the environment impacted by the upgrade.

Table 21 – Upgrade SharePoint

Preparation

TFS 2013 environment needs to be up and running. SharePoint Foundation 2013 environment needs to be up and running. Refer to Upgrade to SharePoint 2013 [85] for information on upgrading your existing SharePoint 2010 environment.

Walkthrough

To upgrade from SharePoint 2010 Products to SharePoint 2013, you use the database-attach method. In the database-attach method, you first create and configure a SharePoint 2013 farm. Then you copy the content and service application databases from the TFS 201x SharePoint 2010 farm. Next, attach and upgrade the databases. This upgrades the data to the new version. Finally, upgrade the required TFS 201x site collections.

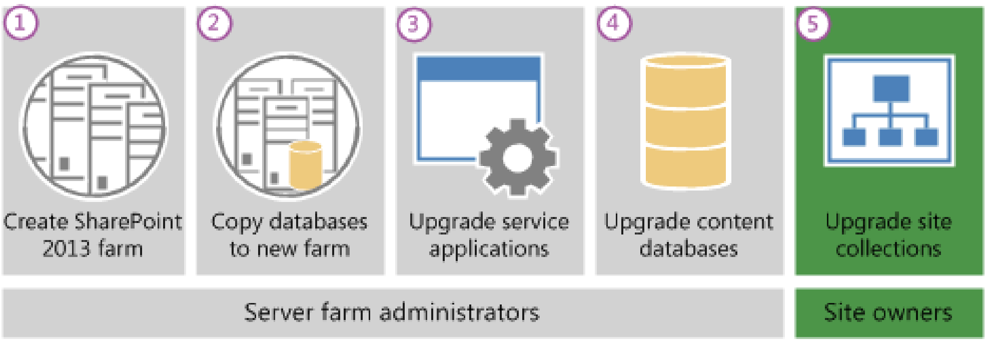

1
Create SharePoint 2013 farm
2
Copy databases to new farm
3
Upgrade service applications
4
Upgrade content databases
5
Upgrade site collections
Server farm administrators
Site owners

Figure 2 - The sequence of upgrade stages [86]

Step	Instructions
1 Prepare □ - Done	• SharePoint server farm administrator installs SharePoint 2013 to a new farm. See Create the SharePoint 2013 farm for a database attach upgrade [87] for detailed information on this step. The administrator configures farm settings and tests the environment. • **Recommended:** You can use **Team Foundation Server extensions for SharePoint Products** configuration wizard to install SharePoint Foundation 2013 on a different server from the one running Team Foundation Server. See SharePoint Products requirements for Team Foundation Server [88] and How to: Set up remote SharePoint Products for Team Foundation Server [89] for information on configuring SharePoint 2013 for TFS using the **Team Foundation Server extensions for SharePoint Products.**

[85] http://technet.microsoft.com/en-us/library/cc303420

[86] http://technet.microsoft.com/en-us/library/cc262483(v=office.15)

[87] http://technet.microsoft.com/en-us/library/cc263026.aspx

[88] http://msdn.microsoft.com/en-us/library/vstudio/hh667648.aspx

[89] http://msdn.microsoft.com/en-us/library/vstudio/hh548140.aspx

Step	Instructions
2 Backup, Copy, Restore SharePoint 2010 databases □ - Done	• SharePoint server farm administrator backs up the content and service application databases from the SQL Server instance on the SharePoint 2010 farm. See Copy databases to the new farm for upgrade to SharePoint 2013 [90] for detailed information on performing this step. • SharePoint server farm administrator restores a copy of the databases to the SQL Server instance on the SharePoint 2013 farm and sets the databases to read-write on the new farm. See Copy databases to the new farm for upgrade to SharePoint 2013 [91] for detailed information on performing this step.
3 Upgrade SharePoint 2010 databases and service apps □ - Done	When you upgrade from SharePoint 2010 Products to SharePoint 2013, you must use a database attach upgrade, which means that you upgrade only the content for your environment and not the configuration settings. After you have configured the SharePoint 2013 environment, and copied the content and service application databases, you can upgrade the service applications to SharePoint 2013. • SharePoint farm administrator configures the service applications for the new 2103 farm. The following service applications have databases that you can upgrade during this process: ○ SharePoint Server 2010 and SharePoint Foundation 2010 ▪ Business Data Connectivity service application ○ SharePoint Server 2010 only ▪ Managed Metadata service application ▪ PerformancePoint Services service application ▪ Search service application ▪ Secure Store Service application See Upgrade service applications to SharePoint 2013 [92] for detailed information on performing this step. • SharePoint farm administrator creates a web application on the SharePoint 2013 farm for each TFS web application on the SharePoint 2010 farm. Use the same URLs and port numbers.
4 Upgrade content databases to SharePoint 2013 □ - Done	After you have configured the SharePoint 2013 environment, copied the content and service application databases, and upgraded the service applications, you can attach and upgrade the content databases to SharePoint 2013. **Before you attach and upgrade the content databases, review the following information and take any recommended actions.** • Make sure that the account that you use to attach the databases is a member of the db_owner fixed database role for the content databases that you want to upgrade. • Make sure that the account that you use to create web applications is a member of the Farm administrators group in Central Administration. **Create a web application for each web application that existed in the SharePoint 2010 Products environment. For each web application, do the following:** • Use the same URL (including name, port, and host header) and configure alternate-access mapping settings. *If you use a different URL, Microsoft Office applications might not be redirected correctly to the new URLs and all bookmarks to the old URLs will not work.* • Use the same authentication method. • Recreate included paths. • Recreate quota templates. • Configure email settings for the web application. For more information, see Configure email integration for a SharePoint 2013 farm [93] • Enable self-service site creation for any web application that used it in the previous environment. Recreate any self-service site creation settings. • Recreate any web application policies or other web application settings that you had configured in the previous environment.

[90] http://technet.microsoft.com/en-us/library/jj839720.aspx

[91] http://technet.microsoft.com/en-us/library/jj839720.aspx

[92] http://technet.microsoft.com/en-us/library/jj839719.aspx

[93] http://technet.microsoft.com/en-us/library/ee956941.aspx

Step	Instructions
	• Optional: Create the managed path for the My Sites (/personal) on the web application that hosts My Sites. My Sites are available in **SharePoint Server** only. **Reapply Customizations:** • One frequent cause of failures during upgrade is that the new environment does not have customized features, solutions, or other elements. Make sure that all custom elements from the SharePoint 2010 Products environment are installed on your front-end web servers before you upgrade any content databases. For more information about how to update customizations for use in SharePoint 2013, see Redeploying Customizations and Solutions in SharePoint Foundation 2010 and SharePoint Server 2010 [94]. For more information about how to deploy customizations to your environment, see Install and manage solutions for SharePoint 2013 [95]. **Verify Custom Components:** • To make sure that you have identified all custom components for your environment, use the **Stsadm -o enumallwebs** operation in the SharePoint 2010 Products environment and use the **includefeatures** and **includewebparts** parameters. For more information, see Enumallwebs: Stsadm operation (Office SharePoint Server) [96] and Clean up an environment before an upgrade to SharePoint 2013 [97]. **Attach a content database to a web application and upgrade the database:** • When you attach a content database, you upgrade the database and add the site collections in that database to the web application that you specify. However, for SharePoint 2013, the process does not upgrade the site collections. • By default, when you created the web applications in the new SharePoint 2013 environment, a content database was created for each web application. You can ignore these default databases until after you have attached your SharePoint 2010 Products databases, and then you can delete the default databases. • You must use the **Mount-SPContentDatabase** cmdlet to attach a content database to a web application. Using the SharePoint Central Administration pages to attach a content database is not supported for upgrading. Ensure that the account that you use to attach the databases is a member of the **db_owner** fixed database role for the content databases that you want to upgrade. **Verify upgrade for upgraded databases:** • After you attach a database, you can use the **Upgrade Status** page in Central Administration to check the status of upgrade on your databases. After the upgrade process is complete, you can review the upgrade log file to see whether upgrade produced issues. See Verify database upgrades in SharePoint 2013 [98] for more information [99]. **Attach remaining databases and verify uprade:** • After you restore the first content database and verify success, you can continue to restore and upgrade other databases. You can then verify the upgrade for those databases as well. See Verify database upgrades in SharePoint 2013 [100] for more information [101]. **Connect new SharePoint 2013 farm to Team Foundation Server 2013 environment:** • If you used the **Team Foundation Server SharePoint Extensions Configuration wizard** to install the new SharePoint 2013 farm, it should have configured the SharePoint 2013 web application that is used by TFS 2013. If using SharePoint 2013 Enterprise server, you can also configure the Enterprise Application Definition during this step. See Configure the enterprise application definition for Team Foundation Server [102] for more information.

[94] http://msdn.microsoft.com/library/ee662217.aspx

[95] http://technet.microsoft.com/en-us/library/cc263299.aspx

[96] http://technet.microsoft.com/library/dd789634(v=office.12).aspx

[97] http://technet.microsoft.com/en-us/library/cc263299.aspx

[98] http://technet.microsoft.com/en-us/library/cc424972.aspx

[99] http://technet.microsoft.com/en-us/library/cc263299.aspx

[100] http://technet.microsoft.com/en-us/library/cc424972.aspx

[101] http://technet.microsoft.com/en-us/library/cc263299.aspx

[102] http://msdn.microsoft.com/en-us/library/vstudio/ee126232.aspx

Step	Instructions
	You can refer to SharePoint Products requirements for Team Foundation Server [103] and How to: Set up remote SharePoint Products for Team Foundation Server [104] for information on configuring SharePoint 2013 for TFS using the **Team Foundation Server extensions for SharePoint Products.** **Add SharePoint Web application as a default root for project administrators to create Team Portals:** • Open the administration console for Team Foundation. • For more information, see Open the Team Foundation Administration Console [105]. • Expand the name of the server, expand Application Tier, and then choose Team Project Collections. • In the Team Project Collections list, choose the collection from the list for which you want to add a web application and a default location where team project portals will be created. • On the SharePoint Site tab, choose Edit Default Site Location. • The Edit Default Site Location window appears. • In the SharePoint Web Application list, choose an application. • In Relative Path, specify the relative path of the location where sites and sub-sites will be created on the web application for this collection. • If the site does not exist, a SharePoint Site dialog will appear asking you to confirm creation of a site. Choose Yes. • In Full Path, review the information, and then choose OK if it is correct.

Table 22 – Upgrade SharePoint checklist

[103] http://msdn.microsoft.com/en-us/library/vstudio/hh667648.aspx

[104] http://msdn.microsoft.com/en-us/library/vstudio/hh548140.aspx

[105] http://msdn.microsoft.com/en-us/library/dd273718(v=vs.110).aspx

Chapter 5: Post-Upgrade Checklist

Context	When the upgrade is finished, you have to check everything works as expected/wanted.
Personas	**Dave**, the TFS Administrator, performed the TFS upgrade, **Garry**, the Dev Lead, is one of the core users of the environment and **Jane**, the Infrastructure Specialist, owns access to environment impacted by the upgrade.

Verifications

Environment Verification

After the upgrade is completed, the first step is to check the environment to make sure that these services are up and running: Services from The Data Tier as well as from the Application Tier, Test and Build Controller and Lab Management.

Operations Verification

You may notice that the Operations verification may overlap with some of the environment verification processes. Therefore, if you can connect from a supported client (Team Explorer, Visual Studio, Web access, Excel, SharePoint, etc.,) to your upgraded TFS Instance, that is an indication that most of your services are up and running. For other validations, such as SharePoint or Reporting Services, you would need to ensure that they do not point to the old environments. In addition, the old environment should be in quiesced or offline at this point.

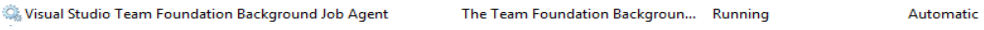
Checklists

NOTE

In case the warehouse rebuild was part of the upgrade, you may not have the reports and TFS Cube working correctly for a while.
You can skip the related validations and return to them later when TFS is operational.

Server side validations

Application Tier

Step	Instructions
1 Windows Services □ - Done	At the Run prompt, open **Services.msc** to open the **Services MMC** and verify that the following services are in **Running** state as shown in figure below.  Visual Studio Team Foundation Background Job Agent The Team Foundation Backgroun... Running Automatic Verify the following TFS services are running: • Visual Studio Lab Agent Service • Visual Studio Lab Network Agent Service • Visual Studio Team Foundation Background Job Agent • Visual Studio Team Foundation Build Host 2012 • Visual Studio Test Controller
2 Event Logs □ - Done	Run **eventvwr** from the Run Command and review Application and System Event Logs for any possible errors.
3 IIS Management Console	Verify that the following TFS Web sites are started: • Team Foundation Server

Step	Instructions
□ - Done	
4 TFS BPA □ - Done	You can download the Microsoft Visual Studio TFS 2013 Power Tools from here [106]. Run the TFS Best Practice Analyzer (**tfsbpa.exe**) and verify and mitigate any errors and warnings. Be aware that some warnings will appear if you do not have certain components installed such as Test Controller might be false positive or might not apply to your environment. • Verify that the deployment for Team Foundation Server is configured according to recommended best practices • Identify the source of problems in an unhealthy deployment • Take a snapshot of the configuration of a deployment and compare it to the old snapshot of the pre-upgrade • Obtain usage data about the volume of data stored or accessed in the past 14 days. Includes specific information about database tables that have a tendency to grow and that may need to be reduced in size.
5 TFS Admin Console □ - Done	Verify that the TFS admin console can be opened. Opening the admin console successfully provides some basic assurance that the installation or upgrade ran smoothly. Run **TFS admin console** and verify the following: • Verify all URLs, connection strings and settings for all components are accurate • Verify all project collections that they are attached, enabled and pointing to the right SharePoint and Reporting Services locations • Analyze TFS logs and look for any errors coming from the upgrade process.
6 Team Web Access □ - Done	You can run Team Web Access from Visual Studio or from the following URL: and browse thru each team projects, backlogs, code and work items. **http:// <ServerName>:::8080/tfs/DemoCollection/CmmiTeamProjectDemo**
7 TFS Web Services □ - Done	You can run TFS Web Services from a browser to verify some of the TFS components: • To check the warehouse status, access the URL: **http://<ServerName>::8080/tfs/TeamFoundation/Administration/v3.0/WarehouseControlService.asmx?op=GetProcessingStatus**.
8 TFS Admin Interface □ - Done	• Access additional monitoring tools via Web Access to view Activity Log and Job Monitoring. Launch the link **http://your-server:8080/tfs/_oi** and navigate to "Job Monitoring". • Verify that all the jobs are running correctly. • Review the "Job History" tab and verify if any Jobs have failed.

Table 23 - Server side application tier validation

Data Tier

Step	Instructions
1 SQL Config Manager □ - Done	• Verify the following TFS services are running: o SQL Server o SQL Server Analysis Service o Agent and Browser Service • Verify that the required protocols are enabled. For more info please see Ports Required for Installation of Team Foundation Server [107]
2 Event Logs □ - Done	• Review Application and System Event Logs for any possible errors.

[106] http://visualstudiogallery.msdn.microsoft.com/f017b10c-02b4-4d6d-9845-58a06545627f

[107] http://msdn.microsoft.com/en-us/library/dd578664.aspx

Step	Instructions
3 SQL Server Management Studio □ - Done	• Connect to your SQL Instance and verify that all necessary databases are attached and running in multiuser mode. • Connect to Analysis services and verify TFs_Analysis database is present and that you can browse Team System cube.

Table 24 - Server side data validation

Report Server

Step	Instructions
1 Windows Services □ - Done	Verify Reporting Services are running by navigating to Windows Services and ensuring that SQL Server Reporting Services is running.
2 Event Logs □ - Done	Review Application and System Event Logs for any possible errors.
3 Reporting Services Configuration Manager □ - Done	Run the Reporting Service Configuration tool (**RSConfigTool**) from the Run Command and verify the settings: • Service Account • Web Service and Report manager URL • Database

Table 25 – Report server validation

SharePoint Server

Step	Instructions
1 Windows Services □ - Done	Run **services.msc** from the Run Command window and verify that SharePoint services are running: • SharePoint Administration • SharePoint Tracing • SharePoint Timer • SharePoint Foundation
2 Event Logs □ - Done	Review Application and System Event Logs for any possible errors.
3 IIS Management Console □ - Done	Verify (where?) that the SharePoint Web sites are started: • SharePoint Central Administration • SharePoint – 80 (or other web application used by TFS)
4 SharePoint Central Administration □ - Done	Run the SharePoint admin console and verify the following system settings: • System Settings: Manage servers in this farm • System Settings: Manage services on server • Monitoring: Review problems and solutions Monitoring: Check Job Status

Table 26 – SharePoint server validation

Client side validations

Visual Studio

Step	Instructions
1 Connect to TFS □ - Done	• Connect to your TFS using Visual Studio Team Explorer. • Verify that you can see all the Team project Collections and Team projects under each Collection. • Choose a project collection on which to perform the client side validations.
2 Version Control □ - Done	Run Source Control Explorer and verify that you can run various operations: • Browse and see your files • See history • Manage workspaces • Get latest version
3 Work Items □ - Done	Verify that you can see and run work items queries, open the work items, etc.
4 Builds □ - Done	Verify that you can: • See Build definitions and open them, see the builds history, etc. • Manage Build Controllers and you see them online.
5 Reports □ - Done	Verify that you can see the Reports folder and open the reports.
6 Project Portals □ - Done	Verify the Project Portal setting. Try to open the portal for a Team Project.

Table 27 - Client side Visual Studio validation

Team System Web Access

Perform similar validations as you did using Visual Studio Team Explorer, but using the Web Access.

SharePoint Portal

Step	Instructions
1 URL □ - Done	Verify that the correct portal address (URL) opens when selected.
2 Layout and components □ - Done	Verify that the portal shows correctly dashboards, reports and TFS Web Parts (work items, builds, etc.)
3 TF Web Access Link □ - Done	Verify that you can open Team Foundation Web Access.

Table 28 – SharePoint portal validation

Additional Steps

Step	Instructions
1 Disaster Recovery □ - Done	Make sure your backup strategy is in place for the new environment and the Disaster Recovery Plan is updated. See TFS Planning and DR Avoidance Guide [108] for more information.
2 External Applications □ - Done	Update connection strings of any applications accessing TFS if necessary, for example after performing a migration-based upgrade.
3 Process Template □ - Done	You may want to update your current process templates or existing Team Projects to use new features, especially when upgrading from TFS 2008. You should pay special attention that custom process templates still work as expected. You may need to create a New Team Project using your custom process templates.
4 Server Ready! □ - Done	Communicate to the users that the system is available and provide a new connection string if necessary, for example, after performing a migration-based upgrade.
5 Post release monitoring □ - Done	You should closely monitor the system at the first weeks of usage - Event logs, performance, etc. See TFS Planning and DR Avoidance Guide and TFS Reporting Guide [109] for more information on reports that may help you.

Table 29 – Additional steps

Other post configuration steps to consider

Step	Instructions
1 MSF for Agile □ - Done	If you have updated a team project based on v5.0 of MSF for Agile, perform manual updates described in Update the Workflow for Agile Team Projects. For more information, please see Configure Features after a TFS Upgrade [110]
2 Team Web Access □ - Done	If you have team members that will use one or more of the following TWA features, you will need to provide them Full access to TWA. • Portfolio Backlogs • Feedback • Team Rooms • Test case management To change access level, please see Change access levels [111].
3 SMTP □ - Done	If your team will use the feedback request and code review features, make sure that you have configured an SMTP server for TFS.
4 Admin Only	If you are the server administrator for TFS and do not actually contribute to a team, then you may want to remove yourself as a member, and add a project lead as the team administrator.

[108] http://aka.ms/treasure5

[109] http://aka.ms/treasure55

[110] http://msdn.microsoft.com/en-us/library/vstudio/ff432837(v=vs.120).aspx

[111] http://msdn.microsoft.com/library/jj159364(v=vs.120).aspx

Step	Instructions
□ - Done	Your user account was added automatically as a team administrator for the team project when you ran the Configure Features wizard.

Table 30 – Post configuration steps

NOTE

If the farm has multiple Application tiers, you will need to uninstall the existing TFS installation and install TFS 2013. Once installed, use the "Application Tier only" wizard to add the new Application Tiers to the farm.

For more information refer the link http://msdn.microsoft.com/en-us/library/ee259684.aspx

Chapter 6: FAQs

Q) Has the upgrade process changed since TFS 2012?

The upgrade process has not changed significantly since TFS 2012. One improvement to be aware of is that just like in the later updates for TFS 2012, the 2013 configuration wizards will persist your Application Tier and Build settings [112] during in-place upgrades. As of 2012.2, we also support upgrading databases involved in SQL AlwaysOn or SQL Mirroring [113].

Q) Do I have to use the Visual Studio 2013 client to connect to the TFS 2013?

No, you do not. You can continue to use Visual Studio 2012 clients with the TFS 2013. The Visual Studio 2010 SP1 client is also compatible if you install the 2012 compatibility GDR [114]. We no longer support integration with VS 2008 clients, except for very limited functionality through the MSSCCI provider. The only feature that will require Visual Studio 2013 is Team Project creation.

Q) If I upgrade my server to TFS 2013, can I decide to go back to TFS 2012 later?

The short answer is no. Every release of TFS fully replaces the previous installation of TFS on your server, so they cannot be removed like patches. There is also no "downgrade" path from a later version of TFS to an earlier one. You can roll back, see page 21, to your previous version of TFS using the backup you took of your data prior to upgrading, which is useful if you experience any issues configuring the TFS 2013. However, it's not possible to revert any upgraded databases back to their original servicing level, so any work you do after upgrading your server will be lost if you roll back.

Q) Can I install the TFS 2013 side-by-side with TFS 2012?

No, you cannot. The installation process will automatically uninstall TFS 2012 from your box. Note that this behavior is different from the Visual Studio client, where the 2013 Visual Studio client CAN be installed side-by-side with the 2012 one. If you want to try out the TFS 2013 without getting rid of your TFS 2012 instance, you need to install it on a different server.

Q) Can I upgrade my TFS 2005 or TFS 2008 to TFS 2013?

No, direct upgrade from TFS 2005 to TFS 2013 isn't supported. TFS 2005 and TFS 2008 do not have the same dependencies as TFS 2013. For TFS 2005, it's recommended to upgrade to TFS 2010 and then to TFS 2013. For TFS 2008, it's recommended to upgrade to TFS 2012.Latest and then to TFS 2013.

Q) I have TFS 2008+SP1 and TFS 2010 in my environment and I wish to upgrade them both to 2013. How do I do it?

The easiest way is to first upgrade the TFS 2010 instance using Detach/Attach Team Project Collection process and then import the additional instances using TFSconfig/Import. After the upgrade is complete for all instances, you will have multiple collections (one for each instance Imported) and a single default collection.

Q) Can I install TFS 2013 on a 32-bit Operating system?

Yes, TFS 2013 can be installed on 32 bit Windows 7 SP1, Windows 8 and Windows 8.1. No SharePoint or Reporting is available in this case.

[112] http://blogs.msdn.com/b/visualstudioalm/archive/2013/03/05/tfs-update-2-offers-settings-preservation-for-in-place-upgrades.aspx

[113] http://blogs.msdn.com/b/tfsao/archive/2013/03/05/upgrading-alwayson-and-mirrored-environments.aspx

[114] http://www.microsoft.com/en-us/download/details.aspx?id=29082

Q) I have a farm that has multiple ATs and one single DT. How do I upgrade this farm?

To upgrade the farm, first pick one of the ATs and run the TFS Upgrade wizard. This will upgrade both the App tier and Data tier. After the upgrade, run only the Application Tier Only wizard on the remaining App tiers.

Q) What happens to the TFS reports post upgrade?

Post upgrade, the TFS reports are not moved to the new farm. You will have to manually move the reports and update the connection string of the data source to get the reports working.

Q) What can I do pre-migration to improve the upgrade process?

Make sure that TFS database maintenance has been performed. Defragmenting indexes can improve the upgrade process.

Remove old unused workspaces to save processing time. Follow SQL Server best practices for TempDB data files. The upgrade process uses TempDB heavily so make sure there is one TempDB per processor. Communicate with teams in advance of the final upgrade to address questions and discuss timelines. Have them be part of your testing process. Run the Best Practice Analyzer in the environment to verify that there aren’t going to be issues with the environment you are upgrading to.

Q) Where is the upgrade log written?

The upgrade log by default can be found in C:\ProgramData\Microsoft\Team Foundation\Server Configuration\Logs. It can be viewed as the import process runs. Just be careful not to lock it up.

Q) Which version of SQL Server is supported?

TFS 2013 supports SQL Server 2012 SP1.

Q) What TF Build controllers and agents are supported with TFS 2013?

TFS 2013 supports TFS 2010, TFS 2012 and TFS 2013 build controllers and agents.

See Team Foundation Server 2012 Update 2 supports 2010 Build Agents and Controllers [115] for more information.

Q) Will TFS 2013 work with older version test controllers

Yes, TFS 2013 will work with older version of test controllers 2012 and test agents 2012. It won’t work with test controllers 2010 and test agents 2010. When you upgrade your TFS server, you are not forced to upgrade the rest of your infrastructure (TC, lab environments, SCVMM, etc.) on the same day. You can continue with your current infrastructure, and upgrade those components independently. When you upgrade your test controller, all of the lab environments will indicate that they need to be upgraded as well. You will be able to do this from Microsoft Test Manager (MTM).

Q) What version of System Center Virtual Machine Manager can I use with TFS 2013?

TFS 2013 will work with SCVMM 2008 R2, SCVMM 2012 RTM + SP1 and SCVMM 2012 R2.

Q) What is required to upgrade my environment that uses SQL Mirroring or SQL AlwaysOn?

If you are using AlwaysOn or Database Mirroring with TFS, you should only have one database group and your configuration database should always be part that group. When you run the upgrade wizard and point it to your configuration database, the wizard will detect its involvement in AlwaysOn or mirroring and display some additional text that you would have to acknowledge by checking a tick box. For more information on this topic, look at the blog post Upgrading AlwaysOn and Mirrored Environments.

[115] http://blogs.msdn.com/b/buckh/archive/2013/03/30/team-foundation-server-2012-update-2-supports-2010-build-agents-and-controllers.aspx

Appendix

Upgrading Process Template using PowerShell

Context	This walkthrough and companion sample script will guide through using a sample PowerShell script that with some configuration will upgrade TFS Team Projects to the latest process templates.
Version	TFS 20**12** → TFS 20**13**
Persona	As Dave, the TFS admin, I would like guidance on how to upgrade existing Team Projects to the latest process templates in a scalable fashion (for example, automated / PowerShell).

Table 31 – Overview: Upgrading Process Template using PowerShell

WARNING

Ensure that you perform a complete backup of all the Project Collections where you will be upgrading the process templates; the backups will be required in case there are customizations that are unknown and lead to lose of data.

What will this script do?

This script will take the configured values and for each team project name in the team project collection. It will upload the work item type definitions of the latest version of the process template.

WARNING

The script is intended to be used with out-of-the-box process templates and has not been tested with customized process templates. If you are working with customized process templates, you will have to analyze the impact and update the sample script accordingly.
To just do bulk Feature Enablement see How to Configure Features for dozens of team projects.

What will this script upgrade?

This script is designed to upgrade the work item tracking part of the process template.

- Work Item Tracking

What will this script **not** upgrade?

The following items are not upgraded by the script because they are upgraded during the regular upgrade process or they are linked to permissions that are able to be changed outside of the process template. This could possibly lead to an unwanted state of your team projects.

- Build
- Classification
- Groups and Permissions
- Lab
- Reports (Please manually replace the Backlog/Stories Overview report, as older versions of this report are not compatible with TFS 2013 portfolios)
- Test Management
- Version Control
- Windows SharePoint Services

How does this script work?

All interaction with TFS in this script is done using the witadmin tool [116]and is executed against each of the TFS Team Projects configured. The script performs the following operations:

- Imports each of the link types [117].
- Imports each of the work item type definitions [118].
- Imports the categories configurationhttp://msdn.microsoft.com/en-us/library/vstudio/ms194980.aspx [119].
- Imports the process configuration [120].

Prerequisites

1. Visual Studio Team Explorer 2013
2. PowerShell

Walkthrough

Step	Instructions
1 Backup □ - Done	Back up all collections that you will be running this script against.
2 Get the Latest Version □ - Done	Download the latest version of the process template from TFS. http://msdn.microsoft.com/en-us/library/vstudio/ff452587(v=vs.120).aspx
7 Set Configuration □ - Done	Set the configuration for the script; replace the values for these variables in the script under the config section. • **$server** Name of the server where TFS is. • **$CollectionName** Collection name that contains team projects that are going to be upgraded • **$TeamProjectNames** Array of team projects that are going to be upgraded • **$ProcessTemplateRoot** The path that you saved the process template to in step 2; this is the path down to the directory that contains the ProcessTemplate.xml.
3 Run the script □ - Done	Run the script. If there are any errors, you will see them in the running panel, in red.

Table 32 - Walkthrough: Upgrading process template using PowerShell

[116] http://msdn.microsoft.com/en-us/library/vstudio/dd236914.aspx

[117] http://msdn.microsoft.com/en-us/library/vstudio/dd286513.aspx

[118] http://msdn.microsoft.com/en-us/library/vstudio/ms194980.aspx

[119] http://msdn.microsoft.com/en-us/library/vstudio/dd273721.aspx

[120] http://msdn.microsoft.com/en-us/library/hh500413.aspx

Sample Script

```
# Copyright © Microsoft Corporation.  All Rights Reserved.
# This code released under the terms of the
# Microsoft Public License (MS-PL, http://opensource.org/licenses/ms-pl.html.)
#
#config
$server = "Localhost"
$port = 8080
$virtualDirectory = "tfs"
$CollectionName = "DefaultCollection"
$TeamProjectNames = @("Scrum Team 1", "Scrum Team 2", "Scrum Team 3", "Scrum Team 4", "Scrum Team 5")
$ProcessTemplateRoot = "C:\Downloaded Process Templates\Microsoft Visual Studio Scrum 3.0"

$CollectionUrl = "http://$($server)$(if ($port -ne 80) { ":$port" })$(if
(![string]::IsNullOrEmpty($virtualDirectory)) { "/$virtualDirectory" })/$($CollectionName)"
$API_Version = "12.0"

#----------------------------
# don't edit below this line
#----------------------------

#get a reference to the witadmin executable path for the current api version
$WitAdmin = "${env:ProgramFiles(x86)}\Microsoft Visual Studio $API_Version\Common7\IDE\witadmin.exe"

#if there is a file with the name GlobalLists-ForImport.xml import it as Global List info for the current
collection
if (Test-Path "$ProcessTemplateRoot\GlobalLists-ForImport.xml")
{
    Write-Host "Importing GlobalLists-ForImport.xml"
    & $WitAdmin importgloballist /collection:$CollectionUrl /f:"$ProcessTemplateRoot\GlobalLists-ForImport.xml"
}

#get a reference to all work item type definitions
$wit_TypeDefinitions = Get-ChildItem "$ProcessTemplateRoot\WorkItem Tracking\TypeDefinitions\*.*" -include
"*.xml"

#get a reference to all work item link types
$witd_LinkTypes = Get-ChildItem "$ProcessTemplateRoot\WorkItem Tracking\LinkTypes\*.*" -include "*.xml"

#import each Link Type for the $CollectionName
foreach($witd_LinkType in $witd_LinkTypes)
{
    Write-Host "Importing $($witd_LinkType.Name)"
    & $WitAdmin importlinktype /collection:$CollectionUrl /f:$($witd_LinkType.FullName)
}

foreach ($TeamProjectName in $TeamProjectNames)
{
    Write-Host "Upgrading $TeamProjectName."

    #import each Type Definition for the $TeamProjectName
    foreach($wit_TypeDefinition in $wit_TypeDefinitions)
    {
        Write-Host "Importing $($wit_TypeDefinition.Name)"
        & $WitAdmin importwitd /collection:$CollectionUrl /p:$TeamProjectName /f:$($wit_TypeDefinition.FullName)
    }

    #import work item categories for the $TeamProjectName
    & $WitAdmin importcategories /collection:$CollectionUrl /p:$TeamProjectName
/f:"$ProcessTemplateRoot\WorkItem Tracking\Categories.xml"

    #import work item process configuration for the $TeamProjectName
    & $WitAdmin importprocessconfig /collection:$CollectionUrl /p:$TeamProjectName
/f:"$ProcessTemplateRoot\WorkItem Tracking\Process\ProcessConfiguration.xml"
}
Write-Host "Done upgrading team projects"
```

In Conclusion

This concludes our adventure into the TFS Upgrade. We have touched on theory and introduced you to the upgrade scenarios and the associated walkthroughs.

We hope you find it a valuable technology to invest in and that you have found this guide useful.

Sincerely

The Microsoft Visual Studio ALM Rangers

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