



Teamcenter Engineering Focus: 2005 Installation

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Presentation Topics



- ▶ FAQ
 - ▶ Server Manager Configuration
 - ▶ Web Tier and OTW Deployment
 - ▶ Multiple Rich Clients on Same Host
 - ▶ TEM behavior – CD vs Installed
 - ▶ Multiple DB per TC_ROOT
 - ▶ Import a Demo/Customer Database
- ▶ What's New in Teamcenter 2005 SR1
- ▶ Journey Map
- ▶ Questions



- ▶ Multicast versus TCP
 - ▶ Multicast (broadcast)
 - ▶ All TreeCache cluster members listen on the same multicast host/port (selected from a special IP address space)
 - ▶ Updates via broadcast messages
 - ▶ Very efficient
 - ▶ Easy to configure, but does require that routers support (and allow) multicast between all machines in the cluster.
 - ▶ TCP (point-to-point) - default
 - ▶ Each cluster member comes up on its own port and pings a configured list of ports looking for peers
 - ▶ Updates via point-to-point communication
 - ▶ Slower when more than two members are in the cluster
 - ▶ Harder to configure, but works regardless of router setup



FAQ: Server Manager Configuration

Multicast Configuration



- ▶ TreeCache Mode
 - ▶ Select “Mcast”
- ▶ TreeCache Cluster Name
 - ▶ A name for the entire cluster
 - ▶ Shared by all assigners and managers in a deployed environment
- ▶ TreeCache Cluster Port
 - ▶ Multicast port used by all members of cluster
 - ▶ Shared by all assigners and managers in a deployed environment.
 - ▶ Separate Tc environments should have their own port



FAQ: Server Manager Configuration

TCP Configuration



- ▶ TreeCache Mode
 - ▶ Select “TCP”
- ▶ TreeCache Cluster Name
- ▶ Local Service Port
 - ▶ Starting port on which member tries to listen
 - ▶ If port is already in use, member tries the next port
- ▶ TreeCache Peers
 - ▶ Shorthand list of host/port pairs to ping for other members
 - ▶ Syntax: <host>“[”<port>“]” [<host>“[”<port>“]”]*
 - ▶ E.g., HostA[12000],HostB[12000]
 - ▶ Note: Do NOT use a colon “.” between <host> and <port>
- ▶ Port Range
 - ▶ Number of ports to ping for each TreeCache Peer entry.
 - ▶ With a value of 5, the above would ping 12000-12004 on HostA and HostB
- ▶ Connection Timeout
 - ▶ How long to wait for ping responses before deciding you are the first member.



FAQ: Server Manager Configuration Partitioning of Configuration Data



- ▶ Global Pool Configuration
 - ▶ Same values used throughout an environment
 - ▶ Loaded by Assigner from file globalPoolConfig.properties (in EAR or in App server root directory)
 - ▶ Data published to the Managers
 - ▶ Includes all timeouts plus PROCESS_MAX_PER_USER
- ▶ Pool-Specific Configuration
 - ▶ Each Manager has its own which it loads from pool_manager/serverPool.properties
 - ▶ Key parameters:
 - ▶ POOL_ID
 - ▶ Sizing parameters: PROCESS_{MAX, MIN, TARGET}
 - ▶ JMX_HTTP_ADAPTOR_PORT



FAQ: Server Manager Configuration TreeCache Configuration Files



- ▶ File names
 - ▶ TreeCacheTCP.xml
 - ▶ TreeCacheMcast.xml
- ▶ The file to read is indicated by `CACHE_CONFIG_PATH` property in
 - ▶ `globalPoolConfig.properties`
 - ▶ `serverPool.properties`
- ▶ Locations
 - ▶ Assigner: EAR file or app server root directory
 - ▶ Manager:
 - ▶ `$TC_ROOT/pool_manager`
 - ▶ `$ROOT/out/java/jeti/enttier/JETIPoolManager/build/pool_manager`



- ▶ How are tcservers assigned?
 - ▶ Assigner process looks at all the Server Manager pools defined in the Treecache
 - ▶ Selects the one with the lowest usage
 - ▶ Then randomly selects a tcserver from that Server Manager pool
 - ▶ More on Server Assigner
 - ▶ Automatically assigns a server for a session that has none
 - ▶ Selects pool with lowest use percentage (load balancing)
 - ▶ Selects a server from that pool and assigns it to session
 - ▶ If no servers available, user gets a message
 - ▶ Assigner does not wait



FAQ: Server Manager Configuration Smoke Test and Troubleshooting



- ▶ Start Manager
 - ▶ Observe GMS address in Manager window.
- ▶ Start Application Server and log in to a client
 - ▶ Observe GMS address in App server window.
 - ▶ Observe “Global pool configuration loaded ...” messages in manager. Indicate assigner and manager have joined a cluster
 - ▶ **IMPORTANT:** Does not occur until the first login attempt!
- ▶ Message “No server pool is registered ...” in client and/or app server indicates failure to join the same cluster
 - ▶ Examine windows/logs for messages indicating TreeCache problems
 - ▶ Confirm TreeCache configuration data
 - ▶ INFO level logging will dump relevant pieces to logs.



FAQ: Server Manager Configuration Smoke Test and Troubleshooting



- ▶ If the output indicates everybody has joined the cluster, consider possibilities such as the following:
 - ▶ DB connection failures prevent the servers from logging in.
 - ▶ A tcserver bug or config error causes servers to die on startup.
 - ▶ Note: tcserver error messages show up in the manager window since it is the parent process.
 - ▶ In 4-tier, tcservers write their log files to the configured temp directory.
 - ▶ Manager window and Admin interface provide visibility to pool activity.
- ▶ If you get “No business server instance is available...”
 - ▶ Check if too few servers are configured to support the number of users.
 - ▶ If so, increase target (and perhaps warm).
 - ▶ Otherwise, determine if tcservers are dying on startup, exhausting the pool.



FAQ: Server Manager Configuration Smoke Test and Troubleshooting



- ▶ Some machines have multiple IP addresses / network cards (includes dual IPv4/IPv6 configurations)
 - ▶ This can confuse TreeCache (in TCP mode)
 - ▶ Suggestion:
 - ▶ Use a different Local Service Port for each member
- ▶ Sometimes a process fails to join the cluster
 - ▶ A restart often fixes this
 - ▶ Might need to restart all members
- ▶ If multicast fails between two machines, a possible cause is that your network does not allow multicast between them
 - ▶ Multicast should always work within a single machine



FAQ: Web Tier and OTW



- ▶ Can OTW be deployed in the same web server as the Web Tier
 - ▶ Yes
 - ▶ The OTW installer does not create a WAR file
 - ▶ OTW is a web application with a set of resources (HTML files etc)
 - ▶ You deploy the “tc.ear” application and manually copy the OTW installer files otwweb directory web servers deployment directory
 - ▶ For Example:
 - ▶ In JBoss static contents needs to be put under following directory “<JBoss-Install-location>\server\default\deploy\jbossweb-tomcat55.sar\ROOT.war”
 - ▶ Copy whole “otwweb” directory and then you can access the distribution servers as **http://<host>:<Port>/otwweb/otw.html.**



FAQ: Multiple Rich Client installs on Same Host



- ▶ Technically, this can be accomplished but there are things to be considered
 - ▶ FMS_HOME or FCC Location/Connection
 - ▶ Second+ Rich Clients will all use the first Rich Client's FCC
 - ▶ You may get this problem: When you make a volume request for an object in db2, the db1's FSC's can't find it
 - ▶ To work around this
 - ▶ Each FSC-Network you want to share data across must have <multisiteimport> entries in the fmsmaster.xml
 - ▶ The Menu Shortcut Problem
 - ▶ When you do multiple installations of Rich Client, the shortcuts all have the same name and menu path so each successive install overwrites the first
 - ▶ PR to be fixed in 2005 SR1 and/or MPx
 - ▶ The URL problem
 - ▶ MIME Types in registry always will point to the first install
 - ▶ Emails will URL will then try to launch first installed Rich Client



- ▶ CD versus Installed Location
 - ▶ CD location used for initial installation
 - ▶ Installed location use for maintenance
 - ▶ Maintenance of FMS Master file
 - ▶ Add Features to existing installation
 - ▶ Add Database/Configuration to existing installation (shared TC_ROOT)
 - ▶ Adding MPs to existing installation/configuration
 - ▶ Allows for patching of TEM installer itself
 - ▶ Maintenance Screens will be expanded over releases



FAQ: TEM Maintenance Dialog



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Steps

- Maintenance

Maintenance

Select the type of maintenance to be performed. Individual configurations can be modified by adding/removing features or by uninstalling the configuration all together. The Patch Manager allows the downloading and applying of patches.

- Configuration Manager
- Updates Manager

Help Cancel < Prev Next >

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Configuration Maintenance

Select the configuration upon which you would like to perform some maintenance activity such as adding or removing a feature, or modifying an installed feature. You can also choose to create a new configuration.

- Add new configuration
- Perform maintenance on an existing configuration
- Upgrade a configuration from another installation
- Remove configuration (uninstall)

Maintenance

Help Cancel < Prev Next >



FAQ: Import Demo/Customer Database



- ▶ Not supported for production environment
 - ▶ To be used for testing or debugging only
 - ▶ Only for databases that are at version 2005
 - ▶ Not to be used to test upgrades
- ▶ **You have the following**
 - ▶ An Oracle dump of a version 2005 database
 - ▶ tar/zip created of the Volumes
 - ▶ tar/zip created of IMAN_DATA directory



FAQ: Import Demo/Customer Database



▶ Import Steps

1. Create a user and tablespaces to receive the Oracle dump
 - ▶ CAUTION: If the password for the database user is different than the original one, you will need to run **install –encrypt** to generate a new encryption string
2. Import the dump into the Oracle database/user
3. Test access etc., with SQL
4. unzip/tar the volumes into their new location.
 - ▶ Set the ownership of the volume (recursively) to the installing user
5. unzip/tar the IMAN_DATA directory into its new location.
 1. Set file ownership to that of the tcfs process.
 2. Edit iman_profilevars
 - ▶ Change the value of TC_DB_CONNECT
 - ▶ Change the value of IMAN_DB_CONNECT
 - ▶ Change the value of ORACLE_SID
 3. Edit tnsnames
 - ▶ Change the entry name to the new SID name
 - ▶ Change the SERVICE_NAME, HOST and PORT settings to their correct values
 4. Rename the POM schema file. It should be in the form of **pom_schema_dbhost_sid**
6. Install TcEng server using TEM
 - ▶ Install Foundation, Rich Client, TCFS, FSC, NX
 - ▶ Point to the restored IMAN_DATA.
 - ▶ Set the FSC to be a master

7. Login into TC as infodba, system says you can't write to volumes. You will also see an FSC Exception error in the DOS/shell window.
 - ▶ Modify the node name and path to the volume
 - ▶ Exit TC

8. Update the fmsmaster_<fscid>.xml

1. In a window, set IMAN_DATA, IMAN_ROOT and source iman_profilevars.
2. Run **backup_xmlinfo**.
3. Use notepad/vi to view backup.xml. Look for the volume entry that corresponds to your volume host.

```
<volumeInfo>
    <volumeName>volume1</volumeName>
    <volumeUid>12c94338026e17fc9825</volumeUid>
    <nodeName>cii3w098</nodeName>
    <wntPath>e:\Program Files\volume1</wntPath>
</volumeInfo>
```

4. Make a note of the **volumeUid** and **wntPath** entries.
5. Use notepad/vi to edit <IMAN_ROOT>/fms/fmsmaster_<fscid>.xml. Add the volume information from above to the <fsc> element.

```
volume id="12c94338026e17fc9825"
root="e:\\Program Files\\volume1" />
```
9. Recycle the FSC service/daemon
10. Make sure the FMS_HOME environment variable is set to <IMAN_ROOT>/portal/fms. On Windows systems this might mean rebooting.
11. Environment will now work with imported database



What's New in TcEng 2005 SR1



- ▶ Upgrade Flow
- ▶ New Database Screens
- ▶ 2 Tier Rich Client Deployment
- ▶ SMS Support
- ▶ Automated Patching via TEM



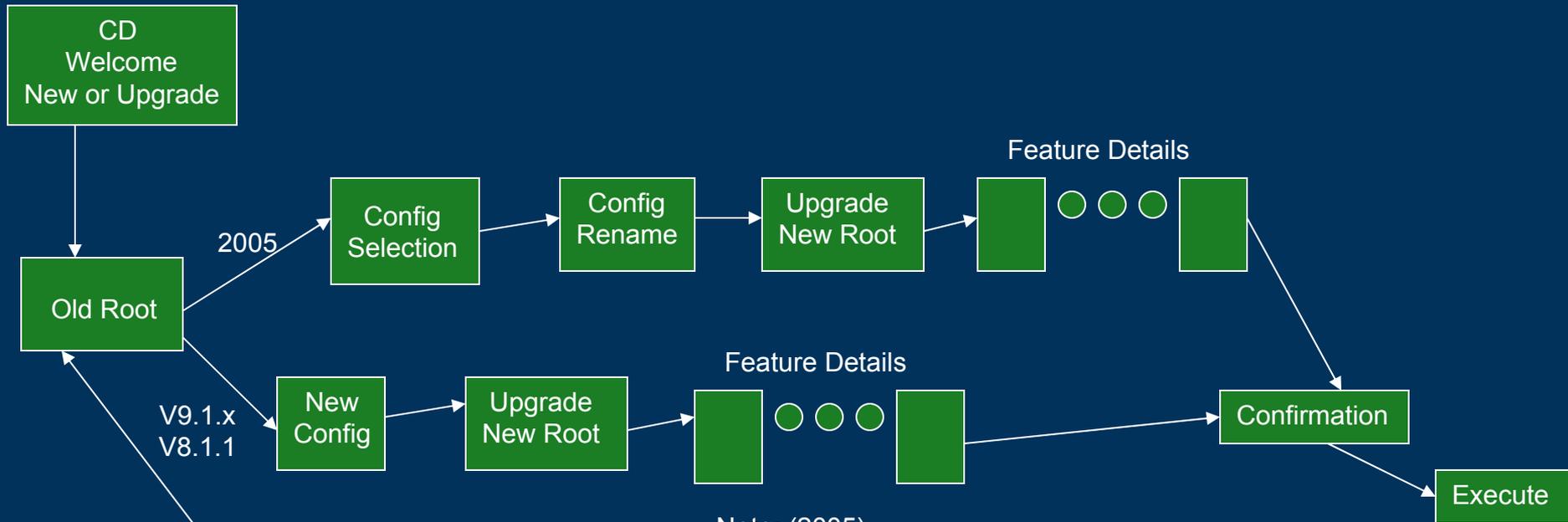
What's New: Upgrade Background



- ▶ Expected to stop all connections to the database being upgraded
- ▶ OS user doing the upgrade must have access to the default volume of “infodba” user
- ▶ Upgrading from the media to update the first db and install the new TC_ROOT
- ▶ You can mount the old TC_DATA and volume on the new host and run the upgrade.
 - ▶ Need TC_ROOT/bin
 - ▶ For TcEng 2005 - We run the tcae_install_verdict command in the old TC_ROOT/bin directory to tell us whether GMO is installed or not
 - ▶ The volume is required because some of the commands in the upgrade script write new types and things to the default volume
- ▶ (New SR1) Upgrade from the install TEM location to upgrade additional databases using the same TC_ROOT directory
- ▶ For TcEng 2005 – infodba password must be “infodba” – This is fixed in TcEng 2005 SR1



What's New: Upgrade Flow



Note: (2005)
Get basic 2T setup
& "admin" RC w/no
extensions

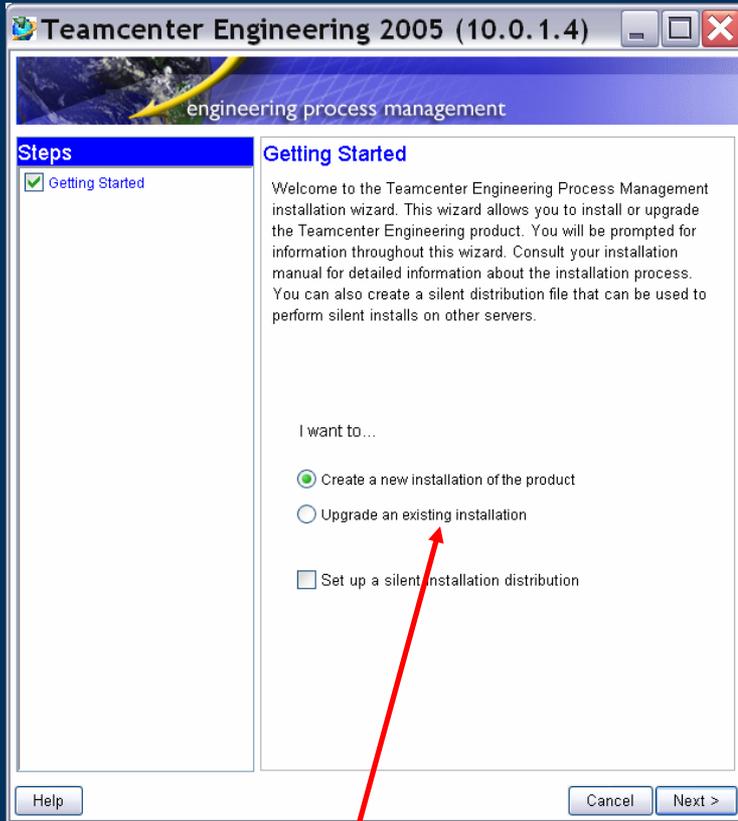
New with 2005 SR1

Maintenance
Config
Patching

Config Maintenance
New
Upgrade
Modify
Remove

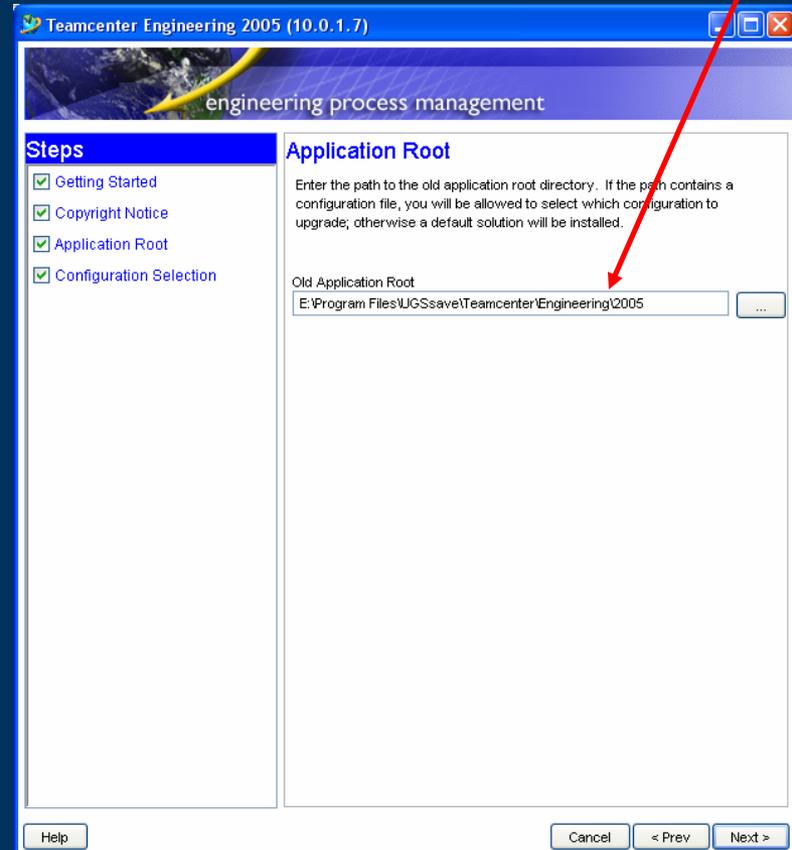


What's New: Upgrade Path



Select to Upgrade

Old Application Root





What's New: From 2005....



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Steps

- Getting Started
- Copyright Notice
- New Configuration
- Solutions
- Select Features

Select Features

Select the features you wish to install from the list below.

- Teamcenter Rich Client
 - Teamcenter Rich Client
 - Teamcenter Link for Rich Client
- Teamcenter Corporate Server
- Teamcenter Foundation
- File Management System
- Teamcenter File Services
- NX UG Integration
- Full Text Search Engine
- Multisite Collaboration
- Database Daemons

Teamcenter Foundation represents the core piece of a corporate server. Foundation can use an existing TC_DATA or create a new one. It is also the feature responsible for populating databases.

Space Required: 1056 MB
Space Available: 1019 MB

Installation Directory: C:\Program Files\UGS\Teamcenter\Engineering\2005

Buttons: Help, Cancel, < Prev, Next >

Config Selection
Features that will be upgraded

Config Copy Screen
Use the old name or rename it

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Steps

- Getting Started
- Old Application Root
- Configuration Selection
- New Configuration

New Configuration

Enter a description and ID for this software configuration. A configuration is a collection of features with a common set of shared features. Features can be added or removed from individual configurations.

Description: Test Database

ID: testdb

Buttons: Help, Cancel, < Prev, Next >



What's New: Feature Detail Prompts



Each features prompts
With intelligent defaults

The screenshots show the installation wizard's progress through various steps, with the 'FSC Master Settings' dialog box open in the foreground. The dialog box contains the following information:

FSC Master Settings

The local FSC will be configured to act as an FSC master. This FSC will hold information related to volume locations in the enterprise and hold default settings for FCC clients.

Add this FSC to the FMS bootstrap list

FSC Default Settings

You can have up to two connections, one HTTP, the other HTTPS. The first connection, using HTTP, is the default. If you add a second HTTPS connection, FSC will not start during install process. After install is finished, you need to manually import a certificate before restarting FSC.

Protocol	Port	
http	4444	<input type="button" value="Add"/>
		<input type="button" value="Delete"/>

FCC Default Settings

Windows Cache Directory	\$HOME\FCCCache
UNIX Cache Directory	1p/\$USER/FCCCache
Max. Full Read Cache Size (MB)	50
Max. Full Write Cache Size (MB)	25
Max. Segment Read Cache Size (MB)	85



What's New: Confirm and Go



Teamcenter Engineering 2005 (10.0.1.4)

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Steps

- Getting Started
- Configuration
- Copyright Notice
- Select Features
- Configure Data
- Database Configuration
- Volume Specification
- Transient Volume Settings
- Flex License Client
- Rich Client Settings
- Configure Online Help
- FCC Settings
- FMS_HOME
- FSC Service
- FSC Master Settings
- Operating System User
- TCFS Service
- Confirm Selections
- Install Features

Help Cancel < Pr

Confirm Selections

The list below shows modules and features that we including the data entered. You may return to a pr to change your selections or continue forward to pe install.

Configuration

Configuration Name: My Database, ID: MYDB

Selected Modules and Features

Installation Directory: D:\Scratch\Engv10sr1p4\p4

The following features will be installed/re

Teamcenter Foundation: Installing
 Teamcenter Rich Client: Installing
 File Management System: Installing
 Teamcenter File Services: Installing
 NX UG Integration: Installing

Configure Data

Data Directory Location: d:\Scratch\Engv10sr1p4\team

...Creating/overwriting data directory

Database Configuration

Database Engine: Oracle

Host: cii3p018:1521

Database User: englad

Volume Specification

Volume Name: volume1

Volume Location: d:\Scratch\Engv10sr1p4\volume1

Transient Volume Settings

Transient Volume Directory (Windows):

C:\Temp\transientVolume_englad

Transient Volume Directory (UNIX): /tmp/transientVolu

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Steps

- Getting Started
- Configuration
- Copyright Notice
- Select Features
- Configure Data
- Database Configuration
- Volume Specification
- Transient Volume Settings
- Flex License Client
- Rich Client Settings
- Configure Online Help
- FCC Settings
- FMS_HOME
- FSC Service
- FSC Master Settings
- Operating System User
- TCFS Service
- Confirm Selections
- Install Features

Help Cancel

Install Features

This may take several minutes depending on the speed of your computer.

Overall Progress



Unzipping tceng2005/bin.zip



Hide Details

Status

Features to add:

Teamcenter Foundation
 Teamcenter Rich Client
 File Management System
 Teamcenter File Services
 NX UG Integration

Features to remove:

 Unzipping feature Teamcenter Foundation

Unzipping tceng2005/bin.zip
 Executing 'echo n | "D:\Scratch\Engv10sr1p4\p4\inst



What's New: From v9.1.x or v8.1.1



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Steps

- Getting Started
- Configuration
- Copyright Notice
- Select Features
- Confirm Selections
- Install Features

Configuration

Enter a description and ID for this software configuration. A configuration is a collection of features with a common set of shared features. Features can be added or removed from individual configurations.

Description:

ID:

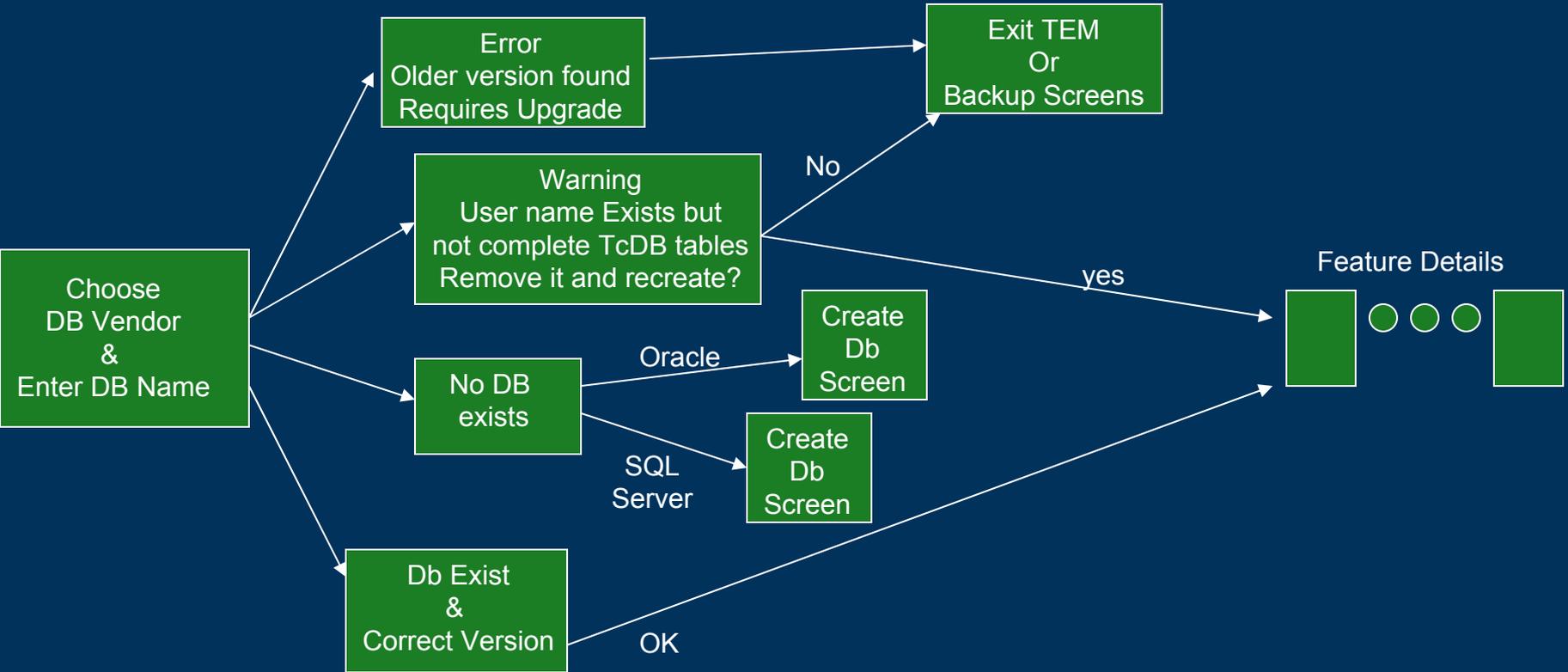
Help Cancel < Prev Next >

Provide Config Name
and ID

Provide New Root
Then
Feature Detail Screens
Confirm and Execute



What's New: New database screens/flow





What's New: DB Screens



Teamcenter Engineering 2005 (10.0.1.8)

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Steps

- Getting Started
- Copyright Notice
- Teamcenter Engineering 2005 (10.0.1.8)
- Solutions
- Select Features
- Configure TC_DATA
- Database Engine Selection
- Flex License Client
- Rich Client Settings
- FSC Service
- TCFS Service
- Confirm Selections
- Install Features

Database Engine Selection

Please select the type of database engine that you wish to use with Teamcenter.

Database Engine: **MS SQL Server**

The following parameters are required to connect to the MS SQL Server. Please be sure to fill in all associated fields and that the data provided is accurate. If you are unsure about any of these parameters, contact your system administrator for details.

Database Server:

Choose one of the following methods to connect to the database.

Named Instance

Port

Database User:

Database Password:

Database Name:

DSN Name:

Help Cancel < Prev Next >

Teamcenter Engineering 2005 (10.0.1.8)

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Steps

- Getting Started
- Copyright Notice
- New Configuration
- Solutions
- Select Features
- Configure TC_DATA
- Database Engine Selection
- Create Oracle Database
- Flex License Client
- Rich Client Settings
- FSC Service
- TCFS Service
- Confirm Selections
- Install Features

Create MS SQL Database

The following parameters are required to create the MS SQL database. Be sure that all associated fields have been filled in and that the data provided is accurate. Also, please be sure that the location provided for 'Database Directory' is a location that already exists on the database server. If you are unsure about any of these parameters, contact your system administrator for details.

Database System User:

Database System Password:

Tablespace Directory on Database Server:

The following parameters represent the initial size of the tablespaces that will be created as a part of the Teamcenter database creation. If you wish to adjust the initial size of a particular tablespace, you may do so by clicking in its 'Initial Size' column, resetting the value and then pressing the enter key to accept the change.

Tablespace Name	Initial Size (MB)
DATA	90
ILOG	5
INDX	5
TEMP	5

Help Cancel < Prev Next >



What's New: 2 Tier Rich Client Deployment



- ▶ TEM will now support complete 2 Tier Rich Client deployments
 - ▶ All known extensions to Rich Client will be supported via TEM
 - ▶ TEM can be used to install Rich Clients with or without shared TC_ROOT/bin location
 - ▶ Silent install feature of TEM can be used to push client installs to remote hosts
- ▶ OTW will no longer support 2 Tier Rich Client deployments



What's New: SMS Support



- ▶ Will provide documentation for TEM usage with SMS
 - ▶ This will be UGS supported/tested documentation
 - ▶ HP will be providing companion documentation for usage with their Radia product
- ▶ Basic Outline
 - ▶ Configure SMS for your environment – if not already available
 - ▶ Create silent distribution file via TEM
 - ▶ Package the silent install (including the kit itself) for SMS and put out on a distribution point.
 - ▶ Create and Advertise the program/package via SMS
 - ▶ Push out package to clients



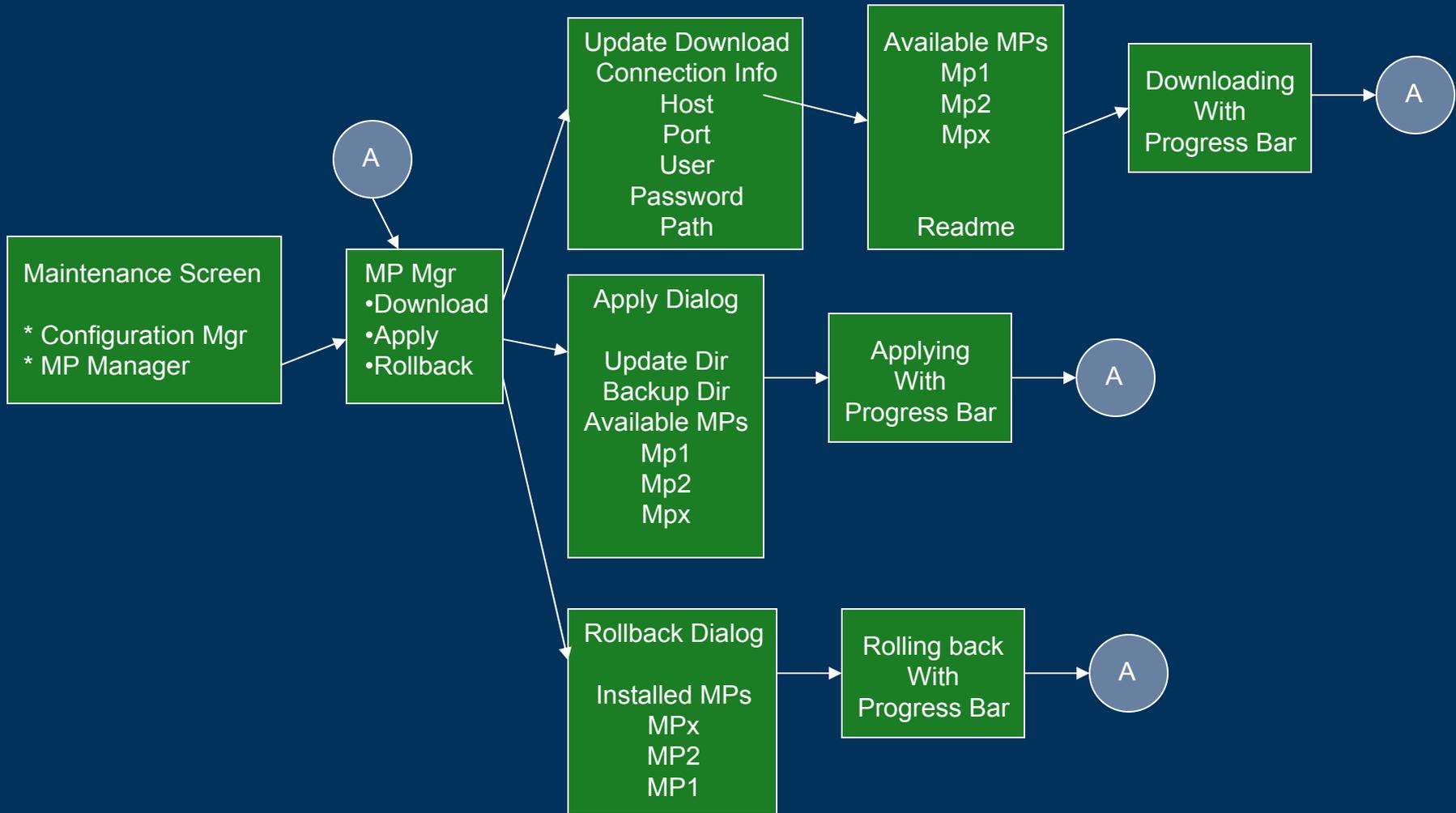
What's New: Automated Patching via TEM



- ▶ Goal
 - ▶ Provide a GUI to install, report and remove MPs to a Teamcenter environment
 - ▶ Reduce the manual steps involved to apply MPs
 - ▶ Unify patching strategy between TcEng and TcEnt
 - ▶ Similar processes already proven in TcEnt
 - ▶ Coming in TcEng 2005 SR1 MP1



What's New: Patching Flow





Journey Map: Vision



- ▶ A single install and configuration framework that supports Teamcenter Core, industry solutions and application integrations equally well.
- ▶ This tool set needs to be easy to use, and support customer install processes and policies and needs to be **loosely coupled** from the application implementation to promote quick time to market.



Journey Map: Business Drivers



- ▶ Internal and External trend toward automated push model versus pull
- ▶ Multiple types of single host deployment
 - ▶ Mapped drive available to all user machines
 - ▶ Single host for server ;push client
 - ▶ Support multiple environments
- ▶ No Admin privileges required for client push
- ▶ Uniform look and feel for install suite
- ▶ Security
- ▶ Propagate from one environment to another



Journey Map: Product Drivers



- ▶ OTW
 - ▶ May have misinterpreted what the customer was requesting
 - ▶ Really want a push model
- ▶ Support different Re-packaging schemes - TcX
- ▶ Single source for all platforms



Journey Map: Technology Drivers



- ▶ 3rd Party Installers can't support business drivers
 - ▶ Modularity introduces complexity that 3rd party can't support (See MatrixOne's patent)
 - ▶ Unable to support Async release schedules
- ▶ 3rd party push tools – SMS, Radia, Tivoli, etc
- ▶ MSI compliance
 - ▶ Cannot require changes to Registry that need admin privs
 - ▶ Conflicts with sites who want to do a map/shared drive install



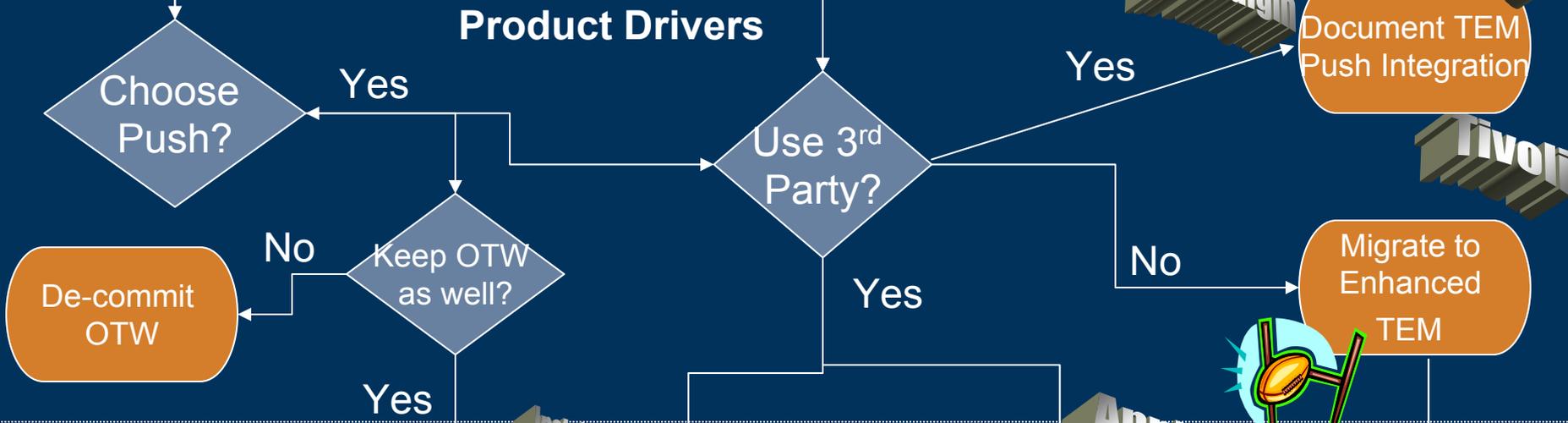
Journey Map: Key Decisions



Business Drivers



Product Drivers



Technology Drivers





Journey Map: Recommendation



- ▶ Limit OTW to 4 Tier RAC deployments
 - ▶ Support 2 Tier RAC installs from same installer as Server
 - ▶ Document how to use common 3rd party push tools for 2 Tier rich client installs
- ▶ Automatic download support for Web Client integration support
 - ▶ Visualization (iSeries)
 - ▶ Authoring applications (Adobe, MS Office)
- ▶ Don't use 3rd party install kits
 - ▶ Use custom install framework for client and servers
 - ▶ Supports plug & play
 - ▶ Make MSI SDK calls from custom framework
 - ▶ One exception
 - ▶ IF the feature/solution is platform dependent (.NET feature), allow for the consideration of 3rd party install kits



Journey Map: Teamcenter Install



 **TEAMCENTER**
(V10) SR1 2005

 **TEAMCENTER**
(PLM1) 2007 SR1

 **TEAMCENTER**
FUTURE



- Support Maintenance Pack (MPx)
- 2 Tier Deployment via TEM
- Provide SMS Documentation
- OTW supports 4 Tier only

- Single installer for Client/ Enterprise Tier
 - TEM with MSI SDK

- Single installer for all Tiers
 - Insweb absorbed





Summary



- ▶ Walk away with answers to most frequently asked questions
- ▶ See the improvements being made to Install
- ▶ See the direction the install/upgrade is going



For Additional Information...



On the Web at <http://www.ugs.com/>

The screenshot shows the UGS website homepage. At the top, there are links for 'Site Map', 'Contact Us', a search bar, and a 'Go' button. Below that is a 'Select a Country' dropdown menu set to 'United States'. A navigation bar contains four main categories: 'About Us', 'Products & Solutions', 'Partners', and 'Training & Support'. The main content area features a large article titled 'Tecnomatix Proven Success at Mack Trucks:' with a sub-headline 'Optimized plant layouts in record time' and a bullet point 'Realized significant time and cost savings'. Below the article are two buttons: 'Proven Success: Mack Trucks' and 'More about Tecnomatix'. To the left of the article is the UGS logo with the tagline 'The PLM Company'. Below the article is a circular diagram representing the PLM process with stages: 'INNOVATE & SPECIFY', 'PLAN', 'MANAGE & COLLABORATE', 'BUILD', 'PRODUCE & DELIVER', and 'SERVICE & SUSTAIN'. To the right of the diagram is a 'Top News' section with three items: 'UGS Corp. Completes Acquisition of Tecnomatix...', 'UGS Software Helps Andretti Green Racing Win Homestead-Miami Indy 300', and 'UGS Launches Solid Edge Version 17'. To the left of the diagram is a section titled 'Our Approach to Product Lifecycle Management' with a sub-headline 'Explore how UGS' PLM solutions facilitate every stage in your product lifecycle to achieve competitive excellence.' and three links: 'Learn More', 'Download Brochure', and 'View Video'. Below the diagram is a 'Buy Software' link. At the bottom of the page, there is a copyright notice: 'Copyright © 2005 UGS Corp. All rights reserved. Legal & Privacy | Report Piracy'.

Product Lifecycle Management

- ▶ Enterprise
- ▶ Industry Solutions
- ▶ Services
- ▶ Partners
- ▶ Support



Teamcenter Contacts



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Question and Answer





UGS

*Transforming the
process of innovation*



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