

System Administration of PTC Windchill 11.0

Overview

Course Code TRN-4830-T

Course Length 24 Hours

In this course, you will gain an understanding of how to perform routine Windchill system administration tasks, including how to manage Windchill services and optimize Windchill components for performance. You will focus on daily, weekly, and monthly system maintenance tasks required by the Windchill system administrators. You will also learn how to implement file vaulting and content replication. Other topics that will be reviewed include managing the Windchill database, troubleshooting background queues, improving workflow performance, optimizing visualization publishing process, and setting up the client environment.

At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. At the end of the course, you will complete a course assessment in PTC University Proficiency intended to evaluate your understanding of the course as a whole.

This course has been developed using Windchill 11.0 F000.

PTC® Windchill® 11
Smart Connected PLM



SMART



CONNECTED



COMPLETE



FLEXIBLE

Course Objectives

- Understand Windchill architecture.
- Start and stop Windchill components.
- Manage Windchill configuration properties.
- Implement file vaulting and content replication.
- Tune Windchill components for performance.
- Tune Windchill workflows for performance.
- Manage background queues.
- Manage visualization publishing system.
- Manage Windchill database.
- Manage system backups.
- Manage Windchill system logs and alerts.
- Monitor daily, weekly, and monthly administration tasks.
- Configure browser and JAVA settings for clients.



Prerequisites

- Familiarity with the Windchill PDMLink 11.0 or Windchill ProjectLink 11.0 user interface.
- Familiarity with the Windows command prompt and the ability to form and execute basic SQL statements.

Audience

- This course is intended for System Administrators and Application Developers. People in related roles will also benefit from taking this course.
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Agenda

Day 1

Module	1	Introduction to the Windchill System Environment
Module	2	Managing Windchill Services
Module	3	Managing Windchill Properties
Module	4	File Vaulting and Replication Overview
Module	5	Implementing File Vaults

Day 2

Module	6	Implementing Content Replication
Module	7	Tuning Windchill Server
Module	8	Managing Background Queues
Module	9	Managing Your Visualization Publishing System
Module	10	Tuning Workflow Processes
Module	11	Windchill Backup and Recovery

Day 3

Module	12	Managing Log Files and Alerts
Module	13	Daily System Monitoring Tasks
Module	14	Weekly System Monitoring Tasks
Module	15	Monthly System Monitoring Tasks
Module	16	Setting Up the Client Environment
Module	17	Miscellaneous System Enhancements

Course Content

Module 1. Introduction to the Windchill System Environment

- i. Client Requirements
- ii. The Windchill Server
- iii. The Windchill Database
- iv. Optional Servers
- v. Role of the System Administrator
- vi. Understanding Windchill Contexts
- vii. Windchill Product Characteristics
- viii. Windchill Library Characteristics
- ix. Using Folders
- x. Data Management Objects
- xi. Iteration and Revision Controls
- xii. Access Controls
- xiii. Process Controls
- xiv. Understanding the Windchill User Interface
- xv. Using the Navigator
- xvi. Navigating Products and Libraries
- xvii. Locating Information
- xviii. Understanding Information Pages
- xix. Accessing Help

Knowledge Check Questions

Module 2. Managing Windchill Services

- i. Identifying Major Windchill Services
- ii. Starting/Stopping Apache Web Server
- iii. Starting/Stopping Windchill Directory Server
- iv. Starting/Stopping Oracle
- v. Starting/Stopping SQL Server
- vi. Starting/Stopping Windchill
- vii. Running Apache as a Windows Service
- viii. Windchill Directory Server Control Panel
- ix. Running Windchill Directory Server as a Service
- x. Running Windchill as a Windows Service
- xi. Automating Windchill Startup
- xii. Automating Windchill Shutdown

Knowledge Check Questions

Module 3. Managing Windchill Properties

- i. System Administration Utilities
 - ii. The Windchill Command
 - iii. The Windchill Shell
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- iv. Windchill Configuration Properties Files
- v. The site.xconf File
- vi. The JMX Clients
- vii. Using JConsole to Modify Property Values
- viii. The xconfmanager Utility
- ix. The xconfmanager - Options
- x. The xconfmanager - Example
- xi. The xconfmanager - Validate Changes
- xii. Properties Managed by the Windchill Configuration Assistant
- xiii. Creating a Custom XCONF File

Knowledge Check Questions

Module 4. File Vaulting and Replication Overview

- i. File Vaulting
- ii. File Storage Options
- iii. Local File Vaulting Architecture
- iv. Content Replication
- v. Content Replication Architecture
- vi. Windchill File Servers
- vii. Centrally Vaulted Content
- viii. Remotely and Centrally Vaulted Content
- ix. File Vaulting Strategies
- x. Types of File Vaults
- xi. Checking an Object into a Windchill Main Server
- xii. Requesting Objects That Have Not Yet Been Replicated
- xiii. Requesting Objects from File Servers That Are Not Preferred
- xiv. Server to Server Replication
- xv. Content Synchronization and Replication
- xvi. Local Replication for File Servers

Knowledge Check Questions

Module 5. Implementing File Vaults

- i. Planning External File Storage
 - ii. Multiple Vaults Configuration
 - iii. Vaulting Rules
 - iv. Single Vault Configuration
 - v. Implications of Forcing Contents into a Single Vault
 - vi. Single Vault versus Multi Vault Configuration
 - vii. Vaults with Automatic Folder Creation
 - viii. The Central Cache Vault
 - ix. Setting Up External Storage
 - x. Specifying File Threshold Value for Vaults
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- xi. Managing Revaulting
- xii. Maintaining Vaults
- xiii. Changing the Location of Files in Vaults
- xiv. The Default System Target Vault

Knowledge Check Questions

Module 6. Implementing Content Replication

- i. Installing the File Server - Requirements
- ii. Enabling Remote File Server Support
- iii. Generating the Security Key
- iv. Using the File Server Management Utility
- v. Registering the File Server
- vi. Configuring Replica Vaults
- vii. Creating Replication Rules
- viii. Creating Replication Schedules
- ix. Replication Performance and Scalability
- x. Replication and Visualization Service
- xi. Setting the Preferred File Server
- xii. User-Initiated Replication

Knowledge Check Questions

Module 7. Tuning Windchill Server

- i. Windchill Server Tuning Objectives
 - ii. Monolithic Windchill Configuration
 - iii. Multi-Tiered Windchill Configuration
 - iv. Server Heap Size
 - v. Capturing Java Thread Dumps for Windchill
 - vi. Setting Windchill Cache Sizes in wt.properties
 - vii. Setting Windchill Cache Sizes in db.properties
 - viii. Viewing Windchill Cache Statistics
 - ix. Limiting Search Results
 - x. Windchill Configuration Assistant (WCA)
 - xi. Affected Files
 - xii. Running the Windchill Configuration Assistant
 - xiii. Propagating Values from Intermediate Properties Files
 - xiv. Rolling Back Configuration Changes
 - xv. Java Garbage Collection Tuning
 - xvi. Number of Method Servers
 - xvii. Cleaning Windchill System Cache
 - xviii. Why Do Windchill Method Servers Stop Unexpectedly?
 - xix. Using Anti-Virus Software
 - xx. Server Cluster Configuration
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- xxi. Server Status
- xxii. WAN Performance Optimizing Options
- xxiii. WAN Acceleration

Knowledge Check Questions

Module 8. Managing Background Queues

- i. Windchill Background Queues
- ii. Queue Manager
- iii. Queue Entry States
- iv. Out-of-the-Box Background Queues
- v. Single Method Server Configuration
- vi. Configuring a Background Method Server
- vii. Configuring Multiple Background Servers
- viii. Distributing Background Queues
- ix. Tuning Background Queues
- x. Performing Regular Queue Maintenance

Knowledge Check Questions

Module 9. Managing Your Visualization Publishing System

- i. Windchill Visualization Services Architecture
- ii. Sizing a Visualization Publishing System
- iii. Sizing CAD Worker Hardware
- iv. Running CAD Workers on Virtual Platforms
- v. Minimum Recommended CAD Worker Hardware
- vi. Calculating the Number of CAD Workers
- vii. Optimizing Your Visualization Publishing System
- viii. Worker Agent Administration
- ix. The WVS Job Monitor
- x. Viewing Job Details
- xi. WVS Job Scheduler Administration
- xii. Publish and Thumbnail Control
- xiii. Visualization Configuration Administration
- xiv. Configuring Your Visualization Publishing System
- xv. Publisher Queues and Jobs
- xvi. Configuration Options for Publisher Jobs
- xvii. Configuring Additional Publisher Queues
- xviii. Deleting a Queue
- xix. WVS Configuration Properties
- xx. Publish Job Types and Sources
- xxi. Setting Publish Job Priority

Knowledge Check Questions

Module 10. Tuning Workflow Processes

- i. Workflow Queues
- ii. Pool Queues
- iii. Monitoring Workflow Queue Entries
- iv. Configuring Queue Pooling
- v. After Queue Pooling
- vi. Configuring Dedicated Workflow Queues
- vii. Tagging Dedicated Workflow Queues
- viii. After Dedicated Queues

Knowledge Check Questions

Module 11. Windchill Backup and Recovery

- i. Windchill Backup Architecture
- ii. Windchill Data Repositories
- iii. Types of Backup
- iv. Performing a Cold Backup
- v. Recovering from a Cold Backup
- vi. Performing a Hot Backup
- vii. Recovering from a Hot Backup
- viii. Oracle Backup and Recovery Using Enterprise Manager
- ix. Oracle Archive Log Mode
- x. Oracle Flash Recovery Area
- xi. Oracle Suggested Backup Strategy
- xii. Suspending Background Queues
- xiii. Read Only Mode for Vaults
- xiv. Generating Vault Backup Information
- xv. The WContentVerify Tool
- xvi. Mirroring the Local Cache Vault
- xvii. Rebuilding Replica Vaults
- xviii. Backing up the Windchill Directory Server
- xix. Backing Up LDAP Data Using the Backup Command
- xx. Restoring Windchill Directory Server
- xxi. Backing Up LDAP Directory Data Using Control Panel
- xxii. Restoring LDAP Directory Data Using Control Panel
- xxiii. Exporting LDAP Data
- xxiv. Importing LDAP Data

Knowledge Check Questions

Module 12. Managing Log Files and Alerts

- i. Windchill Logging Mechanism
 - ii. Windchill Log Properties
 - iii. Setting Windchill Log Levels
 - iv. Populating JMX-Administrators
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- v. Viewing Windchill Log Files
- vi. Managing Log Files Using JConsole
- vii. System Error Reporting
- viii. Using the Persisted Log Events Page
- ix. The Log Event Details Page
- x. The Log File Viewer Page
- xi. Administration Actions After Receiving Error Reports
- xii. System Configuration Collector
- xiii. Performance Advisor for PTC Windchill
- xiv. Indexing Administration
- xv. SQL Server Log File Viewer
- xvi. Setting up SQL Server Alert Notifications
- xvii. Oracle Alerts
- xviii. Setting Up a Mail Server for Oracle Alerts
- xix. Setting Up Direct Oracle Alert Notifications
- xx. Setting Metric Thresholds for Oracle Alerts
- xxi. Managing Directory Server Logs
- xxii. Managing Web Server Logs

Knowledge Check Questions

Module 13. Daily System Monitoring Tasks

- i. Daily System Monitoring Tasks Checklist
- ii. Perform and Verify Scheduled System Backups
- iii. The Server Status Page
- iv. PTC System Monitor
- v. System Monitoring Using JMX Clients
- vi. Monitoring CPU and Memory Usage by Windchill Processes
- vii. System Components Availability
- viii. Monitoring Queues Using Queue Manager
- ix. Monitoring Queues Using JMX Clients
- x. Monitoring Queues Using Queue Analyzer
- xi. Queue and Workflow Health Check Script
- xii. Monitor File Vaults
- xiii. Monitoring Vaults Using the System Configuration Collector
- xiv. Review Application Server Logs
- xv. Review Database Logs
- xvi. Check Database Schema Statistics
- xvii. Monitor Network Health
- xviii. Review PTC Technical Support Subscription E-mails

Knowledge Check Questions

Module 14. Weekly System Monitoring Tasks

- i. Weekly System Monitoring Tasks Checklist
- ii. Monitor Disk Space Usage
- iii. Identifying BLOBS That Have Not Been Vaulted
- iv. Remove Unreferenced Files from File Vaults
- v. The RemoveUnreferencedFiles Tool
- vi. Automated Cleanup of Replica Vaults
- vii. Generating Unreferenced Files Report
- viii. Defragment Windows Disks
- ix. Check Performance Using Monitoring Tools
- x. Perform Database Maintenance

Knowledge Check Questions

Module 15. Monthly System Monitoring Tasks

- i. Monthly System Monitoring Tasks Checklist
- ii. Execute Performance Benchmarks
- iii. Windchill File Server Test
- iv. Perform Database Diagnostics
- v. Resolve Disconnected Principals
- vi. Cleaning up Data for Deleted Users
- vii. Evaluate System Settings Using Windchill Configuration Assistant
- viii. Generate Throughput and Security Audit Reports
- ix. Perform Workgroup Manager Maintenance Tasks
- x. Review Windchill and Creo Settings
- xi. Purge Obsolete or Unused Data
- xii. Apply Maintenance Patches and Updates
- xiii. Clone Production Server to Test Server
- xiv. Yearly Administrative Tasks

Knowledge Check Questions

Module 16. Setting Up the Client Environment

- i. Setting Up Your Browser
- ii. Browser's ActiveX Settings
- iii. Pop-Up Blocker Interference
- iv. Browser Locale Settings
- v. Memory Allocation for Applets
- vi. Installing Creo View
- vii. Installing Desktop Integration
- viii. Setting Your Preferred File Server Site
- ix. Product Structure Explorer Preferences
- x. Configuring the Windchill Home Page

Knowledge Check Questions

Module 17. Miscellaneous System Enhancements

- i. Browser Support
- ii. Database Support
- iii. Java Support
- iv. Platform Support
- v. Web Server and Servlet Engine Support
- vi. Windchill Software Matrices

Knowledge Check Questions
