Guide for System Center Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization

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The Operations Manager team encourages you to provide feedback on the management pack by providing a review on the management pack’s page in the [Management Pack Catalog](http://go.microsoft.com/fwlink/?LinkID=82105).

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# Guide for System Center Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization

This guide was written based on version 7.0.8561.0 of the Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization.

### Guide History

|  |  |
| --- | --- |
| Release Date | Changes |
| April, 1 2012 | Original release of this guide |

### Supported Configurations

This management pack requires System Center 2012 - Operations Manager. A dedicated Operations Manager management group is not required.

### Prerequisites

One of the following requirements must be met to run this management pack:

 The Team Foundation Server (TFS) Object Model must be installed on the servers designated for TFS work item synchronization. [Download the TFS Object Model](http://visualstudiogallery.msdn.microsoft.com/)

Or

 Microsoft Visual Studio Team Explorer 2010 must be installed on the servers designated for TFS work item synchronization. [Download Microsoft Visual Studio Team Explorer 2010](http://www.microsoft.com/download/en/details.aspx?id=329)

### Files in this Management Pack

The Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization includes the following files:

 Microsoft.SystemCenter.TFSWISynchronization.mpb

# Management Pack Purpose

This management pack synchronizes System Center 2012 - Operations Manager Application Performance Monitoring (APM) alerts and Team Foundation Server (TFS) work items. After importing this management pack, operators can manually assign APM alerts to the engineering team. Assigning an APM alert to engineering creates a new work item in Team Foundation Server. The management pack workflow tracks and synchronizes changes made to TFS work items and changes made to associated Operations Manager APM alerts.

Important

Only APM alerts that are directly linked to events in Application Diagnostics can be linked to TFS work items. If you assign any other type of alerts to engineering, they will not synchronize with TFS work items.

In this section:

 [Usage Scenarios](#z34515b43b9be4155b2c2007f855c40da)

 [Monitoring Scenarios](#z7d668c95d09e4062aebd495cc06bf07a)

 [Configuring the Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization](#z8e2a2f8125674510a2dc27e27574b0de)

# Usage Scenarios

## Usage Scenarios

### User Interface

This management pack adds a new folder in the Monitoring pane named TFS Work Item Synchronization. The folder contains three views: Alerts in Engineering, New Alerts, and State.

Alerts in Engineering shows all alerts assigned to engineering and resolved alerts. The Ticket ID column contains the respective TFS work item IDs and revisions. There will be no value in the Ticket ID column if a TFS work item has not yet been created.

New Alerts shows all APM alerts that can be assigned to engineering.

State shows the health state of TFS work item synchronization infrastructure. As described in Monitoring Scenarios.

### Track alert history and add comments

To track alert history or add comments to a TFS work item in Operations Manager, open Alert Properties and click the History tab. Comments in alert history are not synchronized. Only fields described in How information from Operations Manager alerts maps to fields in Operational Info work items are synchronized.

### Manual escalation of an operational problem

1. All application problems collected by.NET Application Performance Monitoring (APM) can be viewed in Operations Manager console, in the navigation pane, click the Monitoring, click TFS Work Item Synchronization, and then click New Alerts.

2. When an alert cannot be resolved by operations personnel and must be escalated to the support engineering team, the operator can right-click an alert, select Set Resolution State, and select to Assigned to Engineering. This creates a TFS work item and adds the TFS work item ID to the alert.

3. Once an alert has been assigned to the engineering support team, the TFS Connector creates a corresponding Operational Issue work item in TFS. After this connection has been established, all changes to the alert inside Operations Manager and changes to the work item in TFS will be synchronized between systems.

4. Support engineers can review Operational Issue work items using VS Team Explorer by going to <Server\collection>\<Project>\Team Queries\Active Operational Issues.

### Changes to TFS project mapping

After you configure the management pack, you can modify the mapping of APM alerts with TFS projects. The following synchronization rules apply as follows:

 If an application is mapped to a new TFS project within the same TFS project collection, new alerts go to the new project and old alerts keep synchronizing with the old project. If you delete a ticket ID and reassign alerts to engineering, new work items are created in the new project. They are not linked to any of the pre-existing work items.

 If an application is mapped to the new TFS project within a different TFS project collection, but in the same TFS server, new alerts go to the new TFS project, but the old alerts stop synchronizing completely. If you delete a ticket ID and reassign alerts to engineering, new work items are created. They are not linked to any of the pre-existing work items.

 If an application is mapped to a project on a different server, new work items are created for alerts that are newly assigned to engineering. Synchronization of any previously synchronized alerts will stop.

Important

Before making changes to the template and deleting a work item ID, disable the “TFS Work Items Synchronization Rule” and “TFS Work Items Creation Rule”. Applying template changes might take up to 1 hour. To see whether changes are applied, check the TFS Collection instance “Links” property. When you see the new project there, you can enable the rules again.

# Monitoring Scenarios

The monitoring scenarios provided by the management pack are split by two categories: TFS Connector monitoring and TFS Collection monitoring. TFS Connector monitoring issues are only related to the infrastructure necessary for TFS synchronization. The TFS instances that the management pack connects to are not related. TFS Collection monitoring watches for various synchronization issues related to specific TFS Collections.

Notes

The management pack consists of the following monitors. They are internal and cannot be used by any of the customer’s workflows:

 TFS Connector Monitor

 TFS Collection Creation Workflow Monitor

 TFS Collection Synchronization Workflow Monitor

|  |  |  |
| --- | --- | --- |
| Monitoring scenario | Description | Associated rules and monitors |
| TFS Connector Monitoring | TFS Connector monitoring issues are related to the infrastructure necessary for TFS synchronization only. The TFS instances that the management pack connects to are not related. | TFS Connector Monitor  This monitor targets the “TFS Connector” object and reflects various critical environmental issues with the Operations Manager environment.  Summary  This monitor targets the “TFS Connector” and reflects various environmental issues with the System Center 2012 - Operations Manager environment. When you receive an alert from this monitor, investigate the alert context to see a detailed problem description.  Causes  The problems reported by this monitor typically indicate issues with the System Center 2012 - Operations Manager environment.  Resolutions  When you receive an alert from this monitor, investigate the alert context to see a detailed problem description. |
| TFS Connector Monitoring | TFS Connector monitoring issues are related to the infrastructure necessary for TFS synchronization only. The TFS instances that the management pack connects to are not related. | TFS Creation Workflow Event Collection Rule  Summary  This rule generates warning alerts for any issues that are not specific to "TFS Collection" instances.  Causes  This rule watches the Windows event log for entries created by the "TFS Work Items Creation Rule" workflow. It subscribes to the following events:  **** 1003 Task timeout: "Task exceeded timeout limit in N seconds", where N stands for the configured timeout.  **** 1008 The application name was not found in the target alert (Not an APM alert): "Sources of some alerts that are Assigned to Engineering are empty. Alert IDs: {List}"  Resolutions  **** Task timeout means that the TFS work item exceeded the configured timeout time (default is 5 minutes). If you receive this alert frequently, you might change the "Task Timeout Seconds" override of TFS Creation Workflow Event Collection Rule.  **** The application name was not found in the target alert (Not APM alert). This alert occurs when someone tries to change resolution state for non-APM alerts. This cannot be done because non-APM alerts have no associated application name that links alerts to TFS projects. |
| TFS Collection Monitoring | TFS Collection monitoring watches for various synchronization issues related to specific TFS Collections. | TFS Collection Creation Workflow Monitor  This monitor watches for various events logged by the TFS Object Model during work item creation, and sets the health state of TFS Collection instance based on these events.  Summary  The TFS Object Model logs various events to the Windows event log to signal connectivity issues with TFS. This monitor watches for these events and sets the health state of TFS Collection instance based on these events.  The monitor will automatically reset the health state to Healthy when connectivity to TFS is restored. You can see the monitor health history to analyze past connectivity issues.  Causes  This monitor controls the health state of the TFS Collection instance and generates alerts related to TFS connectivity, when new TFS work items are created:  1101 "TFS Object Model is not installed on the server"  1102 "Team Foundation services are not available from server (URL)"  1104 "TF30063: You are not authorized to access <server>"TF26193: The team project does not exist. Check the team project name and try again.  Any other TFS errors or module failures that have "TF[N]", where "N" stands for the TFS Object Model error code.  Resolutions  **** The "TFS collection was not found" alert might occur when the template was manually deleted. The Operations Manager administrator needs to delete "System Center TFS Work Item Synchronization Management Pack" using the Operations Manager console.  **** If you see "TFS Object Model is not installed on the server", you need to install TFS Object Model on all servers in the selected machine pool. For more information, see the [TFS Object Model download page](http://go.microsoft.com/fwlink/?LinkId=246463).  **** If you see "Cannot access TFS server", verify that your TFS server is running and accessible from all servers in the machine pool that are selected in the template.  **** If you see "TFS projects access denied" or any other TFS security error, the account specified in the template does not have sufficient rights to access the TFS project. Grant the account user the required TFS permissions to view projects and create/modify work items.  **** The "TFS collection was not found" alert might occur when the template was manually deleted. The Operations Manager administrator needs to delete "TFS Work Item Synchronization Management Pack" using the Operations Manager console. |
| TFS Collection Monitoring | TFS Collection monitoring watches for various synchronization issues related to specific TFS Collections. | TFS Collection Synchronization Workflow Monitor  This monitor watches for various events logged by TFS Object Model during work item synchronization, and sets the health state of TFS Collection instance based on these events.  Summary  The TFS Object Model logs various events to the Windows event log to signal connectivity issues with TFS. This monitor watches for these events and sets the health state of TFS Collection instance based on these events.  The monitor will automatically reset the health state to Healthy when connectivity to TFS is restored. You can see the monitor health history to analyze past connectivity issues.  Causes  This monitor controls the health state of a "TFS Collection" instance and generates alerts related to TFS connectivity when synchronizing a state of TFS work item:  1204, 1304, 1404 "TF30063: You are not authorized to access <server>"  1302 "TFS Object Model is not installed on the server"TF26193: The team project does not exist. Check the team project name and try again.  Any other TFS errors or module failures that have "TF[N]", where "N" stands for the TFS Object Model error code.  Resolutions  **** If you see "TFS Object Model is not installed on the server", you need to install TFS Object Model on all servers in the selected machine pool. For more information, see the [TFS Object Model download page](http://go.microsoft.com/fwlink/?LinkId=246463).  **** If you see "Cannot access TFS server", verify that your TFS server is running and accessible from all servers in the machine pool that are selected in the template.  **** If you see "TFS projects access denied" or any other TFS security error, the account specified in the template does not have sufficient rights to access the TFS project. Grant the account user the required TFS permissions to view projects and create/modify work items. |

# Operational Issue TFS Work Item Type

When synchronizing the very first alert, the management pack automatically publishes a new TFS work item type called “Operational Issue” that will be used for all alerts synchronized from Operations Manager. The engineering team can associate/link other TFS work items (e.g. bugs) with Operational Issue work items to track engineering activities related to resolving the issue.

## This is how information from Operations Manager alerts maps to fields in Operational Issue work items.

1. ID

Alert property: ID

Work item property type: Microsoft.SystemCenter.OperationalIssue.AlertID

Work item property name: Issue Alert ID

Populated on creation

Visible on the History tab

2. Description

Alert property: Description

Work item property type 1: System.Description

Work item property name 1: Description

Populated on creation

Visible in description field on Properties tab

Work item property type 2: System.Title

Work item property name 2: Title

Visible in title field

3. Owner

Alert property: Owner

Work item property type: System.AssignedTo

Work item property name: AssignedTo

Sync from work item to alert

Visible in the main tab

4. CustomField1

Alert property: CustomField1

Work item property type: Microsoft.SystemCenter.OperationalIssue.Aspect

Work item property name: Issue Aspect

Populated on creation

Visible on the Properties tab

5. CustomFieldN

Alert property: CustomFieldN

Work item property type: Microsoft.SystemCenter.OperationalIssue.CustomFieldN

Work item property name: Issue CustomFieldN

Populated on creation and synchronized in both directions

Visible on the “Custom Properties” tab

6. RepeatCount

Alert property: RepeatCount

Work item property type: Microsoft.SystemCenter.OperationalIssue.RepeatCount

Work item property name: Issue RepeatCount

Populated on creation and synchronized from alert to work item if there are other changes that should be synchronized. RepeatCount alone does not trigger synchronization.

Visible on the Properties tab

7. TimeRaised

Alert property: TimeRaised

Work item property type: Microsoft.SystemCenter.OperationalIssue.TimeRaised

Work item property name: Issue TimeRaised

Populated on creation

Visible on the Properties tab

8. Priority

Alert property: Priority

Work item property type: Microsoft.VSTS.Common.Priority

Work item property name: Priority

Populated on creation

Visible on the main tab

Mapping rule:

|  |  |
| --- | --- |
| Operations Manager | TFS |
| High | 1 |
| Medium | 2 |
| Low | 3 |

9. Severity

Alert property: Severity

Work item property type: Microsoft.VSTS.Common.Severity

Work item property name: Severity

Populated on creation

Visible on the main tab

Mapping rule:

|  |  |
| --- | --- |
| Operations Manager | TFS |
| Critical | 1 - Critical |
| Error | 2 – High |
| Warning | 3 – Medium |
| Information | 4 – Low |

10. Rule knowledge article

Alert property: Rule knowledge article for locale saved on template creation or default if KB not found for this language

Work item property type: Microsoft.SystemCenter.OperationalIssue.ProductKnowledge

Work item property name: Issue ProductKnowledge

Populated on creation

Visible on the “Product knowledge” tab

11. Resolution state

 If alert is closed, stop tracking this alert and work item (work item will not be closed)

 Alert state is saved in WI filed ‘Issue Resolution State’ and can be seen in work item history (Create and sync)

 Work item System.State changes resolution state in the following:

|  |  |
| --- | --- |
| TFS | Operations Manager |
| Resolved | Resolved |
| Closed | Resolved |
| Assigned | Acknowledged |
| Accepted | Acknowledged |
| WorkInProgress | Acknowledged |
| Suspended | Acknowledged |
| AwaitingEvidence | Acknowledged |
| Scheduled | Scheduled |

12. History

Alert history contains a list of changed Work item fields with their new values. Only these fields will be displayed there: State, Reason, Priority, Severity, Assigned To, Issue Resolution Notes, Closed Date, and Resolved Date.

13. Link to AppDiagnostics event

14. Problem hash

Alert property: Parsed from alert context

Work item property type: Microsoft.SystemCenter.OperationalIssue.ProblemHash

Work item property name: Issue ProblemHash

Populated on creation

Visible on the History tab

# Configuring the Management Pack for Microsoft Visual Studio Team Foundation Server 2010 Work Item Synchronization

This section provides guidance on configuring and tuning this management pack.

 Best Practice: Create a Management Pack for Customizations

 Using the TFS Work Item Synchronization Template

 Security Configuration

 Using Management Pack Overrides

# Configure TFS Work Item Synchronization

## Configure TFS Work Item Synchronization

### Best Practice: Create a Management Pack for Customizations

By default, Operations Manager saves all customizations such as overrides to the Default Management Pack. As a best practice, you should instead create a separate management pack for each sealed management pack you want to customize.

When you create a management pack for the purpose of storing customized settings for a sealed management pack, it is helpful to base the name of the new management pack on the name of the management pack that it is customizing.

Creating a new management pack for storing customizations of each sealed management pack makes it easier to export the customizations from a test environment to a production environment. It also makes it easier to delete a management pack, because you must delete any dependencies before you can delete a management pack. If customizations for all management packs are saved in the Default Management Pack and you need to delete a single management pack, you must first delete the Default Management Pack, which also deletes customizations to other management packs.

### Using the TFS Work Item Synchronization Template

1. In the Operations Manager console, in the navigation pane, click the Authoring button, click Management Pack Templates, and then, in the tasks pane, click the Add Monitoring Wizard.

2. To open the TFS Work Item Synchronization template, in the Add Monitoring Wizard on the Monitoring Type page, select TFS Work Item Synchronization.

3. On the General Properties page enter the synchronization name and description of the connection, and select a target management pack.

4. On the Server Settings page, enter the TFS server URL to the collection, select the Operations Manager target resource pool, and choose the Run As account to be used for the TFS access. These credentials will be used to manage work items, so they should have the rights to create a new work item type. On the first synchronization the work item type is also imported, so TFS administrator credentials are also required.

5. On the Project Settings page, click Add to add application components previously configured for monitoring with .NET Application Performance Monitoring.

6. Map the selected application components to a TFS project (discovered at the TFS server through connection and populated). This enables escalation of alerts to the mapped project in TFS.

7. Complete the management pack configuration.

### Security Configuration

|  |  |  |
| --- | --- | --- |
| Run As Profile Name | Associated Rules and Monitors | Notes |
| TFS Access Account | All rules connecting to TFS | The account associated with this profile is used to:  **** Import Operational Issue Work Item Type to TFS (account requires admin TFS permissions on the first run)  **** Synchronize TFS work items and Alerts (account requires TFS contributor access permissions) |

### Using Management Pack Overrides

## Overrides for TFS Work Item Synchronization Rule

The Interval Seconds parameter override defines how often the linked TFS work items and Operations Manager alerts are synchronized. The default value is 900 seconds.

The Delta In Hours parameter override defines the time range of the TFS work item history that will be synchronized with the alerts. For example, a default value of 24 means that only changes made to a TFS work item during the past 24 hours will be synchronized. This parameter is important if synchronization is turned off for more than 24 hours, which might create a gap in the alert history that reflects the associated TFS work item history (after synchronization is turned back on). The synchronization cycle is always shorter than Delta in hours when synchronization constantly stays on. This guarantees that complete work item history is synchronized if at least one synchronization cycle occurred during the past 24 hours. The default value is 24 hours.

The Enabled parameter override turns on and off work item synchronization. You might want to turn the rule off to temporarily pause synchronization when you need to perform maintenance on TFS. The default value is Enabled.

## Overrides for TFS Work Item Creation Rule

The Batch Size parameter override defines the maximum number of work items created during one synchronization cycle. The default value is 100. It cannot be overridden, but the counter is reset if Health Service is restarted. The timeout is reset each synchronization.

The Enabled parameter override turns on and off work item creation for new alerts assigned to engineering. You might want to turn the rule off to temporarily pause TFS work item creation when you need to perform maintenance on TFS. The default value is Enabled.

The Interval Seconds parameter override defines how often the synchronization cycle occurs for new alerts assigned to engineering. The default value is 300 seconds.

The Sync Time parameter override initiates a workflow at the scheduled interval.

The Task Timeout Seconds parameter override defines the maximum time allowed for a single synchronization cycle. The default value is 300 seconds.

# Links

The following links connect you to information about common tasks that are associated with System Center Monitoring Packs:

## System Center 2012 - Operations Manager

 [Management Pack Life Cycle](http://go.microsoft.com/fwlink/p/?LinkID=232986)

 [How to Import a Management Pack](http://go.microsoft.com/fwlink/p/?LinkID=219431)

 [Tuning Monitoring by Using Targeting and Overrides](http://go.microsoft.com/fwlink/p/?LinkID=217065)

 [How to Create a Run As Account](http://go.microsoft.com/fwlink/p/?LinkId=232988)

 [How to Export a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232990)

 [How to Remove a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232991)

For questions about Operations Manager and monitoring packs, see the [System Center Operations Manager community forum](http://go.microsoft.com/fwlink/?LinkID=179635).

A useful resource is the [System Center Operations Manager Unleashed blog](http://go.microsoft.com/fwlink/?LinkId=246391), which contains “By Example” posts for specific monitoring packs.

For additional information about Operations Manager, see the [System Center 2012 - Operations Manager Survival Guide](http://go.microsoft.com/fwlink/?LinkId=246383)

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