

Operations Guide for System Center 2012 – Service Manager

Microsoft Corporation

Published: January 15, 2013

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Applies To

System Center 2012 - Service Manager

System Center 2012 Service Pack 1 (SP1) - Service Manager

Feedback

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Revision History

|  |  |
| --- | --- |
| Release Date | Changes |
| January 15, 2013 | Original release of this guide. |

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Operations Guide for System Center 2012 - Service Manager

The Operations Guide for Microsoft System Center 2012 – Service Manager provides information about using the Service Manager console for day-to-day tasks that you perform to manage service desk functions for your organization’s computer infrastructure. This guide provides detailed procedures for the following tasks:

Operations Guide Topics

 [Searching for Information in System Center 2012 - Service Manager](#z8293095c25ce4d26a91055ebfd9a6ae9)

Describes how to search for configuration items and other incidents, problems, and knowledge articles.

 [Managing Incidents and Problems in System Center 2012 - Service Manager](#z7904413bace24e65b609d0804d99c764)

Describes how incidents and problems are created, edited, and resolved.

 [Managing Changes and Activities in System Center 2012 - Service Manager](#z6228f3581256475f8d639bdf62070ecd)

Describes changes and activities are created, edited, and closed.

 [Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

Describes how service requests are created, approved, fulfilled, and closed.

 [Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

Describes how release records are created, edited, combined, and used to track releases.

 [Managing Chargeback Reports in System Center 2012 SP1 - Service Manager](#zd96dba216e3d4e8186d6f168605359a3)

Describes how to manage chargeback reports.

 [Using Data Warehouse Reporting and Analytics in System Center 2012 - Service Manager](#z90c721f66b0e4c35ac853fb2e4134ecc)

Describes how standard reports and OLAP data cubes are used to view data and trends across your Service Manager environment.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Administrator’s Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

Downloadable Documentation

You can download a [copy of this technical documentation from the Microsoft Download Center](http://go.microsoft.com/fwlink/?LinkId=246620). Always use the TechNet library for the most up-to-date information.

Searching for Information in System Center 2012 - Service Manager

In System Center 2012 – Service Manager, you can use the search feature in the Service Manager console to look for information. The search box is in the upper-right corner of the Service Manager console. By default, the search feature looks for all objects. The results can include incidents, change requests, problems, and configuration items of Windows-based computers. You can filter search results by using the filter bar. You can also perform an advanced search for these items plus the following items:

 Knowledge articles

 Domain users

 Manual activities

However, only knowledge articles are returned when you perform a knowledge search.

When you search for most items in Service Manager, only exact keyword matches return results. However, partial matches are returned for configuration items of Windows-based computers. Searches that use wildcard characters are not supported.

When you search for items, you open a view that displays a large number of items, and there are more than 5,000 items in the results, the complete results can take a few minutes to appear.

Managing Incidents and Problems in System Center 2012 - Service Manager

System Center 2012 – Service Manager helps your organization manage incidents and problems by implementing and automating help desk ticketing processes so that these processes comply with the best practices that are described in the Microsoft Operations Framework (MOF) and in the Information Technology Infrastructure Library (ITIL). For more information about MOF 4.0, see [Microsoft Operations Framework](http://go.microsoft.com/fwlink/p/?LinkID=116391).

If you need to add or extend the functionality of Service Manager to implement custom processes for handling incidents and problems, you can use standard Microsoft development tools and the Service Manager SDK.

The procedures in this section are organized according to common problem and incident management scenarios. Even though the sample scenarios refer to a fictitious organization, Woodgrove Bank, the scenarios and steps are based on real use and they describe how to use the problem and incident management features in Service Manager.

At first, the difference between affected items and related items in problem and incident forms might not be obvious. However the difference describes different relationships. An affected item is something that is directly affected by the problem or incident, for example, your computer. Whereas, a related item is something more loosely related but not directly affected. For example, a related item could be any other configuration item that is not directly affected but connected to another configuration item as a reference.

Incident and Problem Topics

 [Sample Scenarios: Managing Incidents and Problems](#z094a22c8b3154bc6872f60efe5e8f961)

Describes the scenarios that involve incidents and problems in Service Manager.

 [Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

Describes how to create, edit, and resolve incidents and incident views.

 [Troubleshooting Incidents](#z44090039636d4ab2bed7b2196397d781)

Describes how to troubleshoot incidents by using service maps and by running tasks.

 [Managing Problems](#z62f1e2c82c7841f6a7378d8fefd6079d)

Describes how to create and edit problem records, how to resolve problems and related incidents automatically, and how to link incidents or change requests to a problem record.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

Sample Scenarios: Managing Incidents and Problems

These sample scenarios for System Center 2012 – Service Manager help you achieve your goal of managing incidents and problems by using multiple scenarios end to end. You can think of these sample scenarios as a case study that helps put the individual scenarios and procedures in context.

Scenarios for Managing Incidents and Problems

|  |  |
| --- | --- |
| Scenario | Description |
| [Managing Incidents](#z9b0245374afc44bc96379e0821d97a00) | Describes how incidents and incident views are created, edited, and resolved. |
| [Troubleshooting Incidents](#z44090039636d4ab2bed7b2196397d781) | Describes how to troubleshoot incidents using service maps and by running tasks. |
| [Managing Problems](#z62f1e2c82c7841f6a7378d8fefd6079d) | Describes how to create and edit problem records, resolve problems and related incidents automatically, and link incidents or change request to a problem record. |

Managing Incidents

In the scenario that encompasses incident management, Phil uses incident management to restore regular operations as quickly and as cost-effectively as possible. For example, by using the E-mail Incident template to populate a new email-related incident, he can quickly create an incident and ensure that the correct Impact, Urgency, Assigned Analyst, and Support Tier fields are configured. Carrying the example further, he creates a new incident for a user who is unable to view an email that was sent with restricted permissions. Phil creates an incident view so that he can easily work with all incidents that are created for email problems. When changes are made to an incident, he edits the incident to reflect the changes.

In another example, an end user experiences a printer problem, and she sends an email message to the help desk. Upon receipt of the message, Service Manager automatically creates an incident from the message. Phil investigates the problem, in part, by viewing the service. After the underlying problem has been solved, he resolves and closes the incident.

At Woodgrove Bank, connectors are configured in such a way that Service Manager imports configuration items and alerts from, so that some new incidents are created automatically. Phil reviews the automatically created incidents for accuracy.

Troubleshooting Incidents

In the scenario that encompasses troubleshooting incidents, Phil is conducting an initial investigation of the problem that Joe is experiencing. Phil suspects that the root cause of the problem is that Microsoft Exchange Server 2010 Service Pack 1 (SP1) needs to be applied to Joe’s Exchange server. However, there are other Exchange servers at Woodgrove Bank that probably also need to be updated. Phil starts his investigation by viewing the service that Garret created for the Exchange service. When any incidents affect a service component, that component is marked with an orange icon resembling a square containing an exclamation point. When a change request affects a service component, the component is marked with a special blue icon resembling a square containing a right-pointing arrow. Phil uses the map view on the Service Components tab to view configuration items and view incidents associated with them. Then, he opens other configuration items and adds them to the open incident.

To further troubleshoot, Phil wants to ping a remote computer that is exhibiting problems. He can use tasks that are part of the Service Manager console instead of having to use various other tools.

Managing Problems

In the scenario that encompasses problem management, Phil has created a change request asking the Exchange Administrators group to apply a service pack that is expected to resolve the problem. When a root cause is found and mitigated or resolved, the change request is completed and Phil is notified. He then uses the prescribed procedures to resolve a problem and automatically resolve incidents associated with the problem.

See Also

[Managing Incidents and Problems in System Center 2012 - Service Manager](#z7904413bace24e65b609d0804d99c764)

Managing Incidents

The procedures in this section describe how to manage incidents by using System Center 2012 – Service Manager.

For a detailed description of the complete scenarios for managing incidents and problems, see [Sample Scenarios: Managing Incidents and Problems](#z094a22c8b3154bc6872f60efe5e8f961).

Help desk analysts use incident management to restore regular operations as quickly and as cost-effectively as possible by creating new incidents. They also work in partnership with Service Manager administrators to ensure that incidents that are created automatically or by end users are correctly categorized and reassigned to appropriate personnel. Methods that analysts use to accomplish these duties include:

 Using the E-mail Incident template to create new incidents.

 Reviewing automatically created incidents, such as those incidents that are automatically created from System Center Operations Manager 2007 using the Operations Manager Alert connector.

 Reviewing and updating incidents that are created by end users who have sent requests by email.

 Combining incidents into parent-child relationships when incidents are related.

To manage an incident, complete the steps in the following table.

|  |  |
| --- | --- |
| Step | Description |
| Step 1: [How to Manually Create a New Incident](#ze6541088f94a4fb580cebe8afad11b81) | Describes how to create new incidents in response to a call from a user or from an email request. |
| Step 2: [How to Change an Existing Incident](#zcb8118ec94ac404abe0dbc34b8996cfa) | Describes how to make changes to an incident in response to new information. |
| Optional step: [How to Contact a User from an Incident Form](#z063d010bc9554499b690561cfd7f9db5) | Describes how to contact a user by email or instant message while you have an incident form open. |
| Step 3: [How to Create an Incident View and Personalize It](#zdd7fbb8298d5433e91df7c721d03608b) | Describes how to create a view of incidents that match the criteria you define. |
| Step 4: [Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387) | Describes the actions you can take to combine incidents into parent-child relationships. |
| Step 5: [How to Resolve and Close an Incident](#z411a309d5233432490e2a4ba6b5ee644) | Describes how to resolve and close an incident after the underlying problem is solved. |

Combining Incidents into Parent-Child Groups

Incidents in System Center 2012 – Service Manager are usually short-lived while help desk analysts investigate and then restore operations. Often, incidents are related and it is useful to group incidents together. You can create a parent incident to group other existing incidents together, which can help provide visibility into them and their relationship to one another.

A Service Manager administrator can define automatic incident resolution settings so that when a parent incident is resolved, all its child incidents resolve automatically, do not resolve automatically, or to let the analyst decide whether to resolve or not. Similarly, an administrator can also define automatic incident reactivation settings so that when a parent incident is reactivated, all its child incidents reactivate automatically, do not reactivate automatically, or to let the analyst decide whether to reactivate the child incidents. Both processes can help you verify that all child incidents are resolved or activated together as a group.

In This Section

[How to Create a Parent Incident from an Incident Form](#zed51d3f3407f4e13aeb4b9205f122e82)

|  |
| --- |
| Describes how to create a new parent incident from an already opened incident. |

[How to Link an Open Incident to a Parent Incident](#zed84b7608601411db98f6890caff61c9)

|  |
| --- |
| Describes how to link an opened incident to an existing parent incident. |

[How to Resolve a Parent Incident](#ze382c8174e464bbb9f7bacb2d45f8694)

|  |
| --- |
| Describes how to resolve a parent incident and its child incidents. |

[How to Link an Active Incident to a Resolved Parent Incident](#zd77cfdc181434729947fd22d80c1ac71)

|  |
| --- |
| Describes how to link an incident to a parent incident that is already resolved. |

[How to Reactivate a Resolved Parent Incident](#z8a74ac01c0034e0f8f913db3d4fd3aba)

|  |
| --- |
| Describes how to reactivate a resolved parent incident and automatically reactivate its child incidents. |

[How to Create a Parent Incident Template](#z1834b9920abb489893db7638c799cb33)

|  |
| --- |
| Describes how to create a parent incident template that new incidents are created from. |

[How to View a Parent Incident from a Child Incident](#zcf542693479f43bd8710128749e3dfe1)

|  |
| --- |
| Describes how to easily open a parent incident from a child incident. |

[How to Link a New Incident to a Parent Incident](#zefb321e9d07e4cee9d312f0bd163de52)

|  |
| --- |
| Describes how to create a new child incident and link it to a related parent incident. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Create a Parent Incident from an Incident Form

In System Center 2012 – Service Manager, one way a help desk analyst can create a parent incident is when an existing incident is already opened. You can create a parent incident using the following steps. A parent incident serves as a container for several incidents.

The following procedure is performed on an incident that is neither a parent incident nor a child incident. Afterward, a new parent incident is created and the existing incident is converted to a child incident.

To create a parent incident from an incident form

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incidents.  2. Select any Incident Management view that contains active incidents, and then select an incident.  3. In the Tasks pane, click Edit to open the incident.  4. In the Tasks pane, click Link to New Parent Incident to open the Link to New Parent Incident dialog box.  5. In the Link to New Parent Incident dialog box, select a template to create the new parent incident with, and then click OK. For example, select Networking Issue Incident Template, and then click OK.  6. In the Title box, type a new description or modify the description that is inserted by the template. For example, type Network Outage in Bldg 773.  7. In the Affected user box, select the user who reported this incident. For example, select Joe Andreshak.  8. In the Alternate Contact Method box, enter additional contact information for the affected user (optional).  9. The Child Incidents tab appears in the form where you view the child incident that the new parent incident is grouped with and where you can add other child incidents.  10. In the parent incident form, click OK to close it.  11. In the original incident form, click OK to close it. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Link an Open Incident to a Parent Incident

The help desk analyst can link open incidents to a parent incident or remove links using the following procedures.

To link open incidents to a parent incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select any incident view that contains one or more incidents that you want to link to a parent incident.  3. Select one or more incidents, and in the Tasks pane, click Link/Unlink to Existing Parent Incident, and then in the submenu, click Link.  4. In the Link to parent incident dialog box, click Link.  5. In the Select Parent Incident dialog box, select the parent incident that you want to link the open incident to, and then click OK to create the link and close the Select Parent Incident dialog box. |

To remove links between child incidents and the parent incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select any incident view that contains one or more incidents that you want to unlink from the parent incident.  3. Select one or more incidents, and in the Tasks pane, click Link/Unlink to Existing Parent Incident, and then in the submenu, click Unlink.  4. In the Unlink confirmation dialog box, click Yes. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Resolve a Parent Incident

In System Center 2012 – Service Manager, the help desk analyst can resolve a parent incident, and then Service Manager will automatically resolve all its child incidents, if the Service Manager administrator has configured Incident settings accordingly. This method of resolving incidents can help the analyst quickly close many child incidents. Use the following procedure to resolve a parent incident.

To resolve a parent incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select the All Open Parent Incidents view, and then in the list of parent incidents, select the incident that you want to resolve.  3. In the Tasks pane, click Change Incident Status, and then in the submenu, click Resolve.  4. In the Resolve dialog box, select a Resolution Category, and then in the Comments box, type a description of the steps that you have taken to resolve the incident.  5. If you want child incidents to resolve automatically and the option is available, ensure that the Resolve child incidents when resolving this parent incident option is selected, and then click OK to resolve the incident—and child incidents, if selected, and then close the Resolve dialog box. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Link an Active Incident to a Resolved Parent Incident

While reviewing active incidents in System Center 2012 – Service Manager, help desk analysts might determine that an incident should have already been resolved because another analyst has already corrected the underlying cause. If there is a closed parent incident, the analyst can use the following procedure to link the incident to the resolved parent and then automatically resolve the active incident.

To link an active incident to a resolved parent and automatically close the active incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select any incident view that contains the incident that you want to a resolved parent to.  3. Select one or more incidents, and in the Tasks pane, click Link/Unlink to Existing Parent Incident, and then in the submenu, click Link.  4. In the Select Parent Incident dialog box, select the resolved parent incident that you want to link the open incident to, and then click OK.  5. In the Link to parent incident dialog box, select Link to parent and resolve incident.  6. If you are linking multiple active incidents to a resolved parent, ensure that you select Repeat this option for all conflicts to automatically resolve all the incidents. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Reactivate a Resolved Parent Incident

In System Center 2012 – Service Manager, the help desk analyst can reactivate a parent incident, and then Service Manager will automatically activate all its child incidents, if the Service Manager administrator has configured Incident settings accordingly. This method of reactivating incidents can help the analyst quickly activate many child incidents. Use the following procedure to reactivate a parent incident.

Depending on parent incident settings in the Administration workspace, behavior of automatic child incident resolution and reactivation varies. For more information about automatic incident resolution, see [How to Set Parent Incident Options](http://go.microsoft.com/fwlink/p/?LinkId=229704) in the Administrator’s Guide for System Center 2012 – Service Manager.

To reactivate a parent incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select the All Incidents view, and then in the list of parent incidents, select the incident that you want to reactivate.  3. In the Tasks pane, click Change Incident Status, and then in the submenu, click Activate.  4. In the Activate dialog box, in the Comments box, type a description of the reason that you are activating the incident.  5. Click OK to activate the incident and child incidents, if they are available and selected, and to close the Activate dialog box. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Create a Parent Incident Template

In System Center 2012 – Service Manager, a parent incident template is used to create new incidents. Incidents created from a template will include information for fields that you do not have to enter manually. By using a template for new incidents, new incidents are created faster than from scratch.

The template author creates a template for release records by using the following procedure.

To create a parent incident template

|  |
| --- |
| 1. In the Service Manager console, open the Library workspace, and in the Library pane, select Templates.  2. In the Tasks list under Template, click Create Template.  3. In the Create Template dialog box, type a name for the incident template and a description of what the template applies.  4. Under Class, click Browse; in the Select a Class box, select Incident; and then click OK to close the Select a Class box.  5. Optionally, you can select the management pack where the template is saved.  6. Click OK to close the Create Template dialog box, and the new incident template form appears.  7. Enter information on the General tab, and then click the Activities tab.  8. Optionally, you can add, delete, or modify manual activities for the template.  9. If you add an activity, the activity form opens. Enter necessary information, and then click OK to save the activity.  10. When you have added all the activities you want, click OK to save the incident template and close it. The incident template then appears in Templates list. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to View a Parent Incident from a Child Incident

In System Center 2012 – Service Manager, the help desk analyst can use the following procedure to easily view parent incidents when a child incident is open. Reviewing parent incident information is often necessary to determine the status of its child incidents. Use the following procedure to view a parent incident from a child incident.

To view a parent incident from a child incident

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Incident Management.  2. Select an incident view that contains a child incident that you want to open, and then select the incident.  3. In the Tasks pane, click Edit.  4. In the incident form banner, the parent incident ID and description appears next to Parent incident. Click the linked parent incident to open it.  5. After reviewing the parent incident information, you can optionally update any information, such as comments, in the Action Log.  6. If you make changes to the parent incident, click OK. Otherwise, click Cancel.  7. If you make changes to the child incident, click OK. Otherwise, click Cancel. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

How to Link a New Incident to a Parent Incident

When analysts create new incidents, System Center 2012 – Service Manager automatically notifies you if any parent incidents exist with the same classification category. The purpose of the notification is to help you combine incidents into parent child groups where a common underlying issue exists. Later, you can use the parent incident to manage the group of incidents as a whole and to serve as a single point of resolution.

Use the following procedure to manually create a new incident and then link it to a related parent.

To link a new incident to a parent incident

|  |
| --- |
| 1. In the Service Manager console, select Work Items.  2. In the Work Items pane, expand Incident Management, and then click an incident view, such as All Incidents.  3. In the Tasks pane, under Incident Management, click Create Incident.  4. In the Tasks pane, click Apply Template.  5. Under Templates in the Apply Template dialog box, select an incident template, such as Software Issue Incident Template, and then click OK.  6. When the template applies a classification category or if you manually select a classification category that is in use by an active parent incident, a message appears in the incident form banner. You can optionally click the link to create a link from the new incident to the existing parent. If you are linking the new incident to a parent incident, perform one of the appropriate following substeps:   If the parent incident is resolved, in the Link to parent incident dialog box, click Link to parent and resolve incident.   Click the link to create the link between the new incident and the parent incident.  7. In the Title box, type a new description or modify the description that is inserted by the template.  8. In the Affected user box, select the user who reported this incident.  9. In the Alternate Contact Method box, enter additional contact information for the affected user (optional).  10. If necessary, click the Related Items tab.  11. Optionally, in the Attached Files area, click Add.  12. Optionally, in the Open dialog box, select the file that you want to attach to this incident, and then click Open. For example, select the screen shot of an error message that the affected user has received.  13. Click OK. |

To validate creation of a new incident

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Incidents. New incidents appear in the All Incidents view. |

See Also

[Combining Incidents into Parent-Child Groups](#za32d0372ac684ddcb60c9a4ff4d55387)

Managing Incidents Overview

In System Center 2012 – Service Manager, help desk analysts use incident management to restore regular operations as quickly and as cost-effectively as possible.

Using the E-mail Incident template to populate a new email-related incident, you can quickly create an incident and ensure that the correct Impact, Urgency, Assigned Analyst, and Support Tier fields are configured.

If you configure connectors so that Service Manager imports configuration items and alerts from Operations Manager, some new incidents are automatically created. An analyst reviews the automatically created incidents for accuracy.

In Service Manager, incidents are automatically created from email requests by users. If the user is recognized as a Service Manager end user, the request that is sent to the help desk email address automatically creates a new incident.

Note

Service Manager can automatically generate new incidents from email requests only after a Service Manager administrator enables inbound email processing. By default, the impact and urgency of every incident created by email submission is set to medium, and no category is assigned.

Normally, you create incidents only for user accounts in your organization that have Active Directory Domain Services (AD DS) accounts that are synchronized with Service Manager. However, you might occasionally need to manually create incidents for users. For example, you might need to create an incident for a new user whose account is not yet in AD DS or if an Active Directory account is not yet synchronized with Service Manager. You can also manually create incidents to support external vendors who do not have Active Directory accounts. In another example, you might need to open an incident for an on-site technician who does not have an Active Directory account but who needs to report an incident. Or, you might need to open an incident for an externally-supported customer who does not have an Active Directory account. In all these examples, you must manually create a user in Service Manager. For more information, see “How to Add a Member to a User Role” in the [Administrator's Guide for System Center 2012 - Service Manager](http://go.microsoft.com/fwlink/p/?LinkID=178233) in the topic.

Depending on the needs of your organization, you might want to have a clear distinction between an incident’s Assigned To user and the primary owner. Within Service Manager, neither use has any implied value. For example, although you can choose both of these two users in an incident form, you might want customers to deal with a single person who is your customer focal point. In this case, that person might be the primary owner who also owns other incidents. An Assigned To user might be one of many analysts who might work on an incident temporarily before the incident is assigned to another analyst before it is ultimately resolved and closed.

IDs that are assigned to change requests and incidents are not created in sequence. However, newer change requests and incidents are assigned IDs with a higher number than the IDs created previously.

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Manually Create a New Incident

In System Center 2012 – Service Manager, incidents are automatically created from email requests by users. However, you can use the following procedures to manually create a new incident in the Service Manager console and then validate it. For example, you might want to manually create a new incident for a person who is experiencing an email-related problem. You can link other affected items, such as various computers, to indicate that the issue affects more than one computer.

To create a new incident from a configuration item view

|  |
| --- |
| 1. In the Service Manager console, select Configuration Items.  2. In the Configuration Items pane, expand Configuration Items, expand Computers, and then click All Windows Computers.  3. In the All Windows Computers view, filter for the computer for which you want to create an incident, and then select the computer. For example, select Exchange01.woodgrove.com.  4. In the Tasks pane, click Create Related Incident.  5. In the Tasks pane, click Apply Template.  6. Under Templates in the Apply Template dialog box, select Software Issue Incident Template, and then click OK.  7. In the Title box, type a new description or modify the description inserted by the template. For example, type User unable to open e-mail that has restricted permissions.  8. In the Affected user box, select the user who reported this incident. For example, select Joe Andreshak.  9. In the Alternate Contact Method box, enter additional contact information for the affected user (optional).  10. Click the Related Items tab.  11. In the Attached Files area, click Add.  12. In the Open dialog box, select the file that you want to attach to this incident, and then click Open. For example, select the screen shot of an error message that the affected user has received.  13. Click OK. |

To create a new incident by email

|  |
| --- |
| 1. In an email program, create a new email message, and enter the help desk alias or email address in the To box. For example, enter Helpdesk@Helpdesk.Woodgrove.com in the To box.  2. In the Subject box, type a subject. For example, enter Unable to print checks.  3. In the message body, type additional information that the help desk analyst can use to correct the problem. For example, enter The check printer has a paper jam. I will use a backup printer until the jam is fixed.  4. Optionally, attach files that the help desk analyst can use to correct the problem. |

To validate creation of a new incident

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Incidents. New incidents appear in the All Incidents view. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Change an Existing Incident

In System Center 2012 – Service Manager, you can use the following procedures to change the urgency of an incident, edit an unassigned incident from Operations Manager, link a knowledge article to an incident, and validate the changes. Users create simplified incidents using the Self-Service Portal, based on the Incident portal template. Because user-created incidents are simplified, analysts often need to revise new incidents with additional information. Additionally, there is no functional difference between incidents created with the Self-Service Portal, using either the Need help with a problem or Need repair or fix options.

Note

Incidents are automatically created by System Center 2012 – Service Manager when the Operations Manager Alert connector is enabled. You can edit the new incidents that are generated when an Operations Manager alert is raised and then assign the incidents to analysts. For more information, see “Importing Data and Alerts from Operations Manager 2007” in [System Center Service Manager 2012 Administrator's Guide](http://go.microsoft.com/fwlink/p/?LinkID=209669).

To change the urgency of an incident

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Open E-Mail Incidents.  3. In the All Open E-Mail Incidents view, select the original incident. For example, select the Unable to print checks incident.  4. In the Tasks pane, click Edit.  5. In the Incident form, in the Urgency list, select High.  6. Optionally, type a comment in the Action Log box. If you do not want end users to be able to read the comment, select the Private check box that is above the Action Log box. For example, in the Action Log box, type The user called to say that the backup printer is unavailable and that this issue is now urgent. Then, click Add. The new comment appears as a log entry.  7. Click OK to close the form and to save your changes. |

To edit an unassigned incident from Operations Manager

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Open Operations Manager Incidents.  3. In the All Open Operations Manager Incidents view, select an incident that was created automatically from an Operations Manager alert.  4. In the Tasks pane, click Edit.  5. In the Incident form, under Support Group, select Tier 1.  6. Under Assigned to, enter the name of the help desk analyst who will investigate the problem.  7. Click OK to close the form and to save your changes. |

To link a knowledge article to an incident

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Open Operations Manager Incidents.  3. In the All Open Operations Manager Incidents view, select the incident that was created automatically from an Operations Manager alert.  4. In the Tasks list, click Search for Knowledge Articles.  5. In the Knowledge Search dialog box, type a search term in the Search for box, and then click Go. For example, type MICR Check Printer Article.  6. Select the article, click Link to <IncidentName>, click OK to close the informational dialog box, and then click Close. |

To validate incident edits

|  |
| --- |
|  Open the incident, and then verify that your changes appear. For example, verify that the comment you entered appears as a log entry. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Contact a User from an Incident Form

In System Center 2012 – Service Manager, you can contact a user by email or by instant message when an incident form is open. The presence indicator is shown in the form next to the affected user’s name, and it displays their current status, if known. For the presence indicator to accurately reflect a user’s status, the user must have an Active Directory account, and the user must be a member of the same domain in which the Service Manager management server has its computer account. Additionally, the computer running the Service Manager console must have Microsoft Office Lync 2010 installed.

Note

If a user’s account belongs to a domain other than the domain in which the Service Manager management server has its computer account, the presence indicator might not accurately display the user’s status.

To contact a user by email

|  |
| --- |
| 1. In an open incident form, click the presence indicator next to the Affected user box, and then click the triangle icon next to the box.  2. Click Send Mail.  3. Your email client program opens and adds the user’s name to the To box. Compose the e-mail message, and then send it. |

To contact a user by instant message

|  |
| --- |
| 1. In an open incident form, click the presence indicator next to the Affected user box, and then click the triangle next to the box.  2. Click Send Instant Message.  3. Your instant message program opens. Compose the instant message, and then send it. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Create an Incident View and Personalize It

In System Center 2012 – Service Manager, you can use the following procedures to create and personalize an incident view and then validate it.

Views let you group incidents that share certain criteria. For example, the following procedure helps you create a view that lists all the incidents in which the classification has been set to E-mail Problems or to some other classification. When you create a new view, it is saved and becomes available for later use.

You can also personalize a view. However, when you personalize changes to a view, those changes are not saved. For example, you can personalize the All Incidents view, but if you change column widths, column sorting, or grouping or if you remove columns, the next time you return to the view it displays information in the same manner as it did before you personalized it.

To create an incident view

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management.  3. In the Tasks pane, click Create View.  4. In the General section of the Create View dialog box, type a name for the view in the Name box. For example, type E-mail Incidents.  5. In the Description box, type a description. For example, type All incidents in which the classification is E-Mail Problem.  6. Click Criteria.  7. Next to the Search for objects of a specific class list, click Browse.  8. In the Select a Class list, under View, select Combination classes, select Incident (Typical), and then click OK.  9. In the Related classes box, ensure that Incident is selected. In the Available properties list, select Classification Category, and then click Add. You might need to scroll to see the Add button.  10. At the end of the Criteria section, in the Criteria definition area, select E-mail problems. When the criterion is complete, it resembles [Incident] Classification Category equals E-Mail Problems.  11. Click Display, and in the Columns to display list, select Status, Classification Category, and Description. Next, under Assigned To User, select Display Name. Then, click OK. |

To personalize an incident view

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then select an incident view. For example, select All Incidents.  3. Right-click any view column heading to resize the columns, to remove items from the results, or to change column sorting and grouping. Repeat this step until you are satisfied with the results. |

To validate the incident view creation

|  |
| --- |
|  In the Work Items pane, ensure that an E-Mail Incidents view exists under Incident Management. Ensure that the view displays all the incidents in the E-Mail Problems category.  Note  It might take a few seconds for the new incident view to appear. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

How to Resolve and Close an Incident

In System Center 2012 – Service Manager, you can use the following procedures to resolve and close an incident and then validate that the incident was resolved and closed.

After you research a problem and resolve its source, you can resolve and close the incident. An incident is considered resolved when the required change has been made. When the affected user has confirmed that the problem that caused the incident has been eliminated, the incident can be closed.

To resolve and close an incident

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click E-Mail Incidents.  3. In the E-Mail Incidents view, select the incident you want to resolve and close.  4. In the Tasks pane, click Change Incident Status and then click Resolve.  5. In the Resolve dialog box, select the appropriate category for resolving this incident in the Resolution Category list. For example, select Fixed by higher tier support.  6. In the Comments box, type a comment that explains the resolution. For example, type Resolved by installing Service Pack 1 on the Exchange server, and then click OK.  7. In the Tasks pane, click Change Incident Status and then Close.  8. In the Close dialog box, type a comment about the closure of the incident, and then click OK. |

To validate that an incident was resolved and closed

|  |
| --- |
|  In the All Incidents pane, the status for the incident or incidents changes from Active to Resolved when you resolve an incident and from Resolved to Closed when you close the incident.  Note  It might take a few seconds for the new status to appear. To immediately view the change, click Refresh. |

See Also

[Managing Incidents](#z9b0245374afc44bc96379e0821d97a00)

Troubleshooting Incidents

The procedure in this section describes how to troubleshoot incidents in System Center 2012 – Service Manager.

For a detailed description of the complete scenario for troubleshooting incidents, see [Sample Scenarios: Managing Incidents and Problems](#z094a22c8b3154bc6872f60efe5e8f961).

Complete the following step to troubleshoot incidents.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Troubleshoot an Incident Using a Service Map](#ze4999d747e5646eea270c9e7b1188c29) | Describes how to troubleshoot an incident using a service map to view the configuration items that are part of a service. |

Note

You might not be able to successfully troubleshoot all incidents with this step.

See Also

[Operations Guide for System Center 2012 - Service Manager](#z98fa2e9c9ede4ce687495665891f2976)

How to Troubleshoot an Incident Using a Service Map

You can use the following procedures to troubleshoot an incident in System Center 2012 – Service Manager using a service map. A service map is a visual representation of a service from the perspective of the business and user that shows critical dependencies, settings, and areas of responsibility. Because a service map can show the relationship between incidents and configuration items, it is especially useful when you troubleshoot issues that might affect multiple incidents and configuration items. For example, if an incident affects one configuration item, other configuration items that are part of the service might also be affected. If necessary, you can add additional configuration items as items that are affected by the same open incident.

Additionally, when you use the Service Components tab to view the service map, you can easily determine whether there are active incidents or change requests open for a service component. When any incidents affect a service component, that component is marked with an orange icon resembling a square containing an exclamation point. When a change request affects a service component, the component is marked with a special blue icon resembling a square containing a right-pointing arrow.

To view incidents that affect service components

|  |
| --- |
| 1. In the Service Manager console, click Configuration Items.  2. In the Configuration Items pane, expand Business Services, and then click All Business Services.  3. In the All Business Services list, double-click a business service. For example, double-click Exchange Service.  4. In the dialog box that opens, click the Service Components tab.  Note that the list of service components includes configuration items. For example, the list might include computers running Microsoft Exchange Server. When a service component is marked with an icon, the icon indicates that an incident is associated with the service component.  5. Select a configuration item that has a related work item. For example, select the Exchange01.woodgrove.com server.  6. In the Related work items for the selected item list, select a work item to view, and then click Open. |

To add related service components to an open incident

|  |
| --- |
| 1. In the list of service components, select an item that has an active incident.  2. Under Related work items for the selected item, select a work item, and then click Open to open the incident.  3. Under Affected Items, click Add.  4. In the Select objects dialog box, select the configuration item to add to the incident, click Add, and then click OK.  5. Click OK to update the incident, and then return to the Service Components tab for the service.  6. Repeat the previous steps to add other service components to the open incident.  7. Click OK to close the service item. |

To validate that the service components were added to an incident

|  |
| --- |
|  Open the business service to which you added the incident, and then click the Related Items tab. Verify that the new incident appears under Work items affecting this configuration item. |

See Also

[Troubleshooting Incidents](#z44090039636d4ab2bed7b2196397d781)

Managing Problems

The procedures in this section describe how to manage problems in System Center 2012 – Service Manager.

For a detailed description of the complete scenario for managing problems, see [Sample Scenarios: Managing Incidents and Problems](#z094a22c8b3154bc6872f60efe5e8f961).

In Service Manager, problems are records that are created to help prevent future problems and incidents from happening, to eliminate recurring incidents, and to minimize the impact of incidents that cannot be prevented. Analysts can use the Service Manager console to create problem records and to associate incidents with problems.

Complete these steps to manage problems in Service Manager.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Create and Edit Problem Records](#zadeb984baef3419fba74b4bc22312757) | Describes how to create and edit problem records to group related incidents. |
| Step 2: [How to Resolve Problem Records and Related Incidents Automatically](#z1030f50e38dc48929092e2e439ed01f3) | Describes how to resolve a single problem to automatically close the related incidents. |
| Step 3: [How to Link an Incident or Change Request to a Problem Record](#z96b8eff6d3474947babe90e4211f27b7) | Describes how to link an incident or change request to an associated problem record. |

See Also

[Managing Incidents and Problems in System Center 2012 - Service Manager](#z7904413bace24e65b609d0804d99c764)

How to Create and Edit Problem Records

In System Center 2012 – Service Manager, you can use the following procedures to create new problem records and then edit them by using the Service Manager console. You can create a new problem record from the Service Manager console, from an incident view, or from an incident form.

To create a new problem record from the console

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Problem Management, and then click Active Problems.  3. In the Tasks pane, click Create Problem.  4. In the Title box, type a title for the problem. For example, type Outlook E-Mail Restricted Permissions.  5. In the Description box, type a description of the problem. For example, type Users cannot view e-mail messages sent with restricted permissions.  6. If you want to assign the problem to an analyst, enter the name of the analyst in the Assigned to box.  7. In the Source list, select the source of the problem request.  8. Select the appropriate values in the Category, Impact, and Urgency boxes.  9. Click OK. |

To create a new problem record from an incident view

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Incident Management, and then click All Incidents.  3. In the All Incidents list, search for incidents whose titles match the problem record that you want to create, and then click Search. For example, search for restricted permission.  4. In the search results, select the incidents for which you want to create a problem record. In the Tasks pane under Selected Items, click Create Problem.  5. In the Title box, type a title for the problem. For example, type Outlook E-Mail Restricted Permissions. When you create a problem by using this method, the problem form inherits the title from the open incident if a single incident was selected. If multiple incidents were selected, the Title box is blank. You can change the title of the problem record.  6. In the Description box, type a description of the problem. For example, type Users cannot view e-mail messages sent with restricted permissions.  7. If you want to assign the problem to an analyst, enter the name of the analyst in the Assigned to box.  8. In the Source list, select the source of the problem request.  9. Select the appropriate values in the Category, Impact, and Urgency boxes.  10. Click OK. |

To create a new problem record from an incident form

|  |
| --- |
| 1. Make sure that an incident is already open. Then, under Tasks, click Create Problem.  2. In the Title box, type a title for the problem. For example, type Outlook E-Mail Restricted Permissions. When you create a problem using this method, the problem form inherits the title from the open incident. You can change the title of the problem record.  3. In the Description box, type a description of the problem. For example, type Users cannot view e-mail messages sent with restricted permissions.  4. If you want to assign the problem to an analyst, enter the name of the analyst in the Assigned to box.  5. In the Source list, select the source of the problem request.  6. Select the appropriate values in the Category, Impact, and Urgency boxes.  7. Click OK. |

To edit a problem record

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Problem Management, and then click Active Problems.  3. In the Active Problems view, double-click a problem. For example, double-click the Outlook E-Mail Restricted Permissions problem.  4. In the problem form, edit information that needs to be changed. For example, if a workaround is found for the problem, click the Resolution tab. Then, in the Workarounds field, type the workaround steps.  5. Click OK. |

To validate the creation of a new problem record

|  |
| --- |
|  In the Tasks list, click Refresh to view the new problem record, or open the problem record to view the revised information. |

See Also

[Managing Problems](#z62f1e2c82c7841f6a7378d8fefd6079d)

How to Resolve Problem Records and Related Incidents Automatically

In System Center 2012 – Service Manager, you can use the following procedures to resolve a problem record and the incidents that are associated with it and then validate the resolution.

To resolve a problem record and the incidents that are associated with it

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Problem Management, and then click Active Problems.  3. In the Active Problems view, double-click the problem record that you want to resolve. Then, in the Tasks pane, click Resolve.  4. Click the Resolution tab, and then click to select the Auto-resolve all incidents associated with this problem check box.  5. In the Resolution Category box, select the appropriate category.  6. In the Resolution Description box, type a summary of the resolution for this problem record. For example, type Application of Exchange Server 2010 SP1 fixed the restricted permission problem that affected users across forests.  7. Click OK. |

To validate problem and incident resolution

|  |
| --- |
|  Verify that the incidents associated with the problem record appear in the All Incidents view and that they have a status of Resolved.  Note  It might take a few minutes for the incident status to be updated to Resolved. |

See Also

[Managing Problems](#z62f1e2c82c7841f6a7378d8fefd6079d)

How to Link an Incident or Change Request to a Problem Record

In System Center 2012 – Service Manager, you can use the following procedure to link an incident or change request to a problem record if you created a problem record without linking it to an existing incident or change request.

To link an incident or change request to a problem record

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Problem Management, and then click Active Problems.  3. In the Active Problems view, double-click a problem record. For example, double-click the Outlook E-mail Restricted Permissions problem record.  4. In the problem form, click the Related Items tab.  5. Under Work Items, click Add.  6. In the Select objects dialog box, either select a work item or search for and select one or more work items to link to the problem record. Click Add, and then click OK.  7. Click OK to close the form. |

To validate the link

|  |
| --- |
|  In the Active Problems view, open the problem record to which you linked a work item, click the Related Items tab, and then verify that the items you linked appear under Work Items. |

See Also

[Managing Problems](#z62f1e2c82c7841f6a7378d8fefd6079d)

Managing Changes and Activities in System Center 2012 - Service Manager

Information Technology (IT) departments must manage changes to their IT environment and the risk associated with such changes. The change management features in System Center 2012 – Service Manager help you manage change by providing repeatable, predictable, and measured processes to implement change.

The topics in this section are organized according to common change management scenarios. Even though the sample scenarios refer to a fictitious organization, Woodgrove Bank, the scenarios and steps are based on real use, and they describe how to use the change and activity management features in Service Manager.

Change and Activity Topics

 [Sample Scenario: Managing Changes and Activities](#z725f7ff7eae943b4aab11e2f14019777)

Describes the scenarios that involve change requests and activities in Service Manager.

 [Initiating and Classifying a Change Request](#z16d49b02a26640d3a81efdb9405d0e56)

Describes how change requests are started and classified and how to add items and activities to change requests.

 [Approving and Modifying Change Requests](#z39d5b372f08f402fb80c195f8f11d67b)

Describes how to modify change requests by adding change details and change reviewers. Also describes how to approve a review activity.

 [Suspending and Resuming a Change Request](#zf03242bfa04143888f94e9d68e2eeb30)

Describes how to pause, resume, and unblock a failed change request.

 [Implementing and Closing a Change Request](#z61d3e06abe674203a47ba6af1a01702a)

Describes how to complete manual activities to track tasks, how to close a change request after you finalize the changes, and how to notify users.

Other Resources for This Component

 TechNet Library main page for System Center Service Manager 2012

 Planning Guide for System Center 2012 - Service Manager

 Administrator's Guide for System Center 2012 - Service Manager

Sample Scenario: Managing Changes and Activities

This sample scenario for System Center 2012 – Service Manager helps you achieve your goal of managing changes and activities by using multiple scenarios end to end. You can think of this sample scenario as a case study that helps put the individual scenarios and procedures in context.

Scenarios for Managing Changes and Activities

|  |  |
| --- | --- |
| Scenario | Description |
| [Initiating and Classifying a Change Request](#z16d49b02a26640d3a81efdb9405d0e56) | Describes how change requests are started and classified. Also describes how to add items and activities to change requests. |
| [Approving and Modifying Change Requests](#z39d5b372f08f402fb80c195f8f11d67b) | Describes how to modify change requests by adding change details and change reviewers. Also describes how to approve a review activity. |
| [Suspending and Resuming a Change Request](#zf03242bfa04143888f94e9d68e2eeb30) | Describes how to pause and resume a change request. |
| [Implementing and Closing a Change Request](#z61d3e06abe674203a47ba6af1a01702a) | Describes how to complete manual activities to track tasks, how to close a change request after you finalize the changes, and how to notify users. |

Initiating and Classifying Change Requests

In the scenario that encompasses initiating and classifying a change request, Julia, the messaging support analyst, wants to propose and track a change. To do this, she creates a change request to capture information that she and others will use to evaluate, plan, develop, test, deploy, and assess changes. Julia starts by initiating the change request and then identifying its priority and category.

In incident management scenarios, Phil created an incident in which a user had a messaging problem, and he completed an initial investigation of the problem. In this scenario, Julia continues to investigate the same incident. She verifies that the cause is a known issue and that Microsoft Exchange Server 2010 SP1 fixes it. She also determines that all Exchange servers need the service pack, not just a single server. Next, Julia views the service map for the Exchange service configuration item that requires the service pack, and she opens a change request from the service’s configuration item form. Lastly, Julia attaches a saved screen shot to the change request, which might help later with the change request review.

After the change request is created, the change reviewers at Woodgrove Bank must approve the change request, and the change implementers must complete the actions that are required for the change. These review and implementation steps are defined in the change request as a set of review activities and manual activities.

Approving Change Requests

In the scenario that encompasses approving a change request, Garret wants to enforce the Woodgrove Bank business process of requiring approval of any IT infrastructure changes before the changes are deployed. He wants to enforce this business process by using Service Manager to associate review activities for a change request. By requiring approval, the change request is implemented only after decision makers at Woodgrove Bank agree that the change is necessary. Garret can set up various review methods, such as unanimous voting, percentage of positive votes, or automatic approval.

The procedures that are related to this scenario describe a change to Woodgrove Bank’s IT infrastructure that is approved before deployment.

Suspending and Resuming Change Requests

During the course of reviewing the readiness of a change request, Garret occasionally wants to put a change request on hold and then later resume that change request. For example, Julia previously created a change request. That change request depends on the additional work of an external team. Garret wants to put that change request on hold until the external team completes its work. Garret will resume the change request after the external team's work is complete. Garret also wants to occasionally unblock failed change requests.

Implementing and Closing Change Requests

After changes to Garret’s IT infrastructure are tested and approved for deployment, his final step is to finish any remaining manual activities that are associated with the change request. A manual activity must be designated as either completed or failed. When all manual activities are completed, the change request is automatically set as completed, and it appears in the Change Requests: Completed view. If a manual activity fails, the change request is automatically set as failed, and it appears in the Change Requests: Failed view. When the change request appears in either view, Garret can close the change request. After a change request has been closed, it cannot be reopened.

In the scenario that encompasses implementing and closing change requests, Aaron completes a warranty review manual activity. Next, Garret sets the change request’s remaining manual activities to Completed, and closes the change request. Garret opens a second existing change request, sets the post-implementation manual activity to Failed, and then closes that change request.

See Also

[Managing Changes and Activities in System Center 2012 - Service Manager](#z6228f3581256475f8d639bdf62070ecd)

Initiating and Classifying a Change Request

The procedures in this section describe how to initiate and classify a change request in System Center 2012 – Service Manager from start to finish.

For a detailed description of the complete scenario for initiating and classifying a change request, see [Sample Scenario: Managing Changes and Activities](#z725f7ff7eae943b4aab11e2f14019777).

A change request normally results in a change to a configuration item. Therefore, it is important to understand the difference between a related item and a linked or affected item. A related item indicates that an association exists between the change request and a configuration item or other change requests. In other words, the change request might affect the related item or it might not. An affected or linked item indicates that the change request is tied directly to the item and that the change will affect the item itself.

Complete the following steps to initiate and classify a change request.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Create a New Change Request](#z7c531d5f915a4c568bece70e839ab396) | Describes how to create a new change request for a service to modify server infrastructure. |
| Step 2: [How to Add Related Items to a Change Request](#zcdd6ed792a0947e094c5c29e98c15f3c) | Describes how to add items, such as files, to a change request. |
| Step 3: [How to Add Manual Activities to a Change Request](#ze1182c490c654d93a8b1b309d5940bcc) | Describes how to add a manual activity to a change request to manage tasks. |
| Step 4: [How to Add Dependent Activities to a Change Request for Release Records](#zb2fc25f58af247cab8e9aba8029bdccc) | Describes how to add a dependent activity to a change request for a release record. |

See Also

[Managing Changes and Activities in System Center 2012 - Service Manager](#z6228f3581256475f8d639bdf62070ecd)

How to Create a New Change Request

You can use the following procedures in System Center 2012 – Service Manager to create a change request for servers that are part of a service and then validate the creation of the change request. First, you view items from the service dependency view. Then, you navigate to the configuration items and open a change request template. Lastly, you assess the priority, impact, and risk level of the request. Although you create the change request from a service dependency view, you can also create a new change request from other places in Service Manager.

Note

IDs that are assigned to change requests and incidents are not created in sequence. However, newer change requests and incidents are assigned IDs with a higher number than ones created previously.

To create a change request

|  |
| --- |
| 1. In the Service Manager console, click Configuration Items.  2. In the Configuration Items pane, expand Business Services, and then click All Business Services.  3. In the All Business Services pane, double-click the service. For example, double-click IT Messaging Service.  4. In the dialog box that opens, click the Service Dependents tab.  5. In the Expand to list, click Level 1, and then view the items in the list. Notice the server names. For example, Exchange01.woodgrove.com and Exchange02.woodgrove.com appear in the list.  6. In the Service Dependents list, select a computer, and then click Open. For example, select and open Exchange01.woodgrove.com.  7. In the computer form, click Create Related Change Request under Tasks.  8. In the Select Template dialog box, click a template, and then click OK. For example, click Changes to messaging infrastructure template.  9. In the Title box, type a name for the change request. For example, type Apply Exchange Server 2010 Service Pack 1. Notice that various values in the form are populated with information from the change request template.  10. In the Description and Reason fields, type a description and the reason for the change request. For example, type Apply Exchange Server 2010 Service Pack 1 to these servers in the Description field, and type The service pack fixes the problem that these servers have in the Reason field.  11. In the Assigned To field, enter the name of the person to whom you want to assign the change request. For example, type Aaron Lee.  12. Specify the priority, impact, and risk. For example, In the Priority list, select Medium. In the Impact list, select Standard. In the Risk list, click Medium.  13. In the Config Items To Change list, make sure that one server is listed, and then click Add.  14. In the Select Objects dialog box, select another item to add to the change request, and then click Add. For example, select Exchange02.woodgrove.com, and then click OK.  15. Click OK to close the change request form. |

To validate the creation of a change request

|  |
| --- |
| 1. Open the service that contains the items for which you created the change request, and then click the Service Dependents tab.  2. In the Service Components list, notice that the two servers you opened the change request for are marked with YES under the Affected By Change column.  3. Click Cancel to close the service. |

See Also

[Initiating and Classifying a Change Request](#z16d49b02a26640d3a81efdb9405d0e56)

How to Add Related Items to a Change Request

In System Center 2012 – Service Manager, you can use the following procedures to add related items to a change request and then validate the addition of the items. You can add related items, such as configuration items, incidents, other change requests, files, and knowledge articles. When you add files, such as saved screen shots, saved written procedures, and knowledge articles, reviewers and implementers can more easily review, approve, and implement the change.

To add files to any work item, including change requests, you must first enable the appropriate option. For more information, see [How to Configure General Change Settings](http://go.microsoft.com/fwlink/p/?LinkID=178233) in the Service Manager Administrator’s Guide.

To add related items to a change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Change Management, and then click All Change Requests.  3. In the All Change Requests pane, double-click the change request to which you want to add an item.  4. Click the Related Items tab.  5. On the Related Items tab under Attached Files, click Add to attach a file to the change request.  Note  You might need to maximize the form to view buttons on the tab.  6. Under Knowledge Articles, click Add to attach a knowledge article to the change request.  7. Click OK. |

To validate that you added related items to a change request

|  |
| --- |
|  To verify that the file and knowledge articles were attached to the change request, reopen the change request, and then click the Related Items tab. |

See Also

[Initiating and Classifying a Change Request](#z16d49b02a26640d3a81efdb9405d0e56)

How to Add Manual Activities to a Change Request

In System Center 2012 – Service Manager, you can use the following procedures to add a manual activity and then assign it to yourself and then validate that the manual activity was added. For example, when you investigate a new change request, you might want to add a manual activity to the change request. This manual activity could be any task that is not defined in the change request template that was used to create the change request.

Note

You cannot delete an activity in a change request if the change request is in progress, however you can skip the activity or put the change request on hold and then delete the activity.

To add a manual activity

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Change Management, and then click All Change Requests.  3. Double-click the change request to which you want to add a manual activity. For example, double-click Apply Exchange Server 2010 Service Pack 1.  4. Click the Activities tab, and then click Add. In the Select Template dialog box, click Default Manual Activity, and then click OK.  5. In the Title box, type a name that describes the manual activity. For example, type Warranty Review.  6. In the Description box, type a description of the manual activity. For example, type Verify that the server is still under warranty before approval.  7. Under Activity Implementer, click the ellipsis button (…).  8. In the Select User dialog box, select the name of the person who will perform the manual activity, and then click OK. For example, select Aaron Lee.  9. Click OK to update the changes to the manual activity.  10. Click OK to update the change request and to close the form. |

To validate that the manual activity was added

|  |
| --- |
|  Reopen the change request, and then click the Activities tab to view the manual activity that you added. |

See Also

[Initiating and Classifying a Change Request](#z16d49b02a26640d3a81efdb9405d0e56)

How to Add Dependent Activities to a Change Request for Release Records

In System Center 2012 – Service Manager, you can use the following procedures to add a dependent activity to an existing change request, which is used as part of the release management process. Although you can add dependent activities to work items, such as release records and service requests, the primary purpose of a dependent activity is for use as a mechanism to associate a change request with a release record. Specifically, a manual activity in a release record is linked to the dependent activity in a change request. When it is completed, the dependent activity indicates that the release management process is complete for the change request.

If you intend to use release management as part of the standard processes in your organization, consider adding dependent activities to change request templates. For more information about creating change request templates, see [How to Create Change Request Templates](http://go.microsoft.com/fwlink/p/?LinkId=229752).

To add a dependent activity to a change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Change Management, and then click All Change Requests.  3. Double-click the change request to which you want to add a dependent activity. For example, double-click Apply Exchange Server 2010 Service Pack 1.  4. Click the Activities tab, and then click Add. In the Select Template dialog box, click Default Dependent Activity, and then click OK.  5. In the Title box, type a name that describes the dependent activity. For example, type Exchange Server 2010 SP1 - Deploy, Test, and Verify .  6. In the Description box, type a description of the dependent activity. For example, type Verify that the service pack is deployed, tested, and verified successful.  7. Under Owner, click the ellipsis button (…).  8. In the Select User dialog box, select the name of the person who has overall responsibility for the dependent activity, and then click OK.  9. Under Assigned To, click the ellipsis button (…).  10. In the Select User dialog box, select the name of the person who will perform the dependent activity, and then click OK. For example, select Aaron Lee.  11. As an option, specify scheduling information on the Scheduling tab.  12. Click OK to update the changes to the dependent activity.  13. Click OK to update the change request and to close the form. |

To validate that the dependent activity was added

|  |
| --- |
|  Reopen the change request, and then click the Activities tab to view the dependent activity that you added. |

See Also

[How to Create Change Request Templates](http://go.microsoft.com/fwlink/p/?LinkId=229752)

[How to Choose Changes to Deploy](#z0e7ff2f44aca47429401e78f654a1d79)

Approving and Modifying Change Requests

The procedures in this section describe how to approve a change request in System Center 2012 – Service Manager.

For a detailed description of the complete scenario for approving a change request, see [Sample Scenario: Managing Changes and Activities](#z725f7ff7eae943b4aab11e2f14019777).

Complete the following steps to approve or modify a change request.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Edit a Change Request](#z9020784e313348ceb76ef7a23ca2c46f) | Describes how to edit a change request to add or revise details. |
| Step 2: [How to Add a Change Reviewer](#za99893e3d65e4ae18961b143611296b5) | Describes how to add a change reviewer to a change request. |
| Step 3: [How to Approve a Review Activity Using the Console](#z1fbac36580a845f792f62fa22ab7c9ec) | Describes how to approve a review activity for a change request. |
| Step 4: [How to Send Automated Activity and Change Request Notifications](#z0800e73417c5401dbe04dcfec61a7c4b) | Describes how to notify users when they have an activity that requires approval or when a change request is closed. |

How to Edit a Change Request

In System Center 2012 – Service Manager, you can use the following procedures to edit a change request and then validate the edit. For example, you might want to change the priority of an existing change request from medium to high.

Note

You cannot delete an activity in a change request if the change request is in progress, however you can skip the activity or put the change request on hold and then delete the activity.

To edit a change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Change Management, and then click All Change Requests.  3. Double-click a change request. For example, double-click Apply Exchange Server 2010 Service Pack 1.  4. Make the change that you want. For example, if you want to change the priority to high, select High in the Priority list. Or, type new text in the Description box.  5. Click OK to update the change request and to close it. |

To validate an edited change request

|  |
| --- |
| 1. Double-click the change request that you updated.  2. Verify that your changes are displayed in the change request form. |

See Also

[Approving and Modifying Change Requests](#z39d5b372f08f402fb80c195f8f11d67b)

How to Add a Change Reviewer

In System Center 2012 – Service Manager, you can use the following procedures to add a change reviewer for an existing change request and then validate that the reviewer was added. You can select who reviews change requests in a way that supports your business processes. For example, if a change affects a process for which certain people are responsible, you can give those people the ability to approve change requests that affect the process.

To add a change reviewer

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, click Change Management, and then click All Change Requests.  3. Double-click a change request to open it. For example, double-click Apply Exchange Server 2010 Service Pack 1.  4. Click the Activities tab to view the list of manual and review activities.  5. Double-click the activity to which you want to add a reviewer. The activity must have a status of In Progress or Pending, and in the ID column, the activity must also have the RA prefix or the prefix you defined for review activities.  6. In the dialog box that appears, click Add, type the name of a reviewer, select Must Vote, and then click OK. For example, type Aaron Lee.  7. Click OK to close the dialog box, and then click OK to update the change request and to close the form. |

To validate that a reviewer was added

|  |
| --- |
| 1. Double-click the change request to which you added a reviewer. For example, double-click Apply Exchange Server 2010 Service Pack 1.  2. Click the Activities tab, and then double-click the activity to which you added a reviewer.  3. Verify that the reviewer was added. |

See Also

[Approving and Modifying Change Requests](#z39d5b372f08f402fb80c195f8f11d67b)

How to Approve a Review Activity Using the Console

In System Center 2012 – Service Manager, you can use the following procedures to approve a review activity in the Service Manager console and then validate the approval. In many cases, multiple people or groups must vote to approve a single review activity before its approval is final.

Note

Users can only approve or reject the activities that are assigned to them.

To approve a review activity for a change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Review Activities, and then click In-Progress Activities.  3. Select a review activity. For example, select the Messaging Infrastructure Request Approval.  4. In the Tasks pane, click Approve.  5. In the Comments dialog box, type any comments that you have for the approval or rejection, and then click OK. |

To validate review activity approval

|  |
| --- |
|  If all the reviewers approved the activity, the activity does not appear in the In-Progress Activities view.   If an activity is still in progress, it requires approval from other reviewers. Click In-Progress Activities, and then open the activity to view your voting status. |

See Also

[Approving and Modifying Change Requests](#z39d5b372f08f402fb80c195f8f11d67b)

Suspending and Resuming a Change Request

The procedures in this section describe how to suspend and resume a change request in System Center 2012 – Service Manager.

For a detailed description of the complete scenario for suspending and resuming a change request, see [Sample Scenario: Managing Changes and Activities](#z725f7ff7eae943b4aab11e2f14019777).

Complete the following steps to suspend or resume a change request.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Put a Change Request on Hold](#zc615d67156ee4e349dd1444fd005921c) | Describes how to put a change request on hold indefinitely. |
| Step 2: [How to Resume a Change Request](#zf2f6fe0479894e5c89790643cfb037ff) | Describes how to resume a change request that was put on hold. |
| Optional step: [How to Unblock a Failed Change Request](#zb523841adac945c68d12b4d66b2f31ae) | Describes how to unblock a failed change request. |

See Also

[Managing Changes and Activities in System Center 2012 - Service Manager](#z6228f3581256475f8d639bdf62070ecd)

How to Put a Change Request on Hold

You can use the following procedures to put a change request on hold in System Center 2012 – Service Manager and then validate that the change request is on hold. For example, you might need to put a change request on hold if an external team needs to complete a manual activity.

To put a change request on hold

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Change Management, and then click Change Requests: Manual Activity In Progress.  3. Select a change request to put on hold. For example, select Apply Exchange Server 2010 Service Pack 1.  4. In the Tasks pane, click Put On Hold.  5. In the Comments dialog box, type a note that indicates why the change request was put on hold, and then click OK. |

To validate that the change request is on hold

|  |
| --- |
|  Click the Change Requests: On Hold view to ensure that the change request has been put on hold. |

See Also

[Suspending and Resuming a Change Request](#zf03242bfa04143888f94e9d68e2eeb30)

How to Resume a Change Request

You can use the following procedures to resume a change request that was put on hold in System Center 2012 – Service Manager and then validate that the change request was resumed. For example, you might need to resume a change request after an external team has completed a manual activity.

To resume a change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Change Management, and then click Change Requests: On Hold.  3. Select a change request. For example, select Apply Exchange Server 2010 Service Pack 1.  4. In the Tasks pane, click Resume.  5. In the Comments dialog box, type a comment, and then click OK. |

To validate the change request was resumed

|  |
| --- |
|  If the current activity for a change request is a review activity, click the Change Requests: In Review view to ensure that the change request was resumed.   If the current activity for a change request is a manual activity, click the Change Requests: Manual Activity In Progress view to ensure that the change request was resumed. |

See Also

[Suspending and Resuming a Change Request](#zf03242bfa04143888f94e9d68e2eeb30)

How to Unblock a Failed Change Request

In System Center 2012 – Service Manager, you can use the following procedures to unblock a failed change request and then validate that the change request is unblocked. For example, you might need to unblock an activity of a change request that a review board or other review body has failed. Unblocking the change request resets the change request so that the change owner can provide more information.

To unblock a failed change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Change Management, and then click Change Requests: Failed.  3. Select a change request. For example, select Apply Exchange Server 2010 Service Pack 1.  4. In the Tasks pane, click Return To Activity.  5. In the Return to Activity dialog box, select the failed activity, type a comment in the Comments box, and then click OK. |

To validate the change request is unblocked

|  |
| --- |
|  If the failed activity for a change request is a review activity, click the Change Requests: In Review view to ensure that the change request is unblocked.   If the failed activity for a change request is a manual activity, click the Change Requests: Manual Activity In Progress view to ensure that the change request is unblocked. |

See Also

[Suspending and Resuming a Change Request](#zf03242bfa04143888f94e9d68e2eeb30)

Implementing and Closing a Change Request

The procedures in this section describe how to implement and close a change request in System Center 2012 – Service Manager.

For a detailed description of the complete scenario for implementing and closing a change request, see [Sample Scenario: Managing Changes and Activities](#z725f7ff7eae943b4aab11e2f14019777).

Complete the following steps to implement and close a change request.

|  |  |
| --- | --- |
| Task | Description |
| Step 1: [How to Complete or Fail a Manual Activity](#z5d552d913bab4fc18f101589bf4098fc) | Describes how to complete or fail a manual activity to track tasks. |
| Step 2: [How to Close a Change Request](#z36dc09ae117f4fa2bb0e641685b3601b) | Describes how to close a change request after changes are finalized or after the change request fails. |
| Optional Step: [How to Send Automated Activity and Change Request Notifications](#z0800e73417c5401dbe04dcfec61a7c4b) | Describes how to send automatic notifications for activities and change requests. |

See Also

[Managing Changes and Activities in System Center 2012 - Service Manager](#z6228f3581256475f8d639bdf62070ecd)

How to Complete or Fail a Manual Activity

You can use the following procedures to complete or fail a manual activity in System Center 2012 – Service Manager and then validate that the manual activity is complete or failed.

To successfully complete a manual activity

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Manual Activities, and then click In-Progress Activities.  3. Select the manual activity.  4. In the Tasks pane, click Mark as Completed.  5. In the Comments box, type a comment, and then click OK. |

To fail a manual activity

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Manual Activities, and then click In-Progress Activities.  3. Select the manual activity.  4. In the Tasks pane, click Mark as Failed.  5. In the Comments box, type a comment, and then click OK. For example, type The post-implementation analysis indicates that the new hardware does not adequately meet our needs and has failed the review. |

To validate that a manual activity is complete or failed

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Manual Activities, and then click All Activities.  3. Verify that the manual activity is set to either Completed or Failed. |

See Also

[Implementing and Closing a Change Request](#z61d3e06abe674203a47ba6af1a01702a)

How to Close a Change Request

In System Center 2012 – Service Manager, you can use the following procedures to permanently close a successful change request or a failed change request and then validate the closure of the change request. You cannot reopen a closed change request.

Note

If an end user cancels a software request before the software is deployed to the end user’s computer, the associated change request might reflect the In Progress status indefinitely. If this occurs, cancel the request and then close it.

To close a successful change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Change Management, and then click Change Requests: Completed.  3. Select the change request.  4. In the Tasks pane, click Close.  5. In the Comment box, type a comment, and then click OK. |

To close a failed change request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, click Change Management, and then click Change Requests: Failed.  3. Select the change request.  4. In the Tasks pane, click Close.  5. In the Comments box, type a comment, and then click OK. |

To validate the closure of a change request

|  |
| --- |
|  Click the Change Requests: Closed view to ensure that the closed change request appears in the list. |

See Also

[Implementing and Closing a Change Request](#z61d3e06abe674203a47ba6af1a01702a)

How to Send Automated Activity and Change Request Notifications

In System Center 2012 – Service Manager, you can use the following procedure to notify reviewers that an activity is available for review. You can use the second procedure to notify users that a change request has been closed.

Note

Only administrators can configure workflow notifications.

To notify reviewers that an activity is available for review

|  |
| --- |
| 1. In the Service Manager console, click Administration.  2. In the Administration pane, expand Workflows, and then click Configuration.  3. Select Activity Event Workflow Configuration, and then click Configure Workflow Rules in the Tasks pane.  4. In the Select a Class dialog box, select Review Activity, and then click OK.  5. In the Configure Workflows dialog box, click Add.  6. In the Configure Workflows for Objects of Class Review Activity Wizard, click Next on the Before You Begin page.  7. On the Workflow Information page, type a name and a description for the workflow. In the Check for events list, ensure that the When an object is updated item is selected, and then click Next.  8. On the Specify Criteria page, select the Changed From tab. Under Available Properties, select Status, and then click Add.  9. Under Criteria, select Pending, and then select the Changed To tab. Under Available Properties, select Status, and then click Add.  10. Under Criteria, select In Progress, and then click Next.  11. On the Apply Template page, clear the Apply the selected template check box, and then click Next.  12. On the Select People to Notify page, select the Enable notification.  13. Under User, select Assigned To User.  14. Under E-mail Template, if you cannot select a template, click Create E-Mail Template. Otherwise, select an email notification template to apply.  15. If you are creating an email notification template, complete the Create E-Mail Notification Template Wizard.  16. After you have selected an email template, click Add, ensure that Reviewers appears under the User column, and then click Next.  17. On the Summary page, review the summary information, and then click Create.  18. On the Completion page, click Close. |

To notify users that a change request has been closed

|  |
| --- |
| 1. In the Service Manager console, click Administration.  2. In the Administration pane, expand Workflows, and then click Configuration.  3. Select Change Request Event Workflow Configuration, and then click Configure Workflow Rules in the Tasks pane.  4. In the Configure Workflows dialog box, click Add.  5. In the Configure Workflows for Objects of Class Change Request Wizard, click Next on the Before You Begin page.  6. On the Workflow Information page, type a name and a description for the workflow. In the Check for events list, ensure that the When an object is updated item is selected, and then click Next.  7. On the Specify Criteria page, select the Changed From tab. Under Available Properties, select Status, and then click Add.  8. Under Criteria, select Completed.  9. Click the Changed To tab.  10. Under Available Properties, select Status, and then click Add.  11. Under Criteria, select Closed, and then click Next.  12. On the Apply Template page, clear the Apply the selected template check box, and then click Next.  13. On the Select People to Notify page, select the Enable notification check box.  14. Under User, select Assigned To User. Under Template, select Assigned To User Notification Template, click Add, and then click Next.  15. On the Summary page, review the summary information, and then click Create.  16. On the Completion page, click Close. |

To validate receipt of the notification

|  |
| --- |
|  The reviewer of the review activity or the user that the change request is assigned to receives an email message that indicates that a new review activity requires approval or that the change request was closed. |

See Also

[Implementing and Closing a Change Request](#z61d3e06abe674203a47ba6af1a01702a)

Managing Service Requests in System Center 2012 - Service Manager

Service requests are requests for existing, preauthorized services and features that System Center 2012 – Service Manager can manage as a type of work item. Service requests help you deliver a service request fulfillment solution to align your business and information technology (IT) strategy and ensure that IT services provide business value. Service requests are tightly coupled with the service catalog, and together they help add value to your IT organization by clearly managing service requests. This can help lead to a better understanding of the supply and demand for services and a more efficient and transparent customer service provided by your IT organization.

Service request functionality in Service Manager is based on Microsoft Operations Framework (MOF) 4.0 and Information Technology Infrastructure Library (ITIL) V3 processes in order to align with industry standards. While not all functionality was completed with strict adherence to those standards, the following items are included in service request fulfillment in Service Manager:

 Processes to record, track, and process service requests

 Service fulfillment workflow automation

 A consistent interface that helps Service Manager administrators identify and map their existing IT services

 Support for situations where cost tracking and service level agreements (SLAs) are required

 Time-to-resolution tracking through SLA integration

Service request topics

 [How to Create a Service Request Using the Service Manager Console](#z37a6b6427b1f47d0b9cc7efd3c4a2dbe)

Describes how to create a service request from the Service Manager console.

 [How to Approve and Complete a Service Request Using Activities](#z2c415e097113496c94ae86b89c07e4a9)

Describes how to approve and complete a service request using activities.

 [How to Cancel a Service Request](#z55184e303c0c4de194582c44b1cef2dc)

Describes how to cancel a service request.

 [How to Close a Service Request](#zfef8dbc23e894b5688aa0f36de1cbcaa)

Describes how to close a service request after it has been completed.

 [How to View Service Request Details](#zb897706a4fdc4e178a89284554380202)

Describes how to view the details of a service request.

 [How to Duplicate or Hide Views for Service Requests](#za4cb0ca1f9094c22852ff2cada96dae1)

Describes how to duplicate or hide service request views.

How to Create a Service Request Using the Service Manager Console

End users often create service requests in System Center 2012 – Service Manager by accessing the service catalog from the Self-Service Portal or by submitting email requests. However, you can use the following procedure to manually create a new service request in the Service Manager console. For example, you might want to manually create a new service request if a user contacts the help desk by telephone. In the following example, you can update any information that you want to as you complete the form.

To create a new service request using the Service Manager console

|  |
| --- |
| 1. In the Service Manager console, expand Work Items, expand Service Request Fulfillment, and then select a subnode, such as Assigned To Me.  2. In the Tasks pane under Service Request Fulfillment, click Create Service Request from Template.  3. Under Templates in the Select Template dialog box, select a template, and then click OK to open a new service request and apply the template. For example, select Request Membership to Group.  4. In the <SR<ID>: ServiceRequestName> form in the Affected user box, select the user who submitted the service request. For example, select Joe Andreshak.  5. Optionally, in the Alternate Contact Method box, enter additional contact information for the affected user.  6. In the Title box, type a title for the service request or update one if it has been populated by a template. For example, type Request Membership to Active Directory Group – Joe Andreshak.  7. In the Description box, enter a description for this service request.  8. In the Urgency and Priority lists, select one for each if they have not been populated by a template.  9. In the Source list, select Portal if it has not been populated by a template.  10. In the Assigned to box, choose an analyst to assign the service request to. For example, assign the service request to yourself.  11. Click OK to save and close the service request form. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to Approve and Complete a Service Request Using Activities

In System Center 2012 – Service Manager, you can use the following procedures to approve a review activity and complete a manual activity for a service request in the Service Manager console. In many cases, multiple people or groups must vote to approve a single review activity before its approval is final. After approval, a service request might need a manual activity completed to verify that the service was provided to the requesting user and to close the service request.

Note

Users can only approve or reject and close the activities that are assigned to them.

To approve a review activity for a service request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Review Activities, and then click Activities Assigned to Me.  3. Select a review activity. For example, select the Approval for the user requesting membership to an Active Directory group.  4. In the Tasks pane, click Approve.  5. In the Comments dialog box, type any comments that you have for the approval or rejection, and then click OK. |

To complete a manual activity for a service request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Activity Management, expand Manual Activities, and then click Activities Assigned to Me.  3. Select a manual activity. For example, select the Approval for the user requesting membership to an Active Directory group.  4. In the Tasks pane, click Mark as Completed.  5. In the Comments dialog box, type any comments that you have for the manual activity, and then click OK. For example, type The Active Directory administrator has added this user to the groups requested. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to Cancel a Service Request

Occasionally, you might need to cancel a service request in System Center 2012 – Service Manager. You can accomplish this by using the Service Manager console. You can use the following procedure to cancel a service request.

To cancel a service request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Service Request Fulfillment, and then click All Open Service Requests or some other service request view.  3. Select the service request that you want to cancel. For example, select Request Membership to Active Directory Group – Joe Andreshak.  4. In the Tasks pane, click Cancel.  5. In the Comments dialog box, type any comments that you have for cancelling the service request, and then click OK. For example, type This request was a duplicate and is not needed. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to Close a Service Request

In System Center 2012 – Service Manager, after all the review activities are approved or rejected and any manual activities are completed, you can close a service request in the Service Manager console. You can use the following procedure to close a service request.

To close a service request

|  |
| --- |
| 1. In the Service Manager console, click Work Items.  2. In the Work Items pane, expand Work Items, expand Service Request Fulfillment, and then click Completed Service Requests.  3. Select a completed service request. For example, select Request Membership to Active Directory Group – Joe Andreshak.  4. In the Tasks pane, click Close.  5. In the Comments dialog box, type any comments that you have for the closure, and then click OK. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to Edit a Service Request

In System Center 2012 – Service Manager, service requests are often created by end users by accessing the service catalog from the Self-Service Portal or by submitting email requests, and you might need to update a service request with additional information. You can use the following procedure to update a service request in the Service Manager console.

To edit a service request using the Service Manager console

|  |
| --- |
| 1. In the Service Manager console, expand Work Items, expand Service Request Fulfillment, and then select a subnode, such as Assigned To Me.  2. In the list, select a service request to edit, and then in the Tasks pane under <Service Request ID – Service Request Name>, click Edit. For example, select Request Membership to Active Directory Group.  3. In the <SR<ID>: ServiceRequestName> form in the Affected user box, select the user who submitted the service request. For example, select Joe Andreshak.  4. Update any information in form as necessary, and then click OK to close the form. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to View Service Request Details

You can use the following procedure to view the details of a service request in the Service Manager console in System Center 2012 – Service Manager.

To view service request details

|  |
| --- |
| 1. In the Service Manager console, expand Work Items, expand Service Request Fulfillment, and then select a subnode, such as Assigned To Me.  2. In the list, select a service request to view, and then in the Tasks pane under <Service Request ID – Service Request Name>, click Edit. For example, select Request Membership to Active Directory Group.  3. Review information in service request form, and then click OK to close the form. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

How to Duplicate or Hide Views for Service Requests

You can use the following procedures to duplicate or hide a service request view in the Service Manager console in System Center 2012 – Service Manager. You can use the Unhide task if you want to show the hidden view. You can modify the title or other view criteria using the Edit View task.

To duplicate a service request view

|  |
| --- |
| 1. In the Service Manager console, expand Work Items, expand Service Request Fulfillment, and then select a subnode. For example, click Assigned To Me.  2. In the Tasks pane, click Duplicate View.  3. In the Select management pack dialog box, select a management pack to add the new view information to or create a new one, and then click OK.  4. Optionally, you can use the Edit View task to edit the new view, titled <View Name – Copy>, to change the view name or other criteria of the view.  5. In the Work Items pane, locate the new duplicate view that was created. For example, click Assigned To Me – Copy.  6. In the Tasks pane, click Edit View.  7. In the Edit Assigned To Me –Copy dialog box, click Criteria.  8. In the Criteria area, next to Assigned To User ID, in the text box after equals, type [me], and then click OK. |

To hide a service request view

|  |
| --- |
| 1. In the Service Manager console, expand Work Items, expand Service Request Fulfillment, and then select a subnode, such as Closed Service Requests.  2. In the Tasks pane, click Hide View. |

See Also

[Managing Service Requests in System Center 2012 - Service Manager](#z9a0583e50eaa42d0a7042301ca3af342)

Managing Release Records in System Center 2012 - Service Manager

The key to understanding release management in System Center 2012 – Service Manager is realizing how objects, such as change requests and activities, interact—facilitated by release records. Release management uses parent and child release records to help automate the process of updating the status of change requests and the status propagation between parallel activities, sequential activities, and the activities within them.

Often, there are multiple parts of a project, and there is more than one change request that can be deployed at different times that can affect a project. The overall goal of change management and release management is to protect the production environment from unnecessary changes, so that every change to it must first be approved. Release management deals only with approved changes.

When changes are approved, it is up to release management processes to group the changes together, schedule them, and develop them. Depending on the nature of the change, sometimes development can occur in the project phase and other times it can occur in the release management phase. Regardless of when development occurs, release management ensures that changes are tested and that they are safe to deploy. Additionally, release management is used to evaluate and package various releases together to help minimize infrastructure downtime. The package of releases is tested together to verify that no technical or resource conflicts exist that could affect infrastructure availability. Multiple changes are bundled together and planned for deployment together during the next scheduled release or maintenance window. The function of release management using release records is to consolidate multiple changes and deploy them in the safest and most efficient method possible.

After changes have been bundled together, a release manager defines the sequence of actions needed for a release with release activities. For example, different changes might have infrastructure update tasks, database modification tasks, tasks to update applications, or other individual tasks. In some cases, it might make sense to group some tasks together with infrastructure updates or perform database updates or application updates. Some tasks can be deployed simultaneously, while other tasks must be deployed sequentially or separately.

Managing Release Records in Service Manager

The release manager or other person responsible for the release defines the sequence of actions with a release record. The release record might depict the deployment sequence of different changes using parallel activities, sequential activities, and other activities. The release manager can delegate the responsibility for activities to others. When an activity is delegated, the person responsible for the activity can modify the activity and update its status.

When you modify an activity, its status is not immediately updated. There is a delay after until the workflow activates and the activity status is updated. Often, 30 to 60 seconds might elapse before you see the updated status of the activity in the console after you refresh your view of an item. Other dependent activities in the release record might take longer to update. For example, assume that you have a release record containing a dozen activities. If you update an item near the top of the list, it might take 30 seconds to update in the console. Then, the next activity in the release record might automatically get updated 30 seconds later, and so on. Therefore, the update that you originally made might take some time to propagate to all affected activities in the release record.

Parts of Release Records

Because releases are often bundled together, you can group multiple release records together by using a parent-child relationship. Essentially, a parent release record serves as a container for multiple child release records. However, a newly created release record is not a parent release record by default. You must convert a release record to a parent release record in order to add child release records.

Like change requests, release records contain activities for approval and manual actions. In addition, release records can contain parallel and sequential activities. Parallel and sequential activities are containers for other activities, and they define how constituent activities must be implemented—parallel activities can be implemented simultaneously, while other parallel activities are also in progress. Sequential activities must be completed in the order they are organized, one after another.

Release Record Topics

 [Sample Scenario: Managing Release Records](#z43437f6d13f840f9af743022d5e6914f)

This topic is a sample scenario, similar to a case study, that helps put the individual scenarios and procedures in context.

 [How to Create a Release Record](#z0882cbf17404403f8dc5a14756528622)

Describes how to create a release record.

 [How to Create a Release Record Template](#z14145889abbe45498bc889a1964b3587)

Describes how to create a release record template.

 [Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

This topic and its subtopics describe how to combine release records into parent-child groups.

 [Defining Release Package Configuration Items](#zbd274169070c4fa0b00b5170ae5308d0)

This topic and its subtopics describe how you define release package configuration items.

 [How to Create a Template for Parallel and Sequential Activities](#z83ad5318aca44e87b11ca287ad9e73e1)

Describes how to create a template for parallel and sequential activities that are used in release records.

 [How to Choose Changes to Deploy](#z0e7ff2f44aca47429401e78f654a1d79)

Describes how to review and choose changes to deploy.

 [How to Plan Release Activities](#z9e6d24dc1398439fac15124411ad36ff)

Describes how to plan release activities.

 [How to Skip a Failed Activity](#z2b7615ff5e2547b3ba85649bdb3ee2d3)

Describes how to skip a failed activity.

 [How to Determine Status and Progress for a Change Request in the Release Record](#zf11a423b58d34502b9c4b3663839984a)

Describes how to determine the status and progress for a change request that is contained in a release record.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

Sample Scenario: Managing Release Records

This sample scenario for System Center 2012 – Service Manager helps you achieve your goal of managing release records by using multiple scenarios end to end. You can think of this sample scenario as a case study that helps put the individual scenarios and procedures in context.

Scenarios for Managing Release Records

|  |  |
| --- | --- |
| Scenario | Description |
| [How to Create a Release Record](#z0882cbf17404403f8dc5a14756528622) | Describes how to create a release record. |
| [How to Create a Release Record Template](#z14145889abbe45498bc889a1964b3587) | Describes how to create a release record template. |
| [Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260) | Describes how to combine release records into parent-child groups. |
| [Defining Release Package Configuration Items](#zbd274169070c4fa0b00b5170ae5308d0) | Describes how to define release package configuration items. |
| [How to Create a Template for Parallel and Sequential Activities](#z83ad5318aca44e87b11ca287ad9e73e1) | Describes how to create templates for parallel sequential activities used in release records. |
| [How to Choose Changes to Deploy](#z0e7ff2f44aca47429401e78f654a1d79) | Describes how to review and choose changes to deploy. |
| [How to Plan Release Activities](#z9e6d24dc1398439fac15124411ad36ff) | Describes how to plan release activities. |
| [How to Skip a Failed Activity](#z2b7615ff5e2547b3ba85649bdb3ee2d3) | Describes how to skip a failed activity. |
| [How to Determine Status and Progress for a Change Request in the Release Record](#zf11a423b58d34502b9c4b3663839984a) | Describes how to determine the status and progress for a change request that is contained in a release record. |

Managing Release Records Scenario

Information Technology (IT) managers at Woodgrove Bank administer multiple projects simultaneously. Usually, IT project teams in the organization do not have access to the controlled production environment. Additionally, the preproduction environment is limited with restricted access. The IT organization runs projects, develops financial applications, and develops infrastructure improvements. When it is necessary to modify some part the controlled environment production environment, the IT project team submits change requests asking to update infrastructure, update an application, deploy a product, or implement a set of new processes.

Release management starts when there are approved changes. According to company policies, the changes must be deployed through release management processes. The release manager, Garret, creates a parent release record, and then he drafts a high-level diagram of the release and links high-level activities to a change request. The release activity in a release record is linked to an existing deployment activity in a change request. Garret or a delegated activity designer then adds child release records and new activities as necessary to the release record that detail the steps needed to be completed to deploy the change. This process is repeated for each change request to allow any level of detail needed. Therefore, any number of change requests can be included in the release record, depending on the need of the organization. When a change request is ready for implementation, the change implementer marks corresponding activities as Completed.

Woodgrove Bank normally deploys updates to its production environment, also called a release, once a month. Garret wants to package several releases that he defined in the June release, in the July release, and so on. He defines those releases as parent releases, and he links all network-related and database-related releases into the June parent release, and he links an application-related release into the July parent release. He also adds a new “Test Network with Database Integration” activity into the June release to ensure that both subreleases function together.

The next major release for Woodgrove Bank is a deployment of a new version of its HRWeb web application. HRWeb developers have given the Release Management team a new build of the HRWeb application. The Woodgrove Release Management team evaluates the build in its testing environment, finds a critical problem in the build, and then asks developers to fix the problem and provide a new build. The development team provides a new build, and the Release Management team successfully retests it in the test environment. The build then moves to the preproduction environment, where it is tested and used in the preproduction environment for two weeks. When testing is completed successfully, the build is deployed to the production environment. During this process, Garret creates a new build configuration item, links it to the HRWeb software configuration item, and links the build configuration item to the release record release package. When the last build is deployed into the production environment, Garret updates the version information in the HRWeb software configuration item, and he closes the release record.

At Woodgrove Bank, Garret configures administrative settings for releases, and he creates a parent release record. He also creates templates for parallel and sequential activities. Then, Phil creates release records, based on the templates that Garret created. Phil chooses which changes to deploy, and then he updates release activities by adding, deleting, or modifying them for each release, as necessary. Garret configures notifications for release records to notify users. Garret and Phil can review the status and the progress of change requests for a release whenever they need to.

How to Create a Release Record

The Release Manager creates a release record in System Center 2012 – Service Manager using the following procedure.

To create a release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. In the Tasks pane, click Create Release Record.  3. In the Select Template dialog box, select a release record template, and then click OK to open it.  4. In the release record form on the General tab, enter any necessary information, and then click the Activities tab.  5. Modify the default set of release activities that are added from the release record template, if any are present. You can add, delete, or modify sets of activities to the release record, including the following actions:   Add activities from the list of existing activity templates.   Move activities up and down in the order in which they are completed.   Move activities in the process list, and place them inside container activities.   Move activities from container activities, and place them anywhere in the process list.   Delete activities.  6. As you add an activity, the activity form opens. Enter necessary information, and then click OK to save the activity.  7. When you have added all the activities you want, click OK to save the release record and close it. The release record then appears in the Release Records: All view. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

How to Create a Release Record Template

In System Center 2012 – Service Manager, a release record template is used to create new release records. A release record template can include predefined release activities. When you use a template for new release records, new release records are created faster than when you create them from scratch.

The template author creates a template for release records by completing the following procedure.

To create a release record template

|  |
| --- |
| 1. In the Service Manager console, open the Library workspace, and in the Library pane, select Templates.  2. In the Templates list, select Default Release Record, and then in the Tasks pane under Templates, click Create Template.  3. In the Create Template dialog box, type a name for the template and a description of what the template applies.  4. Under Class, click Browse, and in the Select a Class box, select Release Record, and then click OK to close the Select a Class box.  5. Click OK to close the Create Template dialog box, and the New Release Record Template form appears.  6. Enter information in the boxes on the General tab, and then click the Activities tab.  7. You can add, delete, or modify sets of activities to the release record template, including the following actions:   Add activities from the list of existing activity templates.   Move activities up and down in the order in which they are completed.   Move activities in the process list, and place them inside container activities.   Move activities from container activities, and place them anywhere in the process list.   Delete activities.  8. As you add an activity, the activity form opens. Enter necessary information, and then click OK to save the activity.  9. When you have added all the activities you want, click OK to save the release record template and close it. The release record template then appears in Templates list. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

Combining Release Records into Parent-Child Groups

In System Center 2012 – Service Manager, releases are normally deployed to production environments at intervals you define. For example, you can package several releases into monthly batches. You can define each batch as a parent release, which consolidates and links other smaller project-specific releases into a monthly package. This process can help you verify that all child releases are evaluated together.

Combining Release Records into Parent-Child Group Topics

 [How to Promote a Release Record to a Parent Release Record](#za422def8c8dd4f27a757e2b78648ec24)

Describes how to promote a release record to a parent release record to allow child release record addition.

 [How to Demote a Parent Release Record to a Child Release Record](#zbb21111f13bd438188aa12c8e52ec5d3)

Describes how to demote a parent release record to a child release record.

 [How to Link a Child Release Record to the Current Release Record](#za9147971749849ae90820a0bb548a162)

Describes how to link a child release record to the release record that is already open.

 [How to Unlink the Current Release Record from a Parent Release Record](#z2e058f0121114d2486f407501659607f)

Describes how to unlink a child release record that you have open from its parent release record.

 [How to Unlink a Child Release Record from the Current Release Record](#z3c6b24f6761a4585941055c02d5144d7)

Describes how to unlink a child release record from its parent release record while you have the parent record open.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Administrator’s Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

How to Promote a Release Record to a Parent Release Record

In System Center 2012 – Service Manager, the Release Manager can promote a release record to parent release record using the following procedure. A parent release record serves as a container for several releases.

The following procedure is performed on a release record that is neither a parent release record nor a child release record.

To promote a release record to a parent release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view, and then select a release record.  3. In the Tasks pane, click Edit to open the release record.  4. In the Tasks pane, click Convert or Revert to Parent.  5. In the Comments box, type a comment indicating that you have converted the release record to a parent release record, and then click OK to close the Comments box.  6. The Child Items tab appears in the form where you can add child release records.  7. In the release record form, click OK to close it. |

See Also

[Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

How to Demote a Parent Release Record to a Child Release Record

In System Center 2012 – Service Manager, the Release Manager can demote a parent release record using the following procedure. If a parent release record contains child release records, all the child release records that it contains are unlinked from the parent and are no longer child release records.

The following procedure is performed on a parent release record that may or may not have child release records linked to it.

To demote a parent release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view that contains a parent release that you want to demote, and then select the release record.  3. In the Tasks pane, click Edit to open the release record.  4. In the Tasks pane, click Convert or Revert to Parent.  5. If the release record that you are demoting contains child release records, a message appears stating that all links to child records will be removed. If so, click OK to unlink any child release records.  6. In the Comments box, type a comment indicating that you have reverted the release record from a parent release record, and then click OK to close the Comments box.  7. The Child Items tab no longer appears in the form.  8. In the release record form, click OK to close it. |

See Also

[Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

How to Link a Child Release Record to the Current Release Record

In System Center 2012 – Service Manager, the Release Manager can link a child release record while editing a parent release record using the following procedure.

To link a child release record to the current parent release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view that contains a parent release record where you want link to a child release record.  3. In the Tasks pane, click Edit, and then in the parent release record form, click the Child Items tab.  4. On the Child Items tab, click Add.  5. In the Select objects dialog box, select the release record that you want to link to a parent, and then click Add. Click OK to close the Select objects dialog box.  6. In the parent release record form, click OK to close it. |

See Also

[Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

How to Unlink the Current Release Record from a Parent Release Record

In System Center 2012 – Service Manager, the Release Manager can unlink a child release record using the following procedure.

To unlink the current release record from a parent release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view that contains a child release record that you want to unlink from its parent release record.  3. In the Tasks pane, click Link or Unlink to Existing Parent Release Record, and then in the fly-out list, click Unlink.  4. In the Comments box, type a comment indicating that you have unlinked the child release record from its parent release record, and then click OK to close the Comments box. |

See Also

[Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

How to Unlink a Child Release Record from the Current Release Record

In System Center 2012 – Service Manager, the Release Manager can unlink a child release record while editing a parent release record using the following procedure.

To unlink a child release record from the current parent release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view that contains a parent release record where you want unlink to a child release record.  3. In the Tasks pane, click Edit, and then in the parent release record form, click the Child Items tab.  4. On the Child Items tab, select the child release records to unlink, and then click Remove.  Note  You can select multiple child items by pressing Shift+Click.  5. In the parent release record form, click OK to close it. |

See Also

[Combining Release Records into Parent-Child Groups](#zeaa5191214c04ff5bd4ae7c5354e6260)

Defining Release Package Configuration Items

In System Center 2012 – Service Manager, release packages normally contain a build and an environment that the release is tested with. The topics in this section describe how to build the configuration item parts that are contained in a release package and how they are added to the release package.

Release Package Configuration Item Topics

 [How to Create a Build Configuration Item](#zecf42c85bd584cd38697d692a2d4c4f7)

Describes how to create a build configuration item that defines the software and version that the build consists of.

 [How to Create an Environment Configuration Item](#zfa54faad7fbf4ffda87c1bf5b5bc8522)

Describes how to create an environment configuration item that defines the computers, services, and people that the environment consists of.

 [How to Add Release Package Information to a Release Record](#z550d48b5c5574b3d8de01d87d67c9ad5)

Describes how to add release package information, such as a build and environment that defines what the release package consists of.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Administrator’s Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

How to Create a Build Configuration Item

In System Center 2012 – Service Manager, the release manager can create a build configuration item that defines the software and version that a build consists of by performing the following procedure. After a build is created, it is normally added to the release package of a release record.

To create a build configuration item

|  |
| --- |
| 1. In the Service Manager console, click Configuration Items.  2. In the Configuration Items pane, expand Configuration Items, and then click Builds.  3. In the Tasks pane, under Builds, click Create Build.  4. On the General tab in the form, do the following:  a. In the Title box, type a name for the build. For example, for the build that will be used to deploy the new HRWeb software, type HRWeb July 2011.  b. In the Version box, type a version number or other designation. For example, type 0.2.  c. Click OK.  5. On the Related Items tab, under Configuration Items: Computers, Services and People, click Add to associate a software configuration item, and then do the following for each software item that you want to add:  a. In the Select objects dialog box under Filter by class list, click the drop-down arrow, and then select Software Items.  b. In the Available objects list, select the software configuration item that you want to associate with the build, click Add, and then click OK to close the Select objects dialog box.  6. Click OK to close the build form. |

See Also

[Defining Release Package Configuration Items](#zbd274169070c4fa0b00b5170ae5308d0)

How to Create an Environment Configuration Item

In System Center 2012 – Service Manager, the release manager can create an environment configuration item that defines the computers, services, and people that the environment consists of by performing the following procedure. After an environment is created, it is normally added to the release package of a release record.

To create an environment configuration item

|  |
| --- |
| 1. In the Service Manager console, click Configuration Items.  2. In the Configuration Items pane, expand Configuration Items, and then click Environments.  3. In the Tasks pane, under Environments, click Create Environment.  4. On the General tab in the form, do the following:  a. In the Title box, type a name for the environment. For example, for the pre-environment that will be used to test the new HRWeb software, type Environment for HRWeb July 2011.  b. Optionally, in other boxes on the tab, type or select information that might help you easily identify the environment that you are creating. For example, set the Category to Pre Production.  c. Click OK.  5. On the Related Items tab, under Configuration Items: Computers, Services and People, you can add configuration items that are important to the environment. Examples might include the following:   Software   Users   Computers  6. Click OK to close the environment form. |

See Also

[Defining Release Package Configuration Items](#zbd274169070c4fa0b00b5170ae5308d0)

How to Add Release Package Information to a Release Record

In System Center 2012 – Service Manager, the Release Manager can add release package information for a release record using the following procedure. The release package normally contains the build and environment that the release is tested with.

To add release package information to a release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management.  2. Select any Release Management view that contains a release record where you want to add release package information.  3. In the Tasks pane, click Edit, and then in the release record form, click the Release Package tab.  4. On the Release Package tab, under Configuration Items to Modify, click Add.  5. In the Select objects dialog box, select the computer-related configuration items that you want to add to the release package, click Add, and then click OK to close the Select objects dialog box.  6. Under Affected Services, click Add.  7. In the Select objects dialog box, select the business service items that you want to add to the release package and click Add, and then click OK to close the Select objects dialog box.  8. In the release record form, click OK to close it. |

See Also

[Defining Release Package Configuration Items](#zbd274169070c4fa0b00b5170ae5308d0)

How to Create a Template for Parallel and Sequential Activities

In System Center 2012 – Service Manager, release record templates for parallel and sequential activities are used to create new activities that contain a collection of predefined activities that should be grouped together to form some kind of process. You can think of parallel and sequential activities as container activities because their primary function is to contain individual activities.

The template author creates a template for a parallel activity by performing the following procedure. Afterward, the same steps are followed to create a template for a sequential activity.

To create a template for a parallel activity

|  |
| --- |
| 1. In the Service Manager console, open the Library workspace, and in the Library pane, select Templates.  2. In the Templates list, select Default Parallel Activity, and then in the Tasks pane under Templates, click Create Template.  3. In the Create Template dialog box, type a name for the template and a description of what the template applies.  4. Under Class, click Browse, in the Select a Class box, select Parallel Activity, and then click OK to close the Select a Class box.  5. Click OK to close the Create Template dialog box, and the New Container Activity Template form appears.  6. Enter information in the boxes on the General tab, and then click the Activities tab.  7. You can add, delete, or modify sets of activities to the parallel activity template, including the following actions:  a. Add activities from the list of existing activity templates.  b. Add parallel or sequential activities from the list of existing activity templates.  c. Add automatic activities inside the parallel or sequential activities you have already added.  d. Move activities up and down in the order in which they are completed.  e. Move activities in the process list.  f. Delete activities.  8. As you add an activity, the activity form opens. Enter necessary information, and then click OK to save the activity.  9. When you have added all the activities you want, click OK to save the parallel activity template and close it. The parallel activity template then appears in Templates list.  10. Repeat this procedure for a sequential activity, replacing instances of “parallel activity” with “sequential activity.” |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

How to Choose Changes to Deploy

In System Center 2012 – Service Manager, the release manager selects approved changes for release by performing the following procedure. Using this process, the release manager links a manual activity in the release record to a dependent activity in a change request and then completes the manual activity in the release record. As a result, this process marks the dependent activity in the change request as completed.

The procedure to create a dependent activity to add it to a change request should already be completed before you proceed. For more information about adding dependent activities to change request, see [How to Add Dependent Activities to a Change Request for Release Records](#zb2fc25f58af247cab8e9aba8029bdccc).

To choose changes to deploy

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, in the Work Items pane, expand Release Management, and then select Release Management.  2. In the Work Items pane, select a view under Release Management that displays a release record that comprises changes that are ready for deployment, and then double-click the release record.  3. Click the Activities tab.  4. In the list that appears, right-click a manual activity to link a change request dependent activity to, and then select Link to Change Request Activity.  5. In the Select Change Request Activity dialog box, select the change request to link to, expand it, and then select one or more dependent activities, and then click OK twice.  Tip  When you have linked the activity, the selected activity shows a linking indicator that resembles a chain icon. The tooltip for the selected activity shows IDs for the linked change request dependent activities.  6. Navigate to Activity Management, expand Manual Activities, and then select In-Progress Activities.  7. Select the manual activity and then in the Tasks list click Mark as Completed.  8. Navigate to Change Management, expand All Change Requests, and then open the change request that is linked to the release record.  9. Click the Activities tab and notice that the dependent activity is now marked Completed. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

[How to Add Dependent Activities to a Change Request for Release Records](#zb2fc25f58af247cab8e9aba8029bdccc)

How to Plan Release Activities

In System Center 2012 – Service Manager, the Release Manager creates and modifies the structure of release activities by performing the following procedure.

To plan release activities

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, and in the Work Items pane, expand Release Management, and then select Release Management.  2. In the Work Items pane, select a view under Release Management that displays a release record that includes release activities that you want to add or modify activities for, and then double-click the record to open it.  3. Click the Activities tab to view the list of proposed changes and dependent activities they contain.  4. Optionally, you can change the activities view by clicking either Diagram View or List View.  5. Select a dependent change management activity, and then move it to the top of release management activity list or diagram. A dependent indicator appears both on the change and release management activities. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

How to Skip a Failed Activity

In System Center 2012 – Service Manager, the release manager skips a failed activity by performing the following procedure.

To skip a failed activity

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, in the Work Items pane, expand Release Management, and then select Release Management.  2. In the Work Items pane, select a view under Release Management that displays a release record that includes a failed release activity or an activity in progress that you want to skip, and then double-click the record to open it.  3. Click the Activities tab to view the list of proposed changes and dependent activities they contain. Optionally, you can change the activities view by clicking either Diagram View or List View.  4. Right-click the failed activity or the activity in progress that you want to skip, and then click Skip Activity.  5. In the Comments box, enter the reason why you are skipping the activity, and then click OK to close the box. The activity that you skipped displays an icon resembling a blue down-pointing arrow to indicate that the activity is marked as skipped. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

How to Determine Status and Progress for a Change Request in the Release Record

In System Center 2012 – Service Manager, the change manager reviews the status and progress of a change request in the currently opened release record. He knows the ID of the change request and its title, or at least a few of the keywords of the title. He can review the status of the change request by performing the following procedure.

To determine status and progress for a change request in a release record

|  |
| --- |
| 1. In the Service Manager console, open the Work Items workspace, in the Work Items pane, expand Release Management, and then select Release Management.  2. In the Work Items pane, under Release Management, select the Release Records: In Progress.  3. In the Release Records: In Progress view, double-click the record of interest to open it.  4. Click the Activities tab to view the list of proposed changes and dependent activities they contain. Optionally, you change the activities view by clicking either Diagram View or List View.  5. You can view records by using any of the following methods:   Mouse scrolling:   You can scroll through activities to find activities that are linked to change requests.   You can find the release management activity showing that it is linked to the specific change request by looking for an indicator icon and viewing its properties while in either diagram view or list view.   The following information is shown for all activities:   Change request ID   Change request title   Change request status indicator icon   Change Management–dependent activity ID   Change Management–dependent activity title   Activity status indicator icon   Using search:   You can search for and view an activity by searching with any of the following information:   Change request ID   Keywords from the linked change request’s title   Change activity’s ID   Keywords from the dependent activity’s title   Filtering:   You can filter any returned search results by keywords and also by criteria such as class, last modified dates, and name.   Using the list view:   When you are using the list view, you can add and remove columns, sort by column, filter by value in a column, and use other functionality of elements in the list.   Using the diagram view:   When you are using the diagram view, you can use the zoom in, zoom out, mini-map, and find on diagram actions.  6. You can double-click an activity to view its status and the details of its progress. |

See Also

[Managing Release Records in System Center 2012 - Service Manager](#z2847c2cf422d4cfa8e366f7eb7856afa)

Managing Chargeback Reports in System Center 2012 SP1 - Service Manager

This section provides an overview of how to view chargeback reports and how to configure the sample reports in System Center 2012 – Service Manager SP1. Before you can use the reports they must be installed and configured for your installation of Service Manager. For more information about installing and configuring chargeback reports, see the [Administering System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669) document.

Managing Chargeback Reports Topics

 [How to View and Use Chargeback Reports](#zbc59049199dc41478922faefbe04bb97)

Describes how to view and use chargeback reports.

 [How to Configure Sample Chargeback Reports](#z8d0f6ff4b4b64edbaf2a8d9a2fa19563)

Describes how to configure sample chargeback reports.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Administrator’s Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

How to View and Use Chargeback Reports

You can use the following procedure to view and analyze a Microsoft Online Analytical Processing (OLAP) data cube from System Center 2012 – Service Manager with Microsoft Excel. You can also save your workbooks into an analysis library. Using the PivotTable field list, you can drag and drop fields from the cube into the workbook. For more information about using Excel slicers, see [Creating and Using Excel Slicers](#z43c3b198585a42cf94cd123655d13476).

You must have Excel, or a viewer capable of opening Excel data files, installed on the computer running the Service Manager console in order to use the following procedure.

Note

The first time you analyze a cube with Excel, it can take a few minutes to load.

To view and use chargeback report information in an OLAP data cube with Excel

|  |
| --- |
| 1. In the Service Manager console, click Data Warehouse, expand the Data Warehouse node, and then click Cubes.  2. In the Cubes pane, select a cube name, and then under Tasks, click Analyze Cube in Excel. For example, select SystemCenterServiceManagerChargebackCube and analyze it.  3. When the worksheet opens in Excel, you can drag and drop fields from the PivotTable Field List and create slicers and charts.  a. For example, if you want to see costs assigned to various cloud resources, expand ServiceManagerInfraDailyChargeback, and then select Cloud Cost.  b. You can add additional fields to generate a more complex analysis. For example, you can add additional values from the ServiceManagerInfraDailyChargeback MeasureGroup by selecting the VM Cost and VM Total Cost to see the value of virtual machines in the clouds.  4. Optionally, you can save the workbook to a shared folder or other shared location, such as the analysis library. For more information about the analysis library, see [How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307). |

See Also

[Creating and Using Excel Slicers](#z43c3b198585a42cf94cd123655d13476)

[How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307)

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

How to Configure Sample Chargeback Reports

You can use the following procedure to configure the sample Microsoft Excel chargeback report (ChargebackReport.xlsx) that is included with System Center 2012 – Service Manager Service Pack 1. This sample report is designed for you to modify for use in your organization. You can update the report any way you like. The sample report contains the following tabs:

 Dashboard – This tab shows a chart of the top 3 cost centers, clouds, VMM user roles, price sheets, spending trend, and overall spending for the period that you select.

 Chargeback Daily Details – This tab shows a comprehensive list of daily costs detailing virtual machine cloud level and other costs assigned to price sheets for the year and month you select. It also includes a graph showing the top 3 clouds within cost centers.

 Chargeback Monthly Details – This tab shows a comprehensive list of costs assigned to price sheets for the year and month you select.

Note

The first time you open the file in with Excel, you must configure the workbook data connection so that it can retrieve information from OLAP data cubes in the Service Manager data warehouse management server.

To configure the sample workbook connection

|  |
| --- |
| 1. Using Windows Explorer, navigate to the Service Manager installation folder and then open the Chargeback child folder.  2. Open the ChargebackReport.xlsx file, click the Data tab, and then click Connections.  3. In the Workbook Connections dialog box, for each connection, view its Properties and replace <LocalHost> with the server name with the server name of your Service Manager data warehouse management server. If your data warehouse analysis database name is not DWASDataBase, then replace the database name with the one that you use.  4. Optionally, you can save the workbook to a shared folder or other shared location, such as the analysis library. For more information about the analysis library, see [How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307). |

See Also

[How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307)

Using Data Warehouse Reporting and Analytics in System Center 2012 - Service Manager

Service Manager reports enable you to collect and view data and trends from across the business environment. For example, you can generate a report that shows the number of incidents that occur in a specific time frame. You can then use that information to calculate the cost of each incident (in hours) and also to identify any trends and take preventative measures to reduce the cost and occurrence of incidences.

Standard reports are viewable for all Service Manager console users in the Reporting workspace. If users can view work items and have permission to the SystemCenter and ServiceManager folders on the SQL Server Reporting Services (SSRS) server, they can also view reports in work item task lists. Any user can export report data from a report they view. Exported reports are saved in a variety of file formats.

The following tasks are addressed in this guide.

Data Warehouse Reporting and Analytics Topics

 [Data Warehouse and Analytics Overview](#zddc8e9776df44840bc6a59a85c52f155)

Provides an overview of data warehouse and analytics in Service Manager.

 [Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

Introduces standard reporting in Service Manager.

 [Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

Explains OLAP cube structure, how to use and troubleshoot OLAP cube, and how to create dashboards that show OLAP cube data.

 [Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)

Explains data warehouse structure so that you can customize reports using its data.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

Data Warehouse and Analytics Overview

The data warehouse in System Center 2012 – Service Manager provides three primary functions:

1. Offload data from the main Service Manager database to improve performance of the Service Manager database

2. Long-term data storage

3. Provide data for reports

The data warehouse that ships with Service Manager is actually its own management group. It has essentially all the System Center common platform pieces that are present in other System Center components, such as System Center 2012 – Operations Manager. These components are built on the common platform, which in turn consists of the following:

 A model-based database for storing configuration information about the data warehouse and for staging the data after it has been extracted from the Service Manager database. In the data warehouse management group, this instance of the mode-based database is named DWStagingAndConfig.

 The management server, which consists of the following:

 System Center Data Access Service

 System Center Management Service

 System Center Management Configuration Service

In addition to its base that is built on the System Center common platform, the Service Manager data warehouse has two other databases:

 DWRepository—where the transformed data is stored and optimized for reporting purposes.

 DWDataMart—where the transformed data is loaded and where, ultimately, reports query from.

The data warehouse was designed to:

 Be fully extensible by means of management packs.

 Utilize data warehousing best practices, such as dimensional modeling with facts and dimensions.

 Operate at very large scale.

The data warehouse in System Center 2012 – Service Manager was designed and built with the intention of being a platform component that enables System Center users to collocate data from all System Center products to gain comprehensive insight across their information technology (IT) investments.

The Difference between OLTP and OLAP (Performing vs. Analyzing Transactions)

Online transaction processing (OLTP) systems are designed for fast writes against small units of work—for example, for the fast creation of a single incident. In contrast, online analytical processing (OLAP) data warehouses are designed to facilitate fast analysis across large sets of data—for example, quickly determining service level agreement (SLA) adherence across all incidents created in the last year.

Data Warehouse and Analytics Elements

The data warehouse and analytics elements of System Center 2012 – Service Manager consist of the System Center common model, data warehouse databases, OLAP cubes, management pack orchestration processes, and the Service Manager software development kit (SDK). The following sections describe each of these elements in further detail.

System Center Common Model and Data Warehouse Database Schema

Diagrams that represent the System Center common model and the data warehouse database schema are available for System Center 2012 – Service Manager. The database schema is based on the common management pack model, which means the relational database objects and relationships benefit from class inheritance.

If you are not familiar with developing management packs, writing custom queries against the data warehouse can be intimidating. However, the schema diagrams are very useful to help get you started. You can download the Visio diagrams, SystemCenterCommonModel-SCSM2010.vsd and DWDataMart.vsd, as part of the [Service Manager Job aids](http://go.microsoft.com/fwlink/p/?LinkID=186291) (SM\_job\_aids.zip). The different types of tables in the data warehouse are color coded in the schema diagram.

Service Manager Data Warehouse Databases

The data warehouse in Service Manager comprises the following databases:

 DWStagingAndConfig—where data is extracted from source systems, such as Service Manager andOperations Manager, is initially stored.

 DWRepository—where extracted source data is transformed into the reporting optimized structure.

 DWDataMart—where published data is stored and gets consumed by the reports. This is also where data is stored for an extended period of time to facilitate historical reporting and analysis.

OLAP Cubes

As mentioned previously, an OLAP cube is used for online analytical processing, and it is a data structure that provides fast analysis of data. You can think of it as helping manipulate and analyze data from multiple perspectives. The cube data structure can help overcome some limitations of relational databases.

System Center 2012 – Service Manager includes a number of predefined OLAP cubes that users can view in Microsoft Excel and also as SharePoint dashboards. Authors can create their own OLAP cubes for customized data sources and include the cubes in custom management packs.

Service Manager Software Development Kit

The System Center 2012 – Service Manager SDK contains information that you might need when you are authoring with Service Manager to extend the data warehouse so that it can manage your own customized data. Before you can utilize the capabilities of the data warehouse, such as OLAP cube processing for customized data, you must first create a custom management pack and import it. Your custom management pack bundle will contain a definition for your data model and, possibly, OLAP cube definitions.

You can learn more about using the SDK to create your own custom management pack for Service Manager in the [Authoring Guide for System Center 2012 - Service Manager](http://go.microsoft.com/fwlink/p/?LinkID=210314). Additionally, you can download the [System Center 2012 - Service Manager 2012 SDK](http://go.microsoft.com/fwlink/p/?LinkID=196797) at the Microsoft Download Center.

Using and Managing Standard Reports

This section describes how to use standard reports in System Center 2012 – Service Manager.

The simple reporting infrastructure that is included in both System Center Service Manager 2010 and System Center 2012 – Service Manager is built on SQL Server Reporting Services (SSRS), where data is accessed from the Service Manager data warehouse. The SSRS infrastructure provides for basic reporting functionality, such as report-level security, report subscriptions, browser-based access to reports, linked reports, and customization. This reporting functionally is similar to the experience that is included with System Center Operations Manager 2007 R2.

The Reporting workspace contains the catalog of reports that users can run on demand. Reports are viewable for all Service Manager console users. If users can view work items and have permission to the SystemCenter and ServiceManager folders on the SSRS server, they can also view reports in work item task lists. Like in Operations Manager, you can run a report in context. For example, you can select a computer in a view in the console and then run the Computer Details report about that computer. Any user can export report data from a report they view. Exported reports are saved in a variety of file formats.

For more information about SSRS, see [SQL Server Reporting Services](http://go.microsoft.com/fwlink/p/?LinkId=238589). If you want to see the relationship between high-level processes and services that are involved between Service Manager and SSRS, refer to the Service Manager architecture diagram (ArchitectureDiagram.vsd) that is included in the Service Manager job aids (SM\_job\_aids.zip). Because the architecture diagram is too large to see properly in this guide, you can download it and the other jobs aids from the [Microsoft Download Center](http://go.microsoft.com/fwlink/p/?LinkID=186291).

Standard Reporting Topics

 [How to View the Standard Report Catalog](#zd0d3117ca0d94b23ad9885c7585da69e)

Describes how to view the Standard Report Catalog.

 [How to Add Permissions for Standard Reports](#zc04e33d3ceb3497db4dacffd7402c02a)

Describes how to add permissions for standard reports.

 [How to Run a Standard Report](#z15cb747b19e441fe81e231418579457f)

Describes how to run standard reports.

 [How to Export Standard Report Data](#z47355db04d3f42a181df4721e6fce723)

Describes how to export a standard report.

 [How to Create a Standard Linked Report in Service Manager](#ze91869e2981b4f62866eac51e495cf05)

Describes how to create a standard linked report.

 [How to Add a Standard Report to the Service Manager Favorite Reports Folder](#z1121d9a2ab6b450c9807c74761ddccd0)

Describes how to add a standard report.

 [How to Configure Standard Report Subscriptions](#z03674168425a43b29ac7e7b32f2849b7)

Describes how to configure standard report subscriptions.

 [How to Schedule a Standard Service Manager Report](#z96136d2e930740fd840d782e1f61044d)

Describes how to schedule a standard Service Manager report.

 [How to Add Non-Service Manager Reports to the Report Catalog](#zcc18072214a7434f9d28f2629ee7f629)

Describes how to add reports to the report catalog that were not created in Service Manager.

 [Standard Reports Available in Service Manager](#zbc1b98e46c1d4183bedc6f86bac7ec73)

Lists the standard reports that are available in Service Manager.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

How to View the Standard Report Catalog

You can use the following procedure to view the catalog of reports that is available in System Center 2012 – Service Manager.

To view the report catalog

|  |
| --- |
| 1. In the Service Manager console, click Reporting.  2. Expand Reports, and then click a folder. For example, click Incident Management.  The reports that are available appear in the results pane of the Report console. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Add Permissions for Standard Reports

By default, all System Center 2012 – Service Manager users have access to reports through the Reporting workspace. However, before users who do not have administrator permissions can view the Reporting workspace, you must add permissions through SQL Server Reporting Services (SSRS).

You can grant access at the root level, which enables a user to view the Reporting workspace and all the reports in Service Manager. You can also grant restricted access to specific report folders, such as the Incident report folder, or to individual reports.

The following procedure describes how to grant SSRS access for all the Service Manager reports to an Active Directory group (woodgrove\SCSMReportAccess).

To add SSRS permissions

|  |
| --- |
| 1. On the computer on which SRSS is installed, start Report Manager. For example, open http://<ReportServerName>:80/Reports.  2. Locate the folder or report for which you want to grant access permission. For example, locate the SystemCenter and ServiceManager root folders.  3. Click Security.  4. Click Edit Item Security.  5. The following message appears: "Item security is inherited from a parent item. Do you want to apply security settings for this item that are different from those of the Home parent item?"  Click OK.  6. Click New Role Assignment.  7. Type the name of the Active Directory group or user in the Group or user name box. For example, type woodgrove\SCSMReportAccess.  8. Set the roles for the group or user. Select the Browser check box to grant access to run reports.  9. Click OK. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Run a Standard Report

You can use the following procedure to run a report in System Center 2012 – Service Manager. In this procedure, you run an incident management report to determine how many incidents were resolved in the previous week.

Note

Before you can run a report, the extract, transform, and load (ETL) process must be complete. For more information about the ETL process and about how to schedule it to run, see [How to Enable Data Warehouse Jobs Schedules](http://go.microsoft.com/fwlink/p/?LinkId=229825) in the [Administrator’s Guide for System Center 2012 - Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669).

The Service Manager data warehouse does not create dimensions for classes or relationships in unsealed management packs. If you are using an unsealed management pack, you will not see any data from that management pack in your reports. Because of this, the best practice is to model all classes and relationships in sealed management packs.

For this example, you must have previously created an incident. Otherwise, the report will return no data.

To run a report

|  |
| --- |
| 1. In the Service Manager console, click Reporting.  2. Expand Reports, and then expand a report folder. For example, expand Incident Management.  3. Click the name of the report you want to run. For example, click the List of Incidents report.  4. In the Tasks list, click Run Report.  5. Click Parameter Control Header to display the parameter controls for the report. Use these parameters to customize the report.  Each report has a set of parameters you can use to search and filter for the specific items you want to include in the report. For example, in the List of Incidents report, you can set the following parameters:   Date Filter. You can search by the date the incident was created, by the date it was resolved, or by the date it was closed.   Assigned To   Priority   ID   Description   Resolution Description   Contact Method   Source   Status   Classification Category   Support Group   Urgency   Impact   Resolution Category  6. In the Start Date list, select the date one week before the current date (today), and then click anywhere in the form.  7. Optionally, specify other criteria that you want to filter.  8. In the Tasks list, click Run Report.  9. In the report, review the data to ensure the incident information that you want to view is displayed. If you do not see the information you expect, revise the criteria, and then run the report again by clicking Run Report.  In reports that show lists or additional detail, such as the associated subreports in the List of Incidents report, you might see multiple rows that contain the same information. This is because an instance can have multiple types; for example, a computer is a Computer, a Windows Computer, and a Managed Windows Computer. The level of detail for these reports is per type per instance. Therefore, these multiple types result in multiple rows.  Note  If there is no data in the report, ensure that the ETL process is complete. A delay might occur between the start of the process and when data is available for reports. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Export Standard Report Data

You can use the following procedure in System Center 2012 – Service Manager to export a report into several different types of files so that you can use the data from the reports in different tools. For example, you can export the report data into a comma-separated value (CSV) file and then import it into Microsoft Office Excel.

To open the report and then export the report data

|  |
| --- |
| 1. In the Service Manager console, click Reporting.  2. Expand Reports, and then click any view. For example, click Incident Management.  3. In the Incident Management view, select the List of Incidents report, and then in the Tasks list, click Run Report.  4. Click Parameter Control Header to display the parameter controls for the report. Use these parameters to customize the report.  5. In the Start Date list, select the date one week before the current date (today), and then click anywhere in the form.  6. Optionally, specify other criteria that you want to filter.  7. In the Tasks list, click Run Report.  8. In the List of Incidents report, review the data to ensure the incident information that you want to view is displayed. If you do not see the information you expect, revise the criteria, and then run the report again by clicking Run Report.  9. Click the Export icon, and then select the format in which you want to save the report. In the list, select one of the following:   XML file with report data   CSV (comma delimited)   Acrobat (PDF) file   MHTML (web archive)   Excel   TIFF file   Word  10. Save the file to the desktop with a file name of your choice, and then close the report form. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Create a Standard Linked Report in Service Manager

You can use the following procedure in System Center 2012 – Service Manager to create a linked report.

A linked report is a shortcut to a report—it is similar to a program shortcut on your desktop. A linked report is derived from publicly defined reports from any management pack. A linked report retains some of the original report's properties, such as the report layout. Other properties of the linked report, such as parameters and subscriptions, can be different from the original report.

To create a linked report

|  |
| --- |
| 1. In the Reporting view, select the report you want to use as the basis for the linked report, and then, in the Tasks pane, click Run Report.  2. In the Report window, click Save as Linked Report in the Task pane.  3. Type a name and an optional description for the new linked report.  4. Select a management pack for the linked report.  5. Click Select Folder, and then select the folder in which you want to save the report.  6. Click OK.  7. Close the report.  After the next data warehouse synchronization, the new linked report is displayed in the folder where you saved it. For information about scheduling a data warehouse synchronization job, see [How to Schedule a Data Warehouse Job](http://go.microsoft.com/fwlink/p/?LinkId=229828).  Note  You might have to close and reopen the console after the synchronization job is complete to see the report. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Add a Standard Report to the Service Manager Favorite Reports Folder

You can use the following procedure to add a report to the Favorite Reports folder in System Center 2012 – Service Manager.

After you have run several reports and determined the best parameters to use to customize the report contents, you can save a report to the Favorite Reports folder. This enables you to run the report directly from the Reporting view without having to specify parameters.

To save a report to the Favorite Reports folder

|  |
| --- |
| 1. In the Reporting view, select the report that you want to use as the basis for the saved report, and then, in the Tasks pane, click Run Report.  2. In the report window, click Save as Favorite Report under Tasks.  3. Type a name for the report, and then click OK.  4. Close the report window.  5. In the Reporting navigation tree, click Favorite Reports.  The new report is displayed. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Configure Standard Report Subscriptions

You can set up subscriptions to your reports in System Center 2012 – Service Manager through SQL Server Reporting Services (SSRS) Report Manager. Configuring a subscription to a report enables you to automate the delivery of a report. Report subscriptions can be sent through email, stored on the report server, or even posted to a Microsoft SharePoint site.

To create report subscriptions

|  |
| --- |
|  complete the procedures in the [Subscriptions and Delivery (Reporting Services)](http://go.microsoft.com/fwlink/p/?LinkID=158830) topic in the SQL Server 2008 R2 Books Online. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Schedule a Standard Service Manager Report

In System Center 2012 – Service Manager, you can schedule a linked report to run on a regular basis to ensure that the information is up to date. To do this, use SQL Server Reporting Services (SSRS) Report Manager. In SSRS Report Manager, you can schedule reports to run one time or on a continuous basis at intervals of hours, days, weeks, or months. You can do the following:

 Schedule report delivery in a standard or data-driven subscription.

 Schedule report history so that new snapshots are added to the report history at regular intervals.

 Schedule time to refresh the data of a report snapshot.

 Schedule the expiration of a cached report to occur at a predefined time so that it can be refreshed later.

To configure a schedule for a report, complete the procedure in the [Scheduling Reports, Shared Datasets, and Subscriptions](http://go.microsoft.com/fwlink/?LinkId=158822) topic in SQL Server 2008 R2 Books Online.

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

How to Add Non-Service Manager Reports to the Report Catalog

You can display SQL Server Reporting Services (SSRS) reports from any source using the Reporting workspace in the Service Manager console. The Reports workspace in System Center 2012 – Service Manager displays the folders and reports that are contained in the System Center\Service Manager folder on the SSRS server. Therefore, you can add any reports that you want to the folder. For example, you might have a financial report that you want to view from the Reporting workspace.

To add a custom report to the report catalog

|  |
| --- |
| 1. On the server that hostings SSRS, open Report Manager. For example, open http://<ReportServerName:80>/Reports.  2. Navigate to the System Center\ServiceManager reports folder, create a new folder, and give it a name. For example, name the folder Financial Management.  3. In the new folder, click New Data Source, and then add the data source of the new report.  4. Add the new report that uses the new data source.  5. Open the Service Manager console, select the Reporting workspace, and then navigate to the folder that contains the report.  6. In the Tasks pane, click Run Report. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

Standard Reports Available in Service Manager

The following reports are available in System Center 2012 – Service Manager.

|  |  |  |
| --- | --- | --- |
| Report area | Report name | Description |
| Activity management | List of Activities | Provides a list of activities within a certain time frame that meet the specified criteria. The data in the report includes the type of activity, the current status, and the priority. |
| Activity management | List of Manual Activities | Provides a list of all the manual activities within a certain time frame that also meet the specified criteria. The data in the report includes the current status, stage, priority, and user to whom the activity is assigned. |
| Activity management | List of Review Activities | Provides a list of all the review activities within a certain time frame that meet the specified criteria. The data in this report includes the current status, stage, approval condition, and approval threshold. |
| Activity management | Manual Activity Detail | Provides detailed information about a specific manual activity, including the title, description, status, and affected customers. |
| Activity management | Review Activity Detail | Provides detailed information about a specific review activity, including the title, description, status, reviewers, and approval condition. |
| Activity management | Activity Distribution | Provides the number of activities during a specified time frame. The data in this report includes the activity status, type, and stage. You can filter the data by status, stage, or type. |
| Change management | Change Management KPI Trend | Provides the number and current state (in progress, completed, failed, or canceled) of change requests during a specified time frame. You can filter the data returned in this report by day, week, month, quarter, or year. |
| Change management | List of Change Requests | Provides a list of change requests within a certain time frame. The data in this report includes the current status, category, and user to whom the request is assigned. |
| Change management | Change Request Detail | Provides detailed information about a specific change request, including the title, description, status, change creator, and template. |
| Configuration management | Computer Detail | Provides detailed configuration information for a specific computer. |
| Configuration management | Computer Inventory | Provides a list of computers available in the management group.  Note  The Computer Inventory report might contain more total computers than actually exist in a single Service Manager management group. This situation is uncommon but possible when you have more than one management group share a data warehouse. More specifically, if you manually create a computer in one management group and manually create a computer with the same name in another management group, the data warehouse cannot reconcile the two manually-created computers. Because this situation does not occur when computers are discovered by a connector, you can avoid multiple computers appearing in the report by deleting the manually-created computer configuration item and then discover it by using a connector. |
| Configuration Management | Software Update Compliance Trend | Provides detailed information for software update compliance. You can filter this data by classification or category, and by day, week, month, quarter, or year. |
| Incident management | Incident Analyst | Provides key performance metrics for a specified analyst. The data in this report includes the number of incidents assigned to the analyst, the number of incidents resolved by the analyst, the number of incidents worked on by the analyst, and any labor logged against an incident. |
| Incident management | Incident Details | Provides detailed information for a specific incident, including the title, description, classification, affected services, affected configuration items, and related activities. |
| Incident management | Incident KPI Trend | Provides the number of incidents, including the number of incidents past their targeted resolution time, the number of escalated incidents, the average time to resolution, the labor minutes per incident, and the size of the incident backlog. You can filter this data by classification or category, and by day, week, month, quarter, or year. |
| Incident management | Incident Resolution | Provides the number of incidents, including the number of incidents past their targeted resolution time and the average time to resolution. You can filter the data by day, week, month, quarter or year. |
| Incident management | List of Incidents | Provides a list of all incidents within a certain time frame. The data in this report includes the users to whom incidents are assigned, when the incidents were created, and the current status of the incidents. |
| Problem management | Configuration Items (CIs) with Most Incidents | Provides a list of the configuration items that have at least the number of incidents associated with them, as specified by the value you enter for Incidents per Configuration Item during the specified time frame. This report also includes the number of change requests and problems associated with the specific configuration item. |
| Problem management | List of Problems | Provides a list of all problems within a certain time frame. |
| Problem management | Problem detail | Provides detailed information for a specific problem. |
| Release management | List of Release Records | Provides a list of all release records within a certain time frame. |
| Release management | Release Record Detail | Provides detailed information for a specific release record. |
| Service Management | Service KPI Trend | Provides key metrics across services, groups and collections for Service Manager, Operations Manager, and Configuration Manager. This report enables trending and flexible grouping. |
| Service Management | Service Summary | Provides a scorecard-like report that includes a comprehensive view of the health of a service, including period-over-period analytic capabilities. |

See Also

[Using and Managing Standard Reports](#z4c083343c3b247a68cd9ca5fc0a99a05)

Using OLAP Cubes for Advanced Analytics

In System Center 2012 – Service Manager, data that is present in the data warehouse can be consolidated from various sources. It is presented through Service Manager by using predefined and customized Microsoft Online Analytical Processing (OLAP) data cubes. In short, advanced analytics in Service Manager consist of publishing, viewing, and manipulating cube data, usually in either Microsoft Excel or Microsoft SharePoint. Excel is primarily used by itself to view and manipulate data. SharePoint is used primarily as a means of publishing and sharing cube data.

Service Manager includes a System Center–wide data warehouse. Therefore, data from Operations Manager, Configuration Manager, and Service Manager can be consolidated into the data warehouse, where you can easily use multiple data views to get any information that you might want. This is also an interface where you can put data into the same data warehouse from your own custom sources, such as SAP applications or a third-party human resources application. This consolidation creates a common data model and enables enriched analyses to help you build a data warehouse across your Information Technology (IT) organization that can serve all your business intelligence and reporting needs.

When your data is in a common model, you can manipulate information and have common definitions and a common taxonomy for your whole enterprise. You can do this by deploying OLAP data cubes and accessing the information from the cubes, using standard tools such as Excel and SharePoint. This makes it possible for your users to employ skills that they already know. You control the definition of your business logic in a centralized manner. For example, you can define key performance indicators, such as the incident time-to-resolution thresholds, and which values for the thresholds are green, yellow, or red. You can control these choices in a centralized manner and empower your users to easily use the data, yet have the common definition appear in their Excel reports or their SharePoint dashboards.

Advanced Analytic Topics

 [Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

Describes OLAP cube usage, structure, deployment, troubleshooting, and creation.

 [Analyzing Data with Excel 2010](#z5710220448764a979da4ef6dac619721)

Describes how to analyze date with Excel 2010.

 [How to View and Analyze an OLAP Data Cube with Excel](#zc8f51e1b061e4ec28a21b0b17eb31aee)

Describes how to view and analyze an OLAP data cube using Excel.

 [Creating and Using Excel Slicers](#z43c3b198585a42cf94cd123655d13476)

Describes how to create and use Excel slicers.

 [How to Refresh OLAP Data Cube Information](#zaeb99cdc6d174979bbf876f822e2636b)

Describes how to refresh OLAP data cubes.

 [How to Manage the Analysis Libraries](#z5f3e94e567064ef4a511a21c5d6b98f8)

Describes how to manage analysis libraries.

 [How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307)

Describes how to use the analysis library.

 [Advanced Analytical Reports Available in System Center 2012 - Service Manager](#zd79b058558e7483c904a800fa9480493)

Lists the OLAP data cubes present in Service Manager.

 [Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

Explains how to create and deploy dashboards to display OLAP cube information in SharePoint 2010.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

Understanding OLAP Cubes

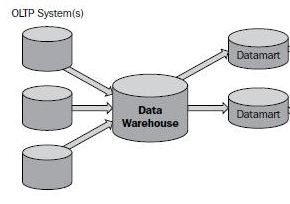
Online analytical processing (OLAP) cubes are a feature in System Center 2012 – Service Manager that use the existing data warehouse infrastructure to provide self-service business intelligence capabilities to end users.

An OLAP cube is a data structure that overcomes the limitations of relational databases by providing rapid analysis of data. Cubes can display and sum large amounts of data while also providing users with searchable access to any data points. This way, the data can be rolled up, sliced, and diced as needed to handle the widest variety of questions that are relevant to a user’s area of interest.

Software vendors or information technology (IT) developers with a working knowledge of OLAP cubes can create management packs to define their own extensible and customizable OLAP cubes that are built on the data warehouse infrastructure that was provided in Service Manager 2010. These cubes are stored in SQL Server Analysis Services (SSAS). Self-service business intelligence tools such as Excel and SQL Server Reporting Services (SSRS) can target these cubes in SSAS, and you can use them to analyze the data from multiple perspectives.

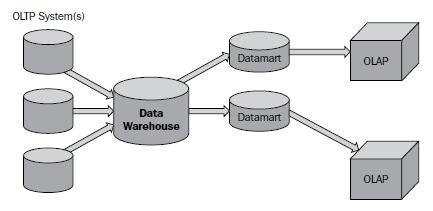
The databases that a business uses to store all its transactions and records are called online transaction processing (OLTP) databases. These databases usually have records that are entered one at a time and that contain a wealth of information that can be used by strategists to make informed decisions about their business. The databases that are used to store the data, however, were not designed for analysis. Therefore, retrieving answers from these databases is costly in terms of time and effort. OLAP databases are specialized databases that are designed to help extract this business intelligence information from the data.

In Service Manager 2010, the data warehouse provided OLAP databases that contained data in simplified, read-optimized schemas that were ready for consumption. The topology of the system is shown in the following illustration.



One drawback to this system, however, is that OLAP databases essentially contained the exact same type of information that was found in OLTP databases. There were no precalculated aggregations of data to answer increasingly complex and varied queries.

OLAP cubes can be considered as the final piece of the puzzle for a data warehousing solution. An OLAP cube, also known as multidimensional cube or hypercube, is a data structure in SQL Server Analysis Services (SSAS) that is built, using OLAP databases, to allow near-instantaneous analysis of data. The topology of this system is shown in the following illustration.



The useful feature of an OLAP cube is that the data in the cube can be contained in an aggregated form. To the user, the cube seems to have the answers in advance because assortments of values are already precomputed. Without having to query the source OLAP database, the cube can return answers for a wide range of questions almost instantaneously.

The main goal of System Center 2012 – Service Manager OLAP cubes is to give software vendors or information technology (IT) developers the ability to perform near-instantaneous analysis of data for both historical analysis and trending purposes. System Center 2012 – Service Manager does this by:

 Allowing you to define OLAP cubes in management packs that will be created automatically in SSAS when the management pack is deployed.

 Automatically maintaining the cube without user intervention, performing such tasks as processing, partitioning, translations and localization, and schema changes.

 Allowing users to use self-service business intelligence tools, such as Excel, to analyze the data from multiple perspectives.

 Saving generated Excel reports for future reference.

To see how data warehouse cubes are represented in the Service Manager console, navigate to the Data Warehouse workspace, and then click Cubes.

Understanding OLAP Cubes Topics

 [About OLAP Cubes](#z49adfb3d8a1a4fb4ab5d2f5d49b44832)

Explains OLAP cube parts and actions that users can take using OLAP cube parts.

 [About Modeling OLAP Cubes in Management Packs](#z7f6da1795a5446fbadc43fcaa7bd9864)

Describes management pack elements that you can use to define and customize an OLAP cube.

 [About Cube Partitioning](#z591247283fea4acfb17d839ebefbf092)

Explains the impact that cube partitions have on scalability and performance.

 [About Cube Processing](#z83f586d714f3498f921292e34c480359)

Explains what occurs during cube processing.

 [About Cube Deployment](#z58a90410a4df4bf1b21c6335b90b317e)

Explains what occurs during cube deployment.

 [Maintaining OLAP Cubes](#zb350f9b3622d49b4849a5e6bf0e199fa)

Describes best practices for maintaining OLAP cubes.

 [Troubleshooting OLAP Cubes](#zdfabe72315b740e0923a66819be1e93c)

Describes common problems that you might have to troubleshoot for OLAP cubes.

 [How to Create an OLAP Cube Using a Management Pack](#z3ed8ab2f0e0d4b6fb3e4a0f44775ec13)

Describes how to create an OLAP cube by using a management pack.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

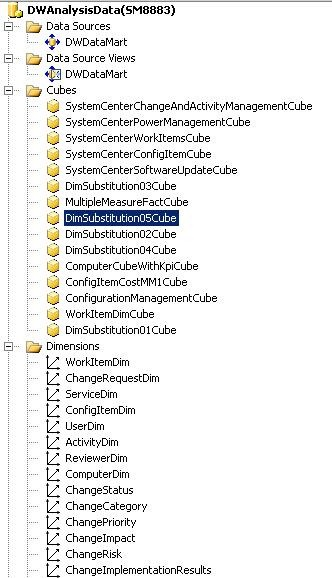
 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

About OLAP Cubes

The following illustration shows an image from SQL Server Business Intelligence Development Studio (BIDS) that depicts the main parts that are required for online analytical processing (OLAP) cubes. These parts are the data source, data source view, cubes, and dimensions. The following sections describe the OLAP cube parts and the actions that users can take using them.



Data Source

A data source is the origin of all the data that is contained within an OLAP cube. An OLAP cube connects to a data source to read and process raw data to perform aggregations and calculations for its associated measures. The data source for all Service Manager OLAP cubes is the data marts, which includes the data marts for both Operations Manager and Configuration Manager. Authentication information about the data source must be stored in SQL Server Analysis Services (SSAS) to establish the correct level of permissions.

Data Source View

The data source view (DSV) is a collection of views that represent the dimension, fact, and outrigger tables from the data source, such as the Service Manager data marts. The DSV contains all the relationships between tables, such as primary and foreign keys. In other words, the DSV specifies how the SSAS database will map to the relational schema, and it provides a layer of abstraction on top of the relational database. Using this layer of abstraction, relationships can be defined between fact and dimension tables, even if no relationships exist within the source relational database. Named calculations, custom measures, and new attributes may also be defined in the DSV that may not natively exist in the data warehouse dimensional schema. For example, a named calculation that defines a Boolean value for Incidents Resolved calculates the value as true if an incident’s status is resolved or closed. Using the named calculation, Service Manager can then define a measure to display useful information such as the percentage of incidents resolved, the total number of incidents resolved, and the total number of incidents that are not resolved.

Another quick example of a named calculation is ReleasesImplementedOnSchedule. This nambed calculation provides a quick health status check on the number of release records in which the actual end date is less than or equal to the scheduled end date.

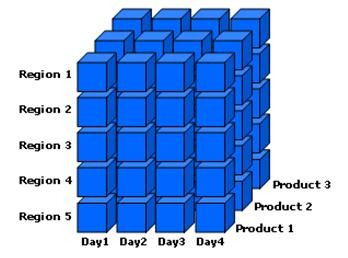
OLAP Cubes

An OLAP cube is a data structure that overcomes limitations of relational databases by providing rapid analysis of data. OLAP cubes can display and sum large amounts of data while also providing users with searchable access to any data points so that the data can be rolled up, sliced, and diced as needed to handle the widest variety of questions that are relevant to a user’s area of interest.

Dimensions

A dimension in SSAS references a dimension from the Service Manager data warehouse. In System Center 2012 – Service Manager, a dimension is roughly equivalent to a management pack class. Each management pack class has a list of properties, while each dimension contains a list of attributes, with each attribute mapping to one property in a class. Dimensions allow the filtering, grouping, and labeling of data. For example, you can filter computers by the installed operating system and group people into categories by gender or age. The data can then be presented in a format where the data is categorized naturally into these hierarches and categories to allow a more in-depth analysis. Dimensions may also have natural hierarches to allow users to “drill down” to more detailed levels of detail. For instance, the Date dimension has a hierarchy that can be drilled down by Year, then Quarter, then Month, then Week, and then Day.

The following illustration shows an OLAP cube that contains the Date, Region, and Product dimensions.



For example, Microsoft team members might want a quick and simple summary of the sales of the Xbox 360 gaming console in 2010. They can further drill down to get sales figures for a more focused time frame. Business analysts may want to examine how the sales of Xbox 360 consoles were affected by the launch of the new console design and the Kinect for Xbox 360 controller-free gaming experience. This helps them determine what sales trends are occurring and what potential revisions of business strategy are needed. By filtering on the date dimension, this information can be quickly delivered and consumed. This slicing and dicing of data is enabled only because the dimensions have been designed with attributes and data that can easily be filtered and grouped by the customer.

In System Center 2012 – Service Manager, all OLAP cubes share a common set of dimensions. All dimensions use the primary data warehouse data mart as their source, even in multiple data mart scenarios. In multiple data mart scenarios, this can possibly lead to dimension key errors during processing of the cube.

Measure Group

A measure group is the same concept as a fact in data warehouse terminology. Just as facts contain numeric measures in a data warehouse, a measure group contains measures for an OLAP cube. All the measures in an OLAP cube that derive from a single fact table in a data source view also can be considered to be a measure group. There can be instances, however, in which there will be multiple fact tables from which the measures in an OLAP cube derive. Measures of the same detail level are united in one measure group. Measure groups define what data will be loaded into the system, how the data is loaded, and how the data is bound to the multidimensional cube.

Each measure group also contains a list of partitions, which hold the actual data in separate, nonoverlapping sections. Measure groups also contain aggregation design, which defines the presummarized data sets that are calculated for each measure group to improve the performance of user queries.

Measures

Measures are the numeric values that users want to slice, dice, aggregate, and analyze; they are one of the fundamental reasons why you would want to build OLAP cubes using data warehousing infrastructure. By using SSAS, you can build OLAP cubes that will apply business rules and calculations to format and display measures in a customizable format. Much of your OLAP cube development time will be spent determining and defining which measures will be displayed and how they will be calculated.

Measures are values that usually map to numeric columns in a data warehouse fact table, but they can also be created on dimension and degenerate dimension attributes. These measures are the most important values of an OLAP cube that are analyzed and the primary interest to end users who browse the OLAP cube. An example of a measure that exists in the data warehouse is ActivityTotalTimeMeasure. ActivityTotalTimeMeasure is a measure from ActivityStatusDurationFact that represents the time that each activity is in a certain status. The detail level of a measure is made up of all the dimensions that are referenced. For example, the detail level of the ComputerHostsOperatingSystem relationship fact consists of the Computer and Operating System dimensions.

Aggregation functions are calculated on measures to enable further data analysis. The most common aggregation function is Sum. A common OLAP cube query, for example, sums up the total time for all activities that are In Progress. Other common aggregation functions include Min, Max, and Count.

After the raw data has been processed in an OLAP cube, users can perform more complex calculations and queries using multidimensional expressions (MDX) to define their own measure expressions or calculated members. MDX is the industry standard for querying and accessing data that is stored in OLAP systems. SQL Server was not designed to work with the data model that multidimensional databases support.

Drill-Down

When a user drills down into the data in an OLAP cube, the user is analyzing the data at a different level of summarization. The level of detail of the data changes as the user drills down, examining the data at different levels in the hierarchy. As the user drills down, he or she moves from summary information to data with a more narrow focus. The following are examples of drilling down:

 Drilling down into data to look at demographic information about the population of the United States, then into the state of Washington, then into the metropolitan area of Seattle, then into the city of Redmond, and finally into the population at Microsoft.

 Drilling down into sales figures for Xbox 360 consoles for the 2011 calendar year, then the fourth quarter of the year, then the month of December, then the week before Christmas, and finally Christmas Eve.

Drill Through

When users “drill through” data, they want to see all the individual transactions that contributed to the OLAP cube’s aggregated data. In other words, the user can retrieve the data at a lowest level of detail for a given measure value. For example, when you are given the sales data for a particular month and product category, you can drill through that data to see a list of each table row that is contained within that cell of data.

It is common to confuse the terms “drill down” and “drill through” with each other. The main difference between them is that a drill-down operates on a predefined hierarchy of data—for example, USA, then into Washington, then into Seattle—within the OLAP cube. A drill-through go directly to the lowest level of detail of data and retrieves a set of rows from the data source that has been aggregated into a single cell.

Key Performance Indicator

Organizations can use key performance indicators (KPIs) to gauge the health of their enterprise and their performance by measuring their progress toward their goals. KPIs are business metrics that can be defined to monitor progress toward certain predefined objectives and goals. A KPI usually has a target value and an actual value, which represents a quantitative goal that is critical to the success of the organization. KPIs are usually displayed in groups on a scorecard to show the overall health of the business in one quick snapshot.

An example of a KPI is to complete all change requests within 48 hours. A KPI can be used to measure the percentage of change requests that are resolved within that time frame. You can create dashboards to represent KPIs visually. For example, you might want to define a KPI target value for completion of all change requests within 48 hours to 75 percent.

Partitions

A partition is a data structure that holds some or all of the data in a measure group. Every measure group is divided into partitions. A partition defines a subset of the fact data that is loaded into the measure group. SSAS Standard Edition allows only one partition per measure group, while SSAS Enterprise Edition allows a measure group to contain multiple partitions. Partitions are a feature that is transparent to the end user, but they have a major impact on both the performance and the scalability of OLAP cubes. All partitions for a measure group always exist in the same physical database.

Partitions make it possible for an administrator to better manage an OLAP cube and improve an OLAP cube’s performance. For example, you can remove or reprocess the data in one partition of a measure group without affecting the rest of the measure group. When you load new data into a fact table, only the partitions that should contain the new data are affected.

Partitioning also improves processing and query performance for OLAP cubes. SSAS can process multiple partitions in parallel, leading to a much more efficient use of CPU and memory resources on the server. While it runs a query, SSAS fetchesss, processes, and aggregates data from multiple partitions as well. Only partitions that contain the data that is relevant to a query are scanned, which reduces the overall amount of input and output.

One example of a partitioning strategy is to place the fact data for each month into a monthly partition. At the end of each month, all the new data goes into a new partition, which leads to a natural distribution of data with nonoverlapping values.

Aggregations

Aggregations in an OLAP cube are presummarized data sets. They are analogous to a SQL SELECT statement with a GROUP BY clause. SSAS can use these aggregations when it answers queries to reduce the amount of necessary calculations, returning the answers quickly to the user. Built-in aggregations in the OLAP cube reduce the amount of aggregation SSAS has to perform at query time. Building the correct aggregations can drastically improve query performance. This is often an evolving process throughout the lifetime of the OLAP cube as its queries and usage change.

A base set of aggregations is usually created that will be useful for most of the queries against the OLAP cube. Aggregations are built for each partition of an OLAP cube within a measure group. When an aggregation is built, certain attributes of dimensions are included in the presummarized data set. Users can quickly query the data based on these aggregations when they browse the OLAP cube. Aggregations must be designed carefully because the number of potential aggregations is so large that building all of them would take an unreasonable amount of time and storage space.

Service Manager uses the following two options when it builds and designs aggregations in Service Manager OLAP cubes:

 Performance Gain Reaches

 Usage-based optimization

The Performance Gain Reaches option defines what percentage of aggregations is built. For example, setting this option to the default and recommended value of 30 percent means that aggregations will be built to give the OLAP cube a 30-percent estimated performance gain. However, this does not mean that 30 percent of the possible aggregations will be built.

Usage-based optimization makes it possible for SSAS to log the requests for data so that when a query is run, the information is fed into the aggregation design process. SSAS then reviews the data and recommends which aggregations should be built to give the best estimated performance gain.

See Also

[Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)

About Modeling OLAP Cubes in Management Packs

The ability to define customized management pack elements was used to model the online analytical processing (OLAP) cube management pack elements that are included in System Center 2012 – Service Manager. These management pack elements make it possible for the user to declaratively define and customize an OLAP cube at a higher level of abstraction. Based on the definition, the deployment of these management pack elements create the correct relationships, components, and fundamental building blocks of the OLAP cube at a greater level of detail, without any further user guidance. The following are the two main management pack elements that are included in OLAP cubes:

 SystemCenterCube

 CubeExtension

SystemCenterCube

The SystemCenterCube element defines the OLAP cube to a varying degree of detail, depending on your specific needs. This element contains the following subelements:

 MeasureGroup

 Substitution

 CustomMDX

 NamedCalculation

 Measure

 KPI

 Action (however, only drill-through actions are supported currently)

 ManyToManyRelationship

MeasureGroup

Each OLAP cube contains a collection of facts that exist in the data mart, where each member in the collection corresponds to a measure group. Each measure group must have its own unique name within the OLAP cube. However, a single fact may correspond to multiple measure groups in an OLAP cube. For example, the abstract relationship WorkItemAssignedToUser may be defined three times in an OLAP cube, with the unique measure group names of ChangeRequestAssignedToUser, IncidentAssignedToUser, and ProblemAssignedToUser. As described in the in the [Substitution](#z1) section, you can customize the fact so that only change requests, incidents, and problems are included in the respective measure group for the OLAP cube.

The following example shows the management pack element for the IncidentAssignedToUser measure group:

<MeasureGroup DateDimAlias="IncidentAssignedToUserDateDim" MeasureGroupName-"IncidentAssignedTouser" Fact="DWBase!WorkItemAssignedToUserFact"/>

When the OLAP cube is deployed, the dimension, outriggers, and foreign key relationships are automatically calculated and the data source view will be updated with these new elements. The following table describes measure group attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| DateDimAlias | No | String | The name of the date dimension that will filter on this measure group. If no alias is defined, the date dim role playing name will automatically be "(MeasureGroupName)\_DateDim" |
| MeasureGroupName | Yes | String | The name of the measure group in the cube. This name must be unique within the cube. |
| Fact | Yes | Relationship or CustomFact | The target of the measure group, which must be a fact in the data warehouse. |

Substitution

Because relationship facts in the data warehouse may target abstract relationships and dimensions, you need to substitute in concrete dimensions so that the measure group will contain only instances that you want to browse.

This is illustrated in the following example.

<Substitution MeasureGroupName="IncidentAssignedTouser" RelationshipEndpoint="Source" Relationship="Workitem!System.WorkItemAssignedToUser" TargetDimension="DWBase!WorkItemDim" ReplacementDimension="IncidentDW!IncidentDim"/>

In this example, the IncidentAssignedToUser measure group points at the WorkitemAssignedToUser relationship. This relationship, however, will not only contain incidents, but it will also contain change requests and problems that have also been assigned to any users. To ensure that this measure group only contains incidents, Service Manager substitutes WorkItemDim with IncidentDim. This means that the table that is created in the data source view for the measure group automatically performs an inner join on WorkItemDim with IncidentDim and returns only those instances where a join is valid based on the EntityDimKey or BaseManagedEntityId.

Remember that you must define the relationship endpoint where you want to perform the substitution. This element is required because it is possible that the source and endpoint dimensions are identical and a methodology is needed to uniquely identify which dimension to substitute. An example of such a relationship is WorkItemRelates to WorkItem.

The substitution element is also used to define alias dimensions for the cube. In other words, you can define an alias name for a dimension, but it is not required to actually substitute a dimension. In effect, the substitution in this case is not on the dimension but on the cube dimension or alias dimension name, as shown in the following example:

<Substitution MeasureGroupName="IncidentAssignedToUser" RelationshipEndpoint="Target" Relationship="Workitem!System.WorkItemAssignedToUser" AliasTargetDimensionAs="AssignedToUserDim" TargetDimension="DWBase!UserDim"/>

In this example, the alias cube dimension name is AssignedToUserDim. This is the name of the dimension that will be used to actually filter on this cube. By allowing users to define alias names, names can be specifically tailored to enable the desired, many-to-many relationships in the cube. This makes more advanced filtering and analytical capabilities possible.

Finally, substitutions are valid not only for relationship facts but for custom facts as well. In this scenario, the relationship endpoint would be set to None. The following table describes substitution attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| MeasureGroupName | Yes | String | The measure group name on which to perform the substitution |
| RelationshipEndPoint | Yes | (Target, Source, None) | The endpoint of the relationship to perform the substitution. By default, the value is None for custom facts. |
| Relationship | No | ManagementPackRelationship | The relationship to use for the substitution. |
| AliasTargetDimensionAs | No | String | The alias name of the original targeted dimension |
| AliasReplacementDimensionsAs | No | String | The alias name for the substituted dimension |
| DimensionAlias | No | ManagementPackDimension | The dimension alias from a custom fact if one exists |

Custom MDX

You can use custom Multi-Dimensional Expression (MDX) scripts to modify and tailor the OLAP cube to the exact specifications that meet your needs. Because Service Manager are model based, it is impossible to determine all your possible semantic needs when taking into account the wide spectrum of requirements and exact specifications for the domain-specific business needs of a particular user. Custom MDX makes it possible for you to define MDX scripts that will be applied to the OLAP cube to enable specific scenarios that users need to measure and instrument.

Named Calculation

You can use named calculations to define new attributes on a dimension that a custom measure can later target. This makes it possible for you to extend the dimensional schema and customize the schema to fit your exact needs. The following example is from the SystemCenterWorkItemsCube:

<NamedCalculation ID="IncidentsPastTargetResolutionTime" Target="IncidentDW!IncidentDim" ColumnType="Int">

<Calculation>(case when ( (([Status] = 'IncidentStatusEnum.Resolved' OR [Status] = 'IncidentStatusEnum.Closed') AND ResolvedDate &gt; TargetResolutionTime) OR (([Status] != 'IncidentStatusEnum.Resolved' AND [Status] != 'IncidentStatusEnum.Closed') AND GETUTCDATE() &gt; TargetResolutionTime)) then 1 else 0 end )</Calculation>

</NamedCalculation>

In this example, the Incident dimension contains data, such as the status of the incident and the target resolution time. However, there is no native measure that calculates the number of incidents that exceeded the target resolution time, although this type of data is very useful for a systems administrator. You can create this scenario using a named calculation and aggregate the data so that a custom measure can target the new attribute and then present the information to an end user.

Remember that Service Manager supports only NamedCalculation targeting dimensions. NamedCalculation cannot target facts. The following table describes named calculation attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| ID | Yes | String | Name of the named calculation. |
| Target | Yes | ManagementPackDimension | The target dimension for the measure |
| ColumnType | Yes | (Int, Double) | The Structured Query Language (SQL) type of the column |
| Type | No | (Count, Sum) | The type of the measure |

The subelement <Calculation> contains, as its value, the definition of the named calculation. The value is stored as an MDX expression.

Measure

You can use custom measures to aggregate and display data based on numeric attributes from dimensions. Service Manager does not support custom measures based on facts. Continuing with the example of he Named Calculation above, smshort defines a custom measure on IncidentsPastTargetResolutionTime as the following:

<Measure ID="IncidentsPastTargetResolutionTimeCount" Target="IncidentDW!IncidentDim" Type="Sum" Property="IncidentsPastTargetResolutionTime"/>

Reviewing this XML code, the target of the measure is the IncidentDimension and the specific property is IncidentsPastTargetResolutionTime. This is the custom property that was defined previously. Custom measures can target either native or calculated properties in the dimension.

Finally, the measure type is defined to be a sum. Possible values for a measure type include Sum and Count. Because of performance considerations, Service Manager Distinct Count measure types are not allowed. The following table describes measure attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| ID | Yes | String | Name of the measure |
| Target | Yes | ManagementPackDimension | The target dimension for the measure |
| Property | Yes | String | The targeted dimension property |
| Type | No | (Count, Sum) | The type of the measure |

ManyToManyRelationship

The ManyToManyRelationship makes it possible for you, the cube designer, to add custom, many-to-many dimensions to an OLAP cube, for enabling advanced analytic scenarios. Defining many-to-many relationships is beyond the scope of this document. However, you can investigate this concept and its benefits. For more information about the ManyToManyRelationship, see [The Many-to-Many Revolution 2.0](http://go.microsoft.com/fwlink/p/?LinkId=246670).

During cube deployment, Service Manager automatically adds many-to-many dimensions to the cube for all "one-hop" relationships, without any interaction from you. However, Service Manager does not add many-to-many dimensions for cascading (multi-hop) relationships because of the exponential increase of possible relationships that could be added. Adding all these relationships can significantly degrade performance when the OLAP cube is browsed. This is because the aggregations of many-to-many relationships are generally not calculated during processing and because the joins will be evaluated while the OLAP cube is browsed. If you want a specific, cascading, many-to-many relationship, you can define the relationship using a management pack element and it will be added to the OLAP cube. Conversely, you can overwrite an automatically generated, many-to-many relationship to use a different intermediate measure group in instances in which multiple intermediate groups exist. In this case, Service Manager automatically uses the first group that is encountered. The following is an example of a many-to-many management pack relationship element:

<ManyToManyRelationship CubeDimension="ServiceDim" TargetMeasureGroup="AlertAboutConfigItem" IntermediateMeasureGroup="ServiceContainsConfigItem" />

The following table describes many to many relationship attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| CubeDimension | Yes | String | Name of the many-to-many cube dimension |
| TargetMeasureGroup | Yes | String | The target measure group to create the many-to-many relationship |
| IntermediateMeasureGroup | Yes | String | The intermediate measure group to create the many-to-many relationship |

KPI

Organizations and businesses can use key performance indicators (KPIs) to quickly estimate the health of an enterprise by measuring its progress toward a predefined goal. Each KPI has a target value and an actual value. The target value is a quantitative goal that is critical to the success of the organization. Large amounts of data are filtered to one discrete value that can be used to monitor performance and progress towards goals and benchmarks. Some examples of KPIs are a college having a goal that 90% of their students graduate within four years or a basketball team with a goal of causing the opposing team to shoot less than 50 percent for a game. You can use a scorecard to show a group of KPIs, providing in one instantaneous snapshot the overall health of a business. The following is an example KPI:

<KPI ID="IncidentResolutiuonKpi" >

<Caption> The ratio of incidents resolved </Caption>

<Value>IIF(([Measures].[IncidentDimCount])&gt; 0,([Measures].[IncidentsResolvedCount]/[Measures].[IncidentDimCount]),null)</Value>

<Goal>1.0</Goal>

<GreenThreshold> 0.75</GreenThreshold>

<YellowThreshold>0.5 </YellowThreshold>

<Direction>Up</Direction>

<StatusGraphic>Thermometer</StatusGraphic>

</KPI>

The following table describes KPI attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| ID | Yes | String | Name of the KPI |
| Caption | Yes | String | Description of the KPI |
| Value | Yes | String | MDX script defining the numeric value of the KPI |
| Goal | Yes | String | ​The target value of the KPI |
| Green Threshold | Yes | String (between 0.1 and 1) | ​Any number that is above or below this threshold, depending on the direction, is marked as green in the status symbol. |
| ​Yellow Threshold | Yes | String (between 0.1 and 1) | Any number that is above or below the threshold, depending on the direction, but does not meet the green threshold is marked as yellow in the status symbol. A number that does not meet the yellow threshold is marked as red in the status symbol. |
| ​Direction | Yes | ​(Up, Down) | ​If the direction is up, any numbers above the green or yellow threshold are marked with the corresponding symbol. Similarly for down, numbers below the green or yellow thresholds are marked with the corresponding symbol. |
| ​Status Graphic | Yes | ​(Shapes, TrafficLight, RoadSigns, Gauge, ReversedGauge, Thermometer, Cylinder, Faces, VarianceArrow) | ​The symbol that will represent the KPI. |

Action

Actions are events that you can trigger on an OLAP cube when you are accessing data in the cube. Only drill-through actions are supported by Service Manager. The following is an example of an action:

<Action ID="DrillThroughOnWICreatedByUser" MeasureGroupName="CreatedByUser" ActionType="DrillThrough">

<DrillThroughColumns CubeDimension="WorkItemCreatedByUser\_UserDim">

<Property PropertyName="FirstName" />

<Property PropertyName="LastName" />

<Property PropertyName="Company" />

<Property PropertyName="Department" />

<Property PropertyName="Office" />

</DrillThroughColumns>

</Action>

The following table describes actions attributes.

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Required | Values | Definition |
| ID | Yes | String | Name of the drill-through action |
| MeasureGroupName | Yes | String | Targeted measure group of the action |
| ActionType | Yes | (DrillThrough) | Type of action. Only drill-through actions are supported by Service Manager. |
| CubeDimension | Yes | String | ​The cube dimension that is the target of the action, which must be a slicer on the Measure Group |
| PropertyName | Yes | String | Attribute of the dimension that is displayed when the drill-through action is executed |

CubeExtension

The primary purpose of the CubeExtension element is to make it possible for you to modify the OLAP cube after the cube has deployed onto SSAS, without having to uninstall and reinstall the cube. In situations in which the OLAP cube has been fully processed with years of data, recreating the cube is time consuming because all partitions have to be fully reprocessed.

The CubeExtension element can define the following elements:

 NamedCalculation

 ManyToManyRelationship

 KPI

 Measure

 Action

 CustomMdx

Each customization that is defined in a CubeExtension element can also be defined in a SystemCenterCube object. The only customization that is not allowed is the addition of facts or measure groups and substitutions to the cube.

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

About Cube Partitioning

Each measure group in a cube is divided into partitions, where a partition defines a portion of the fact data that is loaded into a measure group. SQL Server Analysis Services (SSAS) on SQL Server 2008 R2 Standard Edition allows only one partition per measure group, while multiple partitions are allowed in the Enterprise Edition. Partitions are completely transparent to the end user, but they have an important impact on performance and scalability. For example, partitions can be processed separately and in parallel. They can have different aggregation designs, although this was not implemented in System Center 2012 – Service Manager. You can reprocess a partition without affecting all the other partitions in a measure group. Also, SSAS automatically scans only the partitions that contain the necessary data for a query, which can vastly improve query performance.

Cube partitioning is performed on every data warehouse maintenance job run, which is hourly by default. The specific process module that runs is named ManageCubePartitions. It always runs after the CreateMartPartitions step. This dependency data is stored in the infra.moduletriggercondition table.

The main dynamic link library (DLL), which handles partitioning, is in the warehouse utility DLL, Microsoft.EnterpriseManagement.Warehouse.Utility, in the PartitionUtil class. Specifically, there is a ManagePartitions() method in the class that handles all partition maintenance. The data warehouse maintenance DLL, Microsoft.EnterpriseManagement.Warehouse.Maintenance, and the data warehouse online analytical processing (OLAP) DLL, Microsoft.EnterpriseManagement.Warehouse.Olap, both call into Microsoft.EnterpriseManagement.Warehouse.Utility to handle partitions during maintenance and cube deployment. This is why actual partition handling is in the common warehouse utility DLL to avoid duplicating logic or code.

Cube Partitioning Maintenance performs the following tasks:

 Create partitions

 Delete partitions

 Update partition boundaries

To do this, the Structured Query Language (SQL) table etl.TablePartition is read to determine all the fact partitions that have been created for a measure group. The following actions occur:

1. Start cube processing for each measure group in the cube

2. Get all partitions from the etl.TablePartition table for the measure group

3. Delete any partitions that exist in the measure group but that are missing from the etl.TablePartition table

4. Add any new partitions that have been created and that exist only in the etl.TablePartition table

5. Update any partition that might have changed by matching each partition to the RangeStartDate and RangeEndDate in the etl.TablePartition table

Remember the following about cube processing:

 Only measure groups that are targeted at facts contain multiple partitions in SQL Server 2008 R2 Standard Edition. By default, all measure groups and dimensions contain only one partition. Therefore, the partition does not have any boundary conditions.

 The partition boundaries are defined by a query binding that is based on datekeys that match up to the datekeys for the corresponding fact partition in the etl.TablePartition table.

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

About Cube Processing

When an online analytical processing (OLAP) cube has been deployed and all its partitions have been created, it is ready to be processed so that it is viewable. Processing a cube is the final step after extract, transform, and load (ETL) runs. These steps occur as follows:

1. Extract: Extract data from the source system

2. Transform: Apply functions to conform data to a standard dimensional schema

3. Load: Load the data into the data mart for consumption

4. Process: Load the data from the data mart into the OLAP cube for browsing

Processing of an OLAP cube occurs when all the aggregations for the cube are calculated and the cube is loaded with these aggregations and data. Dimension and fact tables are read, and the data is calculated and loaded into the cube. When you design an OLAP cube, processing must be carefully considered because of the potentially significant effect that processing might have in a production environment where millions of records may exist. A full process of all partitions in such an environment might take anywhere from days to even weeks, which might render the Service Manager infrastructure and cubes unusable to end users. One recommendation is to disable the processing schedule of any cubes that are not being used to reduce the overhead on the system.

OLAP cube processing consists of two separate tasks:

1. Dimension processing

2. Partition processing

Each OLAP cube has a corresponding processing job in the Service Manager console, and it runs on a user-configurable schedule. Each type of processing task is described in the following sections.

Dimension Processing

Whenever a new dimension is added to the SQL Server Analysis Server (SSAS) database, a full process must be run on the dimension to bring it to a fully processed state. After a dimension has been processed, however, there is no guarantee that it will be processed again when another cube that targets the same dimension is processed. By not automatically reprocessing the dimension prevents Service Manager from reprocessing every dimension for every cube. This is especially true if the dimension has been recently processed, because it is unlikely that new data exists that has not yet been processed. To optimize processing efficiency, there is a singleton class, which is defined in the Microsoft.SystemCenter.Datawarehouse.OLAP.Base management pack, that is named Microsoft.SystemCenter.Warehouse.Dimension.ProcessingInterval. The following is an example of this class:

<!-- This singleton class defines the minimum interval of time in minutes that must elapse before a shared dimension is reprocessed. -->

<ClassType ID="Microsoft.SystemCenter.Warehouse.Dimension.ProcessingInterval" Accessibility="Public" Abstract="false" Base="AdminItem!System.AdminItem" Singleton="true">

<Property ID="IntervalInMinutes" Type="int" Required="true" DefaultValue="60"/>

</ClassType>

This singleton class contains a property, IntervalInMinutes, which describes how often to process a dimension. By default this property is set to 60 minutes. For example, if a dimension was processed at 3:05 P.M. and another cube that targets the same dimension is processed at 3:45 P.M., the dimension will not be reprocessed. One drawback to this approach is the increased likelihood of dimension key errors. A retry mechanism handles dimension key errors to reprocess the dimension and then the cube partition. For more information about processing failures, see the “Common Problems with Debugging and Troubleshooting” section in the [Troubleshooting OLAP Cubes](#zdfabe72315b740e0923a66819be1e93c) topic.

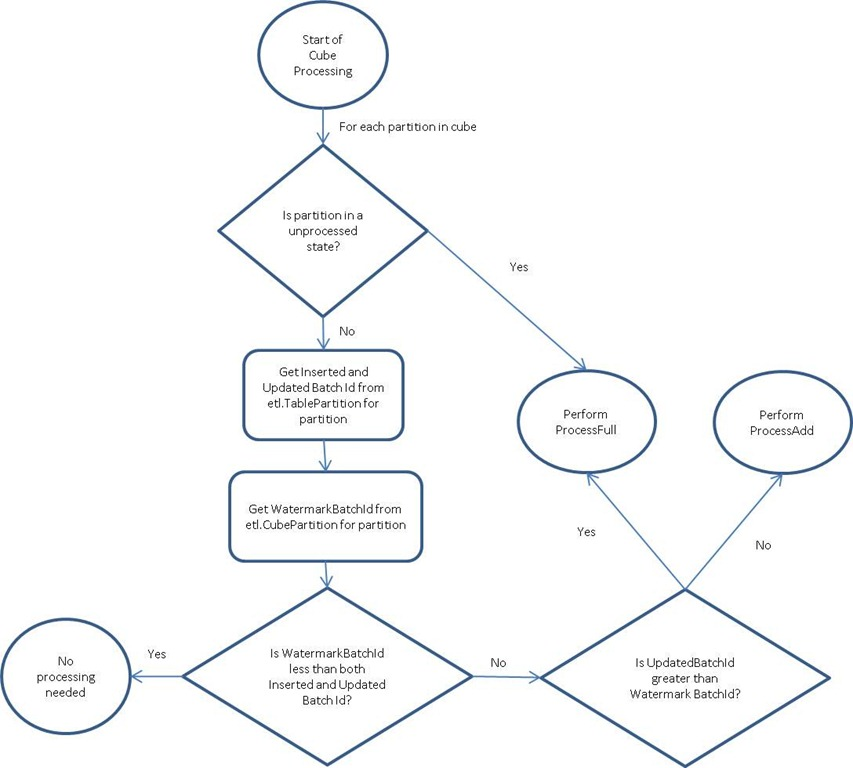
After a dimension has been fully processed, incremental processing with ProcessUpdate is executed. The only other time that ProcessFull is executed is when a dimension schema changes, because it results in the dimension returning to an unprocessed state. Remember that if ProcessFull is performed on a dimension, all affected cubes and their partitions will subsequently exist in an unprocessed state and they will have to be fully processed on their next scheduled run.

Partition Processing

Partition processing must be carefully considered because reprocessing a large partition is very slow and it consumes many CPU resources on the server that hosts SSAS. Partition processing generally takes longer than dimension processing. Unlike dimension processing, processing a partition has no side effects on other objects. The only two types of processing that are performed on System Center 2012 – Service Manager OLAP cubes are ProcessFull and ProcessAdd.

Similar to dimensions, creating new partitions in an OLAP cube requires a ProcessFull task for the partition to be in a state where it can be queried. Because a ProcessFull task is an expensive operation, you should perform a ProcessFull task only when necessary; for example, when you create a partition or when a row has been updated. In scenarios in which rows have been added and no rows have been updated, Service Manager can perform a ProcessAdd task. To do this, Service Manager uses watermarks and other metadata. Specifically, the etl.cubepartition table and the etl.tablepartition table are queried to determine what type of processing to perform.

The following diagram illustrates how Service Manager determines what type of processing to perform based on the watermark data.



When a ProcessAdd task is performed, Service Manager limits the scope of the query using watermarks. For example, if the InsertedBatchId value is 100 and the WatermarkBatchId value is 50, the query loads data only from the data mart where the InsertedBatchId is greater than 50 and less than 100.

Finally, it is important to note that Service Manager does not support manual processing of OLAP cubes using SSAS or Business Intelligence Development Studio. Processing cubes outside of the methods that are provided in System Center 2012 – Service Manager, including the Service Manager console and Service Manager cmdlets, will not update the watermark tables. Therefore, it is possible that data integrity problems might occur. If you have accidentally reprocessed the cube manually, one possible workaround is to unprocess the OLAP cube manually in the same manner. Then, the next time Service Manager processes the cube, it will automatically perform a ProcessFull task because partitions will be in an unprocessed state. This will update all watermarks and metadata correctly so that any possible data integrity problems will be fixed.

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

About Cube Deployment

Online analytical processing (OLAP) cube ddeployment uses the Service Manager deployment infrastructure to create OLAP cubes in the SQL Server Analysis Services (SSAS) database.

To summarize, a deployable element returns a deployer with a collection of resources that are serialized and that are used to create the OLAP cube in the SSAS database. For OLAP cubes, the name of the deployable object is CubeDeployable for the SystemCenterCube element and CubeExtensionDeployable for the CubeExtension element. The deployer for both elements is CubeDeployer.

The dbo.Selector table in the DWStagingAndConfig database contains an entry for both the SystemCenterCube and CubeExtension management pack elements. The deployment engine uses this metadata if additional deployment processing is necessary for a management pack element when the management pack is imported into the data warehouse using the MPSync job.

Deployments use the Analysis Management Objects (AMO) application programming interface (API) to create and modify all the cube components in the SSAS database. Specifically, AMO in disconnected mode is used because the CubeDeployable element will not have a connection to the SSAS database. Working with AMO in disconnected mode makes it possible for you to create the entire tree of AMO objects without establishing a connection to the server. Service Manager then serializes the hierarchy of objects as stream resources and attaches them to the deployer object that is passed back to the deployment infrastructure. The deployer object is then deserialized, establishes a connection to the SSAD database, and creates the objects by sending the appropriate requests to the server.

Only major objects can be serialized. In AMO, major objects are considered classes that represent a complete object as a complete entity and not as part of another object. For example, major objects include Server, Cube, and Dimension, which are all stand-alone entities. The DimensionAttribute, however, is not a major object because it can only be created as part of a parent major object of Dimension. DimensionAttribute, therefore, is a minor object. The OLAP cube design focuses on creating all the major objects that are needed for cubes, along with any dependent minor objects. These major objects are the objects that will be serialized—and, eventually, deserialized—before the objects are created in the SSAS database.

Resources that wrap major objects must be created in a specific order for deployment to complete successfully and satisfy the dependency requirements of the OLAP cube elements. The following two lists illustrate the deployment sequence for the SystemCenterCube and CubeExtension elements, respectively:

1. DataSourceView elements

2. dimension elements

3. date dimension element

4. cube element

1. DataSourceView elements

2. cube element

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

Maintaining OLAP Cubes

The information in the following sections describes maintenance best practices for online analytical processing (OLAP) cubes.

Periodically Reprocess Analysis Services Dimensions

SQL Server Analysis Services (SSAS) best practices recommend that SSAS dimensions should be fully processed periodically. Fully processing the dimensions rebuilds indices and optimizes the data storage of multidimensional data, which improves query and cube performance that can degrade over time. This is similar to periodically defragmenting a hard disk on a computer.

However, a drawback to fully processing an SSAS dimension is that all affected OLAP cubes become unprocessed, and they must also be fully processed to return them to the state in which you can query them. System Center 2012 – Service Manager does not explicitly fully process on SSAS dimensions. Therefore, you must decide when to perform this maintenance task.

Memory Considerations

If you run all data warehouse extraction, transformation, and load (ETL) operations and OLAP cube functions on one server, carefully consider the memory needs of the operating system, data warehouse, and SSAS to ensure that the server can handle all the data-intensive operations that can run concurrently. This is especially important because processing OLAP cubes is a memory-intensive operation.

For more information, review hardware requirements and guidelines in the [Planning Guide for System Center 2012 - Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672). Also review the [SQL Server 2008 R2 Analysis Services Operations Guide](http://go.microsoft.com/fwlink/p/?LinkId=246715).

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

Troubleshooting OLAP Cubes

The following sections describe common problems that you might need to troubleshoot online analytical processing (OLAP) data cubes in the System Center 2012 – Service Manager data warehouse.

Processing Failures

Although safeguards exist in the DWRepository database to ensure data integrity, they cannot completely prevent the possibility of a processing error. The most common processing error is a DimensionKeyNotFound exception. Because SQL Server Analysis Server (SSAS) dimensions are processed every 60 minutes by default, it is possible that, while processing the fact’s measure group, the dimension keys do not yet exist. In this case, by default the processing logic reprocesses the SSAS dimensions using a ProcessUpdate task and then reprocesses the fact up to two times to resolve the key errors.

There are some uncommon situations in which the reprocessing might fail. The following are possible causes of this failure:

 Only the data warehouse Repository enforces foreign keys to ensure the integrity of the data. The data mart does not have any foreign keys for performance considerations. Because the load process bulk moves the data from the repository to the data mart using ActiveX Data Objects methods, it is possible that the fact data may have been loaded before the dimension keys as a result of a timing problem. To resolve this problem, the load process must be run again to move the existing dimension keys.

 In multiple data mart situations, all the dimensions of each data mart target the primary data warehouse data mart. This is to reduce the size and processing time of the OLAP cubes. It is possible, however, for facts in the Operations Manager or Configuration Manager data marts to target dimension keys that do not yet exist in the primary data warehouse data mart. In this case, you must run the load job on the primary data mart to resolve the processing failure for cubes that target the Operations Manager or Configuration Manager data marts.

Troubleshooting MDX Customizations

Because many cube customizations require a working knowledge of Multidimensional Expressions (MDX), it is common for syntax errors to occur in the initial MDX expression that is used for OLAP cube customization. Multiple attempts may be necessary before the expression is suitable for your needs. You should test the MDX expression on the OLAP cube using Business Intelligence Development Studio (BIDS) or SSAS, without saving the changes, before you add the MDX expression to the OLAP cube using a CubeExtension or defining it in the SystemCenterCube element.

However, if you do have an error in the MDX expression when you add it in a management pack by using a CubeExtension, you can uninstall the cube extension to revert any changes that were made on the OLAP cube. If the expressions are defined using a SystemCenterCube element, you must uninstall the management pack and then manually delete the OLAP cube from SSAS before you make any corrections and redeploy the OLAP cube management pack. Because of this, you should define cube customizations by using the CubeExtension element.

OLAP Cube Management Pack Deployment Failures

You may have a situation in which you want to browse the WorkItems Assigned To User measure group and then you want to slice on all users in a particular department. When you attempt to perform filter on UserDim, nothing happens or no data is returned. This might be very confusing because UserDim has a relationship to the measure group.

In this situation, remember that the same database dimension can have multiple roles in the multidimensional model. We call these dimensions role-playing dimensions. For example, the time dimension can be used multiple times in an OLAP cube that describes flight information. The different role-playing dimensions in this case could be Departure Time and Arrival Time, where both target the Time dimension.

In a WorkItems Assigned To User example, the given role-playing name of the user dimension is actually AssignedToUser. If the user filtered by this particular dimension instead of “UserDim”, they would return the correct information.

BIDS has a useful feature called a Dimension Usage tab that shows the relationships between dimensions and OLAP cubes so that you can determine which dimensions you can use to slice and dice the OLAP cube. Furthermore, in the WorkItems Assigned To User example, UserDim has no relationship to the WorkItemAssignedToUser measure group, while UserDim(AssignedToUser) does have a relationship to the measure group where the join attribute is UserDimKey. In this case, you can see the role-playing name is highlighted within the parentheses of the Dimension Usage tab.

Service Manager does not have a Dimension Usage tab capability. Therefore, you will have to look at BIDS to determine exactly which dimensions can filter on a particular cube.

Failure to Process OLAP Cubes on a Remote SSAS Server

In certain situations, processing an OLAP cube on a remote SSAS server might fail because the firewall has not been configured properly. The default instance of SSAS uses TCP/IP port 2383, and this port must be unblocked in the firewall to allow access. To unblock the port, run the following command-line instructions:

C:\Windows\system32>set port=2383

C:\Windows\system32>netsh advfirewall firewall add rule name="Analysis Services" protocol=TCP dir=in localport=2383 action=allow

OLAP Cube Processing Stops

There can be many causes for OLAP cube processing to stop. You must first ensure that the server has enough RAM, especially in situations in which the data warehouse and the SSAS server are hosted on the same server, so that there is enough memory to run data warehouse extraction, transformation, and load (ETL) and cube processing jobs concurrently. A few potential solutions are listed here:

1. There are known deadlock problems in Microsoft SQL Server 2008 Analysis Services. The workaround is to increase the number of threads in the processing thread pool before the processing stops. If the system is already stopped, the workaround is to restart both the System Center Management service and the Analysis Services service and then reset the cube processing workitem to a status of 3, which means not started, so that the Service Manager workflow engine can restart it.

To determine the relevant cube processing workitem, you can run the following queries on the DWStagingAndConfig database. Note that these queries are shown individually; however, you can easily join them together in one query:

select processId from infra.process where processname like ‘Process.{CubeName}’

select batchid from infra.batch where processId = {ProcessId from previous query}

select \* from infra.workitem(nolock) where BatchId = {BatchId from previous query}

update infra.workitem set statusid = 3 where workitemId = {workitemId from previous query)

2. Check the CoordinatorExecutionMode property on the SSAS service, and ensue that it is set properly. You can read more about this problem on the [SQL Server Analysis Services forums](http://go.microsoft.com/fwlink/p/?LinkId=246761).

The DWMaintenance Task Stops on the ManageCubePartitions/ManageCubeTranslations Step

In this situation, the most common cause is a nonresponsive SSAS server. The workaround is the same for the first step in the previous section, “OLAP Cube Processing Stops.” To determine the relevant cube processing workitem, you can run the following queries on the DWStagingAndConfig database. Note that these queries are shown individually; however, you can easily join them together in one query:

select processid from infra.process where processname = 'DWMaintenance'

select \* from infra.ProcessModule where ProcessId = {ProcessId from previous query} (Note the ProcessModuleId where the VertexName is ManageCubePartitions/ManageCubeTranslaions)

Select \* from infra.batch where ProcessId = {ProcessId from previous query} (Note the BatchId from the largest batch)

select \* from infra.WorkItem where BatchId = {BatchId from previous query}

update infra.workitem set statusid = 3 where workitemId = {workitemId for the step that is hung with the corresponding processmoduleid for ManageCubePartitions/ManageCubeTranslations)

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

How to Create an OLAP Cube Using a Management Pack

A System Center online analytical processing (OLAP) cube is defined as a collection of the following management pack elements:

 Measure groups, which points to the facts that are included

 Substitutions to be performed on the fact

 MDX resources

 Drill-Through Actions

 KPIs

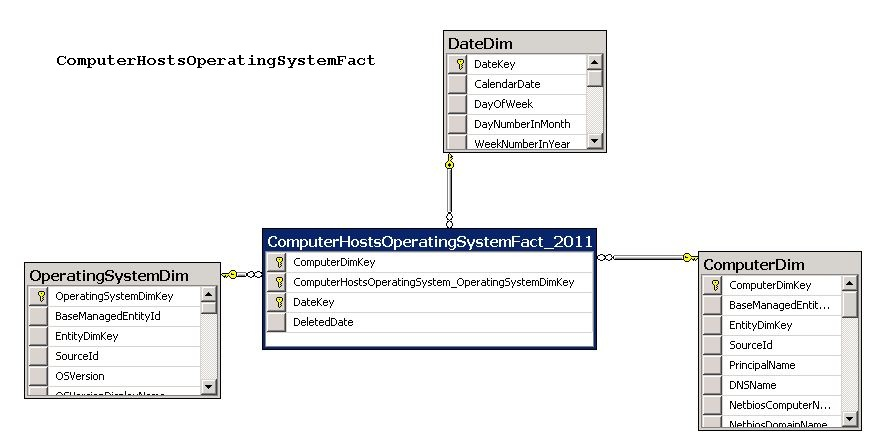
 Named Calculations

 Custom Measures

 Many to Many Relationships

All elements other than MeasureGroups are optional.

When you define an OLAP cube using the schema above and you import the management pack, the System Center 2012 – Service Manager data warehouse deploys the cube using SQL Server Analysis Management Objects (AMO), and it creates the required infrastructure to maintain it. For example, you can create a simple OLAP cube based on ComputerHostsOperatingSystemFact. The following illustration is the dimensional view of the fact in the warehouse.



To create an OLAP cube using a management pack

|  |
| --- |
| 1. Copy the following management pack source code and save it:  <Warehouse>  <Extensions>  <SystemCenterCube ID="ComputerCube">  <MeasureGroups>  <MeasureGroup ID="ComputerHostsOperatingSystem" Fact="DWBase!ComputerHostsOperatingSystemFact" />  </MeasureGroups>  </SystemCenterCube>  </Extensions>  </Warehouse>  2. Import the management pack, and then run the MPsync job. The OLAP cube will appear in the Service Manager console in an unprocessed state.  3. To view OLAP cube, open the Service Manager console, navigate to Data Warehouse and Cubes, and then click ComputerCube.  4. A data warehouse process job is created for the OLAP cube with a default 24-hour job schedule. Therefore, process the cube using the Service Manager console or using the cmdlet Start-SCDWJob -JobName Process.ComputerCube.  5. Open the cube in Excel using the link from the Task pane, and look at the cube structure that was created.  6. Notice that the following measure groups are created for the OLAP cube:   A measure group corresponding to the fact ComputerHostsOperatingSystemFact with a Count measure   A measure group corresponding to the dimensions that it points to   Computerdim and OperatingsystemDim with the count measure  7. Notice that the following cube dimensions are created:   The outrigger dimensions corresponding to the fact are added as cube dimensions so that you can slice the facts on those dimensions. These dimensions include Priority and Status.   DateDim is added to the OLAP cube because it is relevant to any fact.   EntityStatus and RelationshipStatus cube dimensions are defined for all cubes to indicate whether the entity or relationship is deleted. |

See Also

[Understanding OLAP Cubes](#za7506c69aec8446ea59ddc19917403d5)

Analyzing Data with Excel 2010

System Center 2012 – Service Manager includes predefined Microsoft Online Analytical Processing (OLAP) data cubes that connect to the data warehouse to retrieve data so that you can manipulate it by using Microsoft Excel in a tabular fashion. When it is opened, a data cube is presented as a worksheet containing a blank PivotTable report. Information defining the OLAP data source is embedded in a worksheet. When you open a report or when you refresh the data connection, Excel uses Microsoft SQL Server Analysis Services (SSAS) to connect to the data warehouse to retrieve key performance indicators (KPIs) and other data. After it is opened, the current worksheet contains a snapshot or subset of data from the data warehouse. If you save a worksheet, the data source connection information, KPIs, and any other customizations you have made are saved with it. If you save the worksheet to an analysis library, you can later reopen it without having to use the Service Manager console.

KPIs included in Service Manager data cubes are predefined, special, calculated measures that are defined on the server that make it possible for you to track KPIs, such as status (does the current value meet a specific number?) and trend (what is the value over time?). When these KPIs are displayed in a PivotTable, the server can send related icons that are similar to the new Excel icon set to indicate status levels that are above or below a certain threshold (for example, with a stop light icon) or whether a value is trending up or down (for example, with a directional arrow icon).

PivotTables can help you quickly and easily create useful reports. PivotTables that appear in Service Manager data cubes include many predefined KPI categories, called measure groups or dimensions. These groups are the highest level of categorization, and they help you examine the data and focus your analysis. In turn, most measure groups have many additional levels of subcategories and individual fields. All the categories, subcategories, and fields are contained in the PivotTable Field List. For example, you can create a straightforward report using the following steps:

1. Using the PivotTable Field List, select a category and add it as a row.

2. Select a second category and add it as a column.

3. Select a category or subcategory to add values.

After you have created your report, you can add any level of additional complexity by sorting, filtering, formatting, and adding calculations and charts. You can also go in and out of categories as you continue your analysis.

To view a demonstration of creating a report and manipulating data in Excel using data from an OLAP data cube in a PivotTable, see [Demo: Explore Adventure Works in Excel by using an OLAP PivotTable report](http://office.microsoft.com/en-us/excel-help/demo-explore-adventure-works-in-excel-by-using-an-olap-pivottable-report-HA010288281.aspx).

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

How to View and Analyze an OLAP Data Cube with Excel

You can use the following procedure to view and analyze a Microsoft Online Analytical Processing (OLAP) data cube from System Center 2012 – Service Manager with Microsoft Excel. You can also save your workbooks into an analysis library. Using the PivotTable field list, you can drag and drop fields from the cube into the workbook. For more information about using Excel slicers, see [Creating and Using Excel Slicers](#z43c3b198585a42cf94cd123655d13476).

You must have Microsoft Excel 2007 or later installed on the computer running the Service Manager console in order to use the following procedure.

Note

The first time you analyze a cube with Excel, it can take a few minutes to load.

To view and analyze an OLAP data cube with Excel

|  |
| --- |
| 1. In the Service Manager console, click Data Warehouse, expand the Data Warehouse node, and then click Cubes.  2. In the Cubes pane, select a cube name, and then under Tasks, click Analyze Cube in Excel. For example, select SystemCenterWorkItemsCube and analyze it.  3. When the worksheet opens in Excel, you can drag and drop fields from the PivotTable Field List and create slicers and charts.  a. For example, if you want to see the total number of incidents currently open, expand IncidentDimGroup, and then select Incidents Opened.  b. You can add additional fields to generate a more complex analysis. For example, you can add computers from the ComputerDim dimension by selecting the DisplayName field to see the number of incidents that affect different computers.  4. Optionally, you can save the workbook to a shared folder or other shared location, such as the analysis library. For more information about the analysis library, see [How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307). |

See Also

[Creating and Using Excel Slicers](#z43c3b198585a42cf94cd123655d13476)

[How to Use the Analysis Library](#z3a40f1d7b80c4f68964425266d741307)

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

Creating and Using Excel Slicers

The most useful reporting data available from System Center 2012 – Service Manager is in the form of data cubes. One method of viewing and manipulating cube data is using PivotTables in Microsoft Excel. You can use slicers in Excel to filter PivotTable data.

Slicers are easy-to-use filtering components that contain a set of buttons that enable you to quickly filter the data in a PivotTable report, without the need to open drop-down lists to find the items that you want to filter.

When you use a regular PivotTable report filter to filter on multiple items, the filter indicates only that multiple items are filtered, and you have to open a drop-down list to find the filtering details. However, a slicer clearly labels the filter that is applied and provides details so that you can easily understand the data that is displayed in the filtered PivotTable report.

For more information about Excel slicers, see [Use slicers to filter PivotTable data](http://go.microsoft.com/fwlink/p/?LinkId=246040) on the Microsoft Office website.

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

How to Refresh OLAP Data Cube Information

You can use the following procedures in System Center 2012 – Service Manager to refresh data in a Microsoft Online Analytical Processing (OLAP) data cube and then validate that it was refreshed. By default, most OLAP data cubes are refreshed every 24 hours. However, you can manually refresh the data to ensure that you are accessing the latest information from the data warehouse.

If necessary, you can also manually process an OLAP data cube outside of the processing job.

To refresh OLAP data cube information using the Service Manager console

|  |
| --- |
| 1. In the Service Manager console, click Data Warehouse, expand it, and then click Cubes.  2. In the Cubes pane, select a cube name, and then under Tasks, click Process Cube.  3. Click OK to close the Process Cube dialog box. |

To validate that the OLAP data cube was refreshed in the Service Manager console

|  |
| --- |
|  Select an OLAP data cube and verify that the date and time information under Last Processed Date has been updated since you processed the cube and that the cube Status is listed as Processed. |

To manually refresh OLAP data cube information

|  |
| --- |
|  Run the following script for the OLAP data cube of your choice.  Update etl.CubePartition set  watermarkbatchid = 0  where cubename = ’ComputerCube’ |

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

How to Manage the Analysis Libraries

You can use the following procedure to manage the analysis libraries in the Service Manager console in System Center 2012 – Service Manager. The analysis libraries are file storage areas, such as network shares, Universal Naming Convention (UNC) paths, and Microsoft SharePoint. The libraries are used to house Microsoft Excel data files, which are generated from Microsoft Online Analytical Processing (OLAP) data cubes. When they are saved to an analysis library, you can easily access Excel files and the cube data they connect to without having to open the Service Manager console. Instead, you can open the storage location directly or from the Reporting workspace.

You might want to create many analysis library folders for different departments in your organization.

In order to add a new analysis library folder, the underlying shared folder or other sharing location must already exist and you must have permission to write to it.

To manage an analysis library folder

|  |
| --- |
| 1. In the Service Manager console, click Data Warehouse, expand the Data Warehouse node, and then click Analysis Libraries.  2. In the Tasks pane, click Add Library Folder.  3. In the Add Library Folder dialog box under Name, type a name for the new analysis library folder. For example, type Incident Management Analysis Library.  4. Under Description, type a description that identifies the type of information that the folder will contain. For example, type This folder contains saved incident management-related workbooks.  5. Under UNC Path, type the path that represents the library folder. An example might resemble \\computer1\IncidentManagmentReports\. You can also click Browse to search for a location. |

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

How to Use the Analysis Library

You can use the following procedure in System Center 2012 – Service Manager to view Microsoft Excel workbooks that connect to Microsoft Online Analytical Processing (OLAP) data cubes by using the Analysis Library node in the Reporting workspace. Workbooks are saved to the Analysis Library by Service Manager so that report users can easily access the workbooks.

To use the analysis library

|  |
| --- |
| 1. In the Service Manager console, click Reporting, expand the Analysis Library node, and then navigate to the folder that contains an Excel workbook that you want to open.  2. Select the Excel workbook that you want to open, and then in the Tasks list, click Open Excel File.  3. In the Excel workbook, you can refresh the data from the data warehouse. For example, if you are using Microsoft Excel 2010, you can click the Data tab and then click Refresh All to update the workbook. |

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

Advanced Analytical Reports Available in System Center 2012 - Service Manager

The following analytical reports, which are presented as Microsoft Online Analytical Processing (OLAP) data cubes, are available in System Center 2012 – Service Manager. The data cubes that are included in this release of Service Manager contain measures and dimensions.

Dimensions

The following dimensions are contained in various data cubes. However, not all data cubes contain each dimension.

WorkItemDim, ConfigItemDim, UserDim, ComputerDim ,ChangeRequestDim, ReviewerDim, SerivceDim, ConfigItemObjectStatus, ConfigItemAssetStatus, ActivityStatus, ActivityPriority, ActivityArea, ActivityStage, ChangeStatus,Change Category, ChangePriority, ChangeImpact, ChangeRisk, ChangeImplementationResults, ChangeArea, ReviewerDecision, ServiceStatus, ServiceClassification, ServicePriority, DateDim, DeletionStatusDim, OperatingSystemDim, ProcessorDim, NetworkAdapterDim, LogicalDiskDim, PhysicalDiskDim, DeployedComputerDim, SLAConfigurationDim, SLAMetricDim, SLADatePropertyTimeMetricDim, CalendarDim, WorkItemGroupDim, BillableTimeDim, IncidentDim, ProblemDim, ReleaseRecordDim, SLAInstanceStatus, IncidentStatus, IncidentSource, IncidentTierQueues, IncidentClassification, IncidentResolutionCategory, IncidentImpact, IncidentUrgency, ProblemStatus, ProblemSource, ProblemClassification,ProblemResolution, ReleaseStatus, ReleaseType, ReleaseCategory, ReleasePriority, ReleaseImpact, ReleaseRisk, ReleaseImplementionResults, ReleaseTemplate, ReviewActivityDim, ServiceRequestDim, RequestOfferingDim, ServiceOfferingDim, OfferingDim, ReviewActivityApproval, ServiceRequestStatus, ServiceRequestTemplate, ServiceRequestPriority, ServiceRequestUrgency, ServiceRequestSource, ServiceRequestImplementationResults, ServiceRequestArea, ServiceRequestSupportGroup, OfferingStatus, ServiceOfferingCategory, ConfigurationManagerCollectionDim, PowerActivityRecordEventType, SoftwareUpdateDim

Work Item Data Cube

The work item data cube contains the following measures:

SLAInstanceInformationCount, SLAInstanceStatusCount, SLAConfigurationHasMetricCount, SLAConfigurationHasCalendarCount, WorkItemGroupContainsWorkItemCount, WorkItemIsAboutConfigItemCount, WorkItemCreatedByUserCount, WorkItemAssignedToUserCount, WorkItemAffectedByUserCount, WorkItemRelatesToConfigItemCount, WorkItemRelatesToWorkItemCount, WorkItemHasBillableTimeCount, BillableTimeBilledByUserCount, TotalTimeMeasure, IncidentStatusDurationCount, IncidentStatusCount, IncidentResolutionByUserCount, IncidentPrimaryUserCount, IncidentIsAboutConfigItemCount, IncidentCreatedByUserCount, IncidentAssignedToUserCount, IncidentAffectedByUserCount, IncidentRelatesToConfigItemCount, IncidentRelatesToWorkItemCount, IncidentHasBillableTimeCount, IncidentRelatesToProblemCount, IncidentSLAInstanceInformationCount, WorkItemGroupContainsIncidentCount, ProblemResolutionByUserCount, ProblemIsAboutConfigItemCount, ProblemCreatedByUserCount, ProblemAssignedToUserCount, ProblemAffectedByUserCount, ProblemRelatesToConfigItemCount, ProblemRelatesToWorkItemCount, ProblemHasBillableTimeCount, ProblemSLAInstanceInformationCount, ReleaseIsAboutConfigItemCount, ReleaseCreatedByUserCount, ReleaseAssignedToUserCount, ReleaseSLAInstanceInformationCount, WorkItemIsAboutComputerCount, WorkItemIsAboutServiceCount, ServiceContainsConfigItemCount, ServiceContainsComputerCount, WorkItemDimCount, SLAConfigurationDimCount, SLAMetricDimCount, SLADatePropertyTimeMetricDimCount, CalendarDimCount, WorkItemGroupDimCount, ConfigItemDimCount, UserDimCount, BillableTimeDimCount, TimeWorkedSum, IncidentDimCount, IncidentsResolvedCount, IncidentsResolvedWithinTargetResolutionTimeCount,IncidentsResolutionTimeInHoursSum, IncidentsPastTargetResolutionTimeCount, ProblemDimCount, ReleaseRecordDimCount, ReleasesImplementedOnScheduleCount, ComputerDimCount, ServiceDimCount

Power Management Data Cube

The power management data cube contains the following measures:

ComputerHostsOperatingSystemCount, DeployedComputerRunsWindowsComputerCount, ConfigManagerCollectionHasComputerCount, Hour0, Hour1, Hour2, Hour3, Hour4, Hour5, Hour6, Hour7, Hour8, Hour9, Hour10, Hour11, Hour12, Hour13, Hour14, Hour15, Hour16, Hour17, Hour18, Hour19, Hour20, Hour21, Hour22, Hour23, PowerActivityDayCount, PowerActivityRecordEventTypeCount, ServiceContainsConfigItemCount, ServiceContainsComputerCount, ComputerDimCount, OperatingSystemDimCount, DeployedComputerDimCount, ConfigurationManagerCollectionDimCount, ServiceDimCount, ConfigItemDimCount

Software Updates Data Cube

The software updates data cube contains the following measures:

ComputerHostsOperatingSystemCount, DeployedComputerRunsWindowsComputerCount, ConfigurationManagerCollectionHasComputerCount, IsInstalled, IsMissing, IsUnknown, ComputerHasSoftwareUpdateCount, ServiceContainsConfigItemCount, ServiceContainsComputerCount, ComputerDimCount, OperatingSystemDimCount, DeployedComputerDimCount, ConfigurationManagerCollectionDimCount, SoftwareUpdateDimCount, ServiceDimCount, ConfigItemDimCount

Service Catalog Data Cube

The service catalog data cube contains the following measures:

SLAConfigurationHasMetricCount, SLAConfigurationHasCalendarCount, ActivityIsAboutConfigItemCount, ActivityCreatedByUserCount, ActivityAssignedToUserCount, ActivityRelatesToConfigItemCount, ActivityRelatesToWorkItemCount, ActivityTotalTimeMeasure, ActivityStatusDurationCount, ActivityStatusCount, ReviewActivityHasReviewerCount, ReviewerIsReviewerUserCount, ReviewerVotedByUserCount, ReviewActivityRelatesToConfigItemCount, ReviewActivityAssignedToUserCount, ReviewActivityCreatedByUserCount, WorkItemGroupContainsServiceRequestCount, ServiceRequestIsAboutConfigItemCount, ServiceRequestCreatedByUserCount, ServiceRequestAssignedToUserCount, ServiceRequestRelatesToConfigItemCount, ServiceRequestRelatesToWorkItemCount, ServiceRequestAffectedUserCount, ServiceRequestContainsActivityCount, ServiceRequestTotalTimeMeasure, ServiceRequestStatusDurationCount, ServiceRequestStatusCount, ServiceRequestSLAInstanceInformationCount, SLAInstanceStatusCount, ServiceRequestRelatesToRequestOfferingCount, ServiceOfferingRelatesToRequestOfferingCount, ServiceOfferingPublishedByUserCount, RequestOfferingPublishedByUserCount, ServiceOfferingOwnerCount, RequestOfferingOwnerCount, ServiceRelatesToServiceOfferingCount, SLAConfigurationDimCount, SLAMetricDimCount, SLADatePropertyTimeMetricDimCount, CalendarDimCount, WorkItemDimCount, ConfigItemDimCount, ActivityDimCount, UserDimCount, ReviewerDimCount, ReviewActivityDimCount, WorkItemGroupDimCount, ServiceRequestDimCount, RequestOfferingDimCount, ServiceOfferingDimCount,OfferingDimCount, ServiceDimCount

Configuration Item Data Cube

The configuration item data cube contains the following measures:

ConfigItemRelatesToConfigItemCount, ComputerPrimaryUserCount, ComputerHostsOperatingSystemCount, ComputerHostsProcessorCount, ComputerHostsNetworkAdapterCount, ComputerHostsLogicalDiskCount, ComputerHostsPhysicalDiskCount, ServiceImpactsUserCount, ConfigItemOwnedByUserCount, ConfigItemServicedByUserCount, ConfigItemImpactsCustomersCount, DeployedComputerRunsWindowsComputerCount, ServiceContainsConfigItemCount, ServiceContainsComputerCount, ConfigItemDimCount, ComputerDimCount, UserDimCount, OperatingSystemDimCount, TotalRAMInMB, ProcessorDimCount, TotalProcessorSpeed, NetworkAdapterDimCount, LogicalDiskDimCount, TotalDiskSpace, PhysicalDiskDimCount, ServiceDimCount, DeployedComputerDimCount

Change and Activity Management Data Cube

The change and activity management data cube contains the following measures:

WorkItemIsAboutConfigItemCount, WorkItemCreatedByUserCount, WorkItemAssignedToUserCount, WorkItemRelatesToWorkItemCount, ActivityIsAboutConfigItemCount, ActivityCreatedByUserCount, ActivityAssignedToUserCount, ActivityRelatesToWorkItemCount, ActivityIsAboutComputerCount, ChangeRequestIsAboutConfigItemCount, ChangeRequestCreatedByUserCount, ChangeRequestAssignedToUserCount, ChangeRequestRelatesToWorkItemCount, ChangeRequestContainsActivityCount, ChangeRequestIsAboutComputerCount, ReviewActivityHasReviewerCount, ReviewerIsReviewerUserCount, ReviewerVotedByUserCount, ReviewActivityRelatesToConfigItemCount, ReviewActivityAssignedToUserCount, ReviewActivityCreatedByUserCount, WorkItemIsAboutComputerCount, ActivityRelatesToChangeRequestCount, ServiceContainsConfigItemCount, ServiceContainsComputerCount, WorkItemDimCount, ConfigItemDimCount, UserDimCount, ActivityDimCount, ActivitiesImplementedCount, ActivitiesImplementedOnScheduleCount, ComputerDimCount, ChangeRequestDimCount, ChangeRequestsImplementedCount, ChangeRequestsImplementedOnScheduleCount, EmergencyChangeRequestsCount, ProcessTimePerChangeInDaysSum, ReviewerDimCount, ServiceDimCount

See Also

[Using OLAP Cubes for Advanced Analytics](#z36e556eb3db14900be1aa44dc0073d3e)

Creating and Deploying Dashboards

You can use PerformancePoint Dashboard Designer in System Center 2012 – Service Manager to create and manage SharePoint dashboards and their elements to measure, monitor, and manage business performance with live data from the Service Manager data warehouse. Dashboards are mechanisms that display hierarchical arrangements of key performance indicators (KPIs).

You can use Dashboard Designer to define multiple filters for a dashboard, such as filters that are defined over time, by geography, or against different KPI destinations. When you publish dashboards to a SharePoint site, end users can navigate them by using page filters and drill-up and drill-down functionality. You can also use Dashboard Designer to create views and elements, such as scorecard elements, KPIs, data sources, indicators, and reports for use in dashboards.

This section is an example showing how you can create a PerformancePoint Services dashboard using the Analysis Services ServiceManager WorkItems Cube. This involves creating a data source for the cube and then creating a scorecard that and creating a resolved incidents KPI. Then, you can create an example single-page dashboard using a filter, a scorecard, and a report. Finally, you complete the example by exploring the deployed dashboard and its interactive features. You must have Microsoft SharePoint Designer 2010 installed to complete the examples in the following topics.

Important

You must have the Enterprise edition of SharePoint Designer 2010 to create SharePoint PerformancePoint dashboards. For more information about upgrading to the Enterprise edition, see [Upgrade from a SharePoint Server 2010 Standard CAL to an Enterprise CAL](http://technet.microsoft.com/en-us/library/cc261946.aspx).

For more information about PerformancePoint Dashboard Designer, see [PerformancePoint Dashboard Designer](http://technet.microsoft.com/en-us/library/bb821195(office.12).aspx).

Creating and Deploying Dashboard Topics

 [How to Configure SharePoint Infrastructure for Dashboards](#zb1a9829829f04e5898099ba8368bc77c)

Describes how to configure SharePoint infrastructure to support dashboards.

 [How to Create a Data Source for Dashboard Designer](#z80eae04f925d4d3f84601957309e3de5)

Describes how to create a data source for Dashboard Designer.

 [How to Build the Resolved Incidents Scorecard](#z81f18253039e40adb9027dd15a8a4f2a)

Describes how to build the Resolved Incidents scorecard for later use in a dashboard.

 [How to Configure the KPI](#z6440f22b85ee474fbe4c573102d8c4b6)

Describes how to configure key performance indicators.

 [How to Create the Incidents by Analyst Report](#z0dc86873059e4afab1be7d88d08c613e)

Describes how to create the Incidents by Analyst Report.

 [How to Create the Resolved Incidents Dashboard](#z200f0b9fbe5c4458b9aa511caf4fa2d3)

Describes how to create the Resolved Incidents dashboard.

 [How to Deploy the Resolved Incidents Dashboard](#za7c082c5e63a45428604d4c5d01454f7)

Describes how to deploy the Resolved Incidents dashboard to a SharePoint site.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

How to Configure SharePoint Infrastructure for Dashboards

Before you can create and deploy dashboards for use on the Self-Service Portal in System Center 2012 – Service Manager, you must configure Microsoft SharePoint 2010 and then install Dashboard Designer.

To configure SharePoint infrastructure for dashboards

|  |
| --- |
| 1. Open your web browser, navigate to your top-level site in SharePoint 2010, click Site Actions, and then click Site Settings.  2. Under Site Collection Administration, click Site collection features. On the Features page, click Activate next to SharePoint Server Publishing Infrastructure and PerformancePoint Services Site Features.  3. Enable the new features at the parent Site level by opening the site that you want to be the parent of your Business Intelligence site. Then, under Site Actions, click Site Settings. Under Site Actions, click Manage site features. Click Activate next to SharePoint Server Publishing Infrastructure and PerformancePoint Services Site Features.  4. Next, add a Business Intelligence Center site by opening the site that you want to be the parent of the new site. Click Site Actions, and then click New Site. On the New SharePoint Site page, select the Business Intelligence Center site template, type a title and a URL name, and then click Create.  5. As an option, you can create the Business Intelligence Center Site under the Service Manager Self-Service Portal Site. To do this, apply the SMPortalTheme: click Site Actions, click Site Settings, and then under Look and Feel, click Site theme. Click Specify a theme, click SMPortalTheme, and then click Apply.  6. Next, configure the PerformancePoint Unattended Service Account by opening the SharePoint Central Administration page. Then, under Application Management, click Manage service applications. Click PerformancePoint Service Application, and then click PerformancePoint Service Application Settings. Type your credentials in the Secure Store and Unattended Service Account area, and then click OK.  7. If an error message appears that says “The Unattended Service Account cannot be set for the service application,” you can resolve this problem by doing the following:  a. Navigate to the SharePoint 2012 Central Administration page, and then under Application Management, click Manage service applications.  b. Click Secure Store Service, and then click Generate New Key.  c. Type a pass phrase, and then click OK.  8. On the new Business Intelligence Center site page that you created, move your mouse over the Monitor Key Performance area of the page, and then click Start using PerformancePoint Services.  9. If an error message appears that says “An error occurred during the processing of <FolderPath>/<PageName>.aspx. Code blocks are not allowed in this file,” you can resolve this problem by inserting the following information into the Web.config file between the PageParserPaths tags of your SharePoint site:  <PageParserPaths>  <PageParserPath VirtualPath=”<FolderPath>/<PageName>.aspx” CompilationMode=”Always” AllowServerSideScript=”true”/>  </PageParserPaths>  10. On the new page, click Run Dashboard Designer, and then in the Application Run – Security Warning dialog box, click Run to install PerformancePoint Dashboard Designer. Later, you can start Dashboard Designer from the Start menu. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Create a Data Source for Dashboard Designer

You can use the following information to create a new data source in System Center 2012 – Service Manager and save it by using Dashboard Designer.

The workspace is an XML document that defines the PerformancePoint item definitions for a particular project. The saved workspace items are stored in SharePoint lists and libraries. You can add existing stored items to a workspace, based on the project requirements.

To create a data source for Dashboard Designer

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Open PerformancePoint Dashboard Designer, and in the Workspace Browser, select Data Connections.  2. Click the Create tab, and then click Data Source.  3. In the Select a Data Source Template dialog box, select Analysis Services, and then click OK.  4. In the New Data Source pane, ensure that the Editor tab is selected, and then type information for the connection settings for the data source using the examples in the following table.   |  |  | | --- | --- | | Property | Value | | Server | <YourServerName> | | Database | DWASDataBase | | Cube | ServiceManager WorkItems Cube |   5. To save the data source, in the Workspace Browser pane, right-click the new data source, and then click Save. As an option, you can rename the data source.  6. To save the workspace, click Save As, and save the Dashboard Designer Workspace in the folder that you want. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Build the Resolved Incidents Scorecard

Before you can use a scorecard in a dashboard in System Center 2012 – Service Manager, you must create the scorecard. Use the following procedure to use a wizard to create an example scorecard called Resolved Incidents Scorecard. The wizard also creates key performance indicators (KPIs) from the SystemCenterWorkItemsCube data source.

To build the Resolved Incidents Scorecard

|  |
| --- |
| 1. Open Dashboard Designer, connect to the server that hosts the DWASDataBase, and then select Service Manager WorkItems Cube. Or, if you have previously saved a designer workspace file that contains the connection information, open the file.  2. On the Home tab, click Add Lists. In the Add Lists box, click PerformancePoint Content, and then click OK.  3. To add a scorecard to the workspace, in the Workspace Browser, right-click the PerformancePoint Content list, point to New, and then click Scorecard.  4. In the Select a Scorecard Template window, in the Category tree, ensure that Microsoft is selected. In the Template list, select Analysis Services, and then click OK.  5. In the Create an Analysis Services Scorecard Wizard, on the Select a data source page, select the SystemCenterWorkItemsCube data source, and then click Next.  Note  When you use the wizard to create a scorecard based on an Analysis Services data source, there are two options that enable the creation of KPIs. You can use the first option to create KPIs based on the measures of the cube. You can use the second option to import KPIs from the cube, if the cube contains KPIs.  6. On the Select a KPI Source page, select Create KPIs from Analysis Services measures, and then click Next.  7. On the Select KPIs to Import page, click Add KPI and then in the new row, type Resolved Incidents KPI for the name.  8. Select Incidents Resolved Count under Actual.  9. Select Increasing is Better under Band Method.  10. Select Incidents Opened under Targets and then click Next.  11. On the Add Measure Filters page, click Next.  12. On the Add Member Columns page, click Next.  13. On the Locations page, click Finish.  14. Notice that the KPI and scorecard are added to the workspace and that the scorecard opens in the design pane. In the Workspace Browser, modify the name of the new scorecard to Resolved Incidents Scorecard, and then press Enter.  15. Save the information in Designer Workspace. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Configure the KPI

Use the following procedures to configure the key performance indicators (KPIs) that you created in the [How to Build the Resolved Incidents Scorecard](#z81f18253039e40adb9027dd15a8a4f2a) topic. You will later use this information in a PerformancePoint dashboard.

In the first procedure, you configure the Resolved Incidents KPI number formats and threshold values. In the second procedure, you configure the Resolved Incidents Scorecard and add the Incident Classification hierarchy to allow browsing of the KPI by the hierarchy members. In addition, you will format the scorecard. In the dashboard, the selection of members of the Incident Classification hierarchy will filter a report.

To configure the KPI

|  |
| --- |
| 1. Using Dashboard Designer, open the file you saved previously that contains the Incident Resolved Scorecard.  2. In the Workspace Browser, click Resolved Incidents KPI.  3. To configure the thresholds for the Target metric, select the Target metric.  4. In the Thresholds section, modify the value for Threshold 2 to 50%, and the value for Threshold 1 to 25%.  5. In the Thresholds section, modify the value for Best to 100%.  6. To save the KPI, in the Workspace Browser, right-click Resolved Incidents KPI, and then click Save. |

To configure the Resolved Incidents KPI

|  |
| --- |
| 1. In the Workspace Browser, select the Resolved Incidents Scorecard scorecard.  2. To refresh the scorecard with the updated KPI definition, on the Edit ribbon tab, inside the View group, click Update.  3. To add the Incident Classification hierarchy to the scorecard rows, in the Details pane, expand Dimensions, expand the IncidentDim\_IncidentClassification dimension, and then drag IncidentClassificationValue onto the Incident scorecard cell.  4. In the Select Members dialog box, expand the All member list, select all the values other than the empty value, and then click OK.  5. To refresh the scorecard, on the Edit ribbon tab, inside the View group, click Update. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Create the Incidents by Analyst Report

Use the following procedure to create an Analytic Grid report named Incidents by Analyst.

To create the Incidents by Analyst report

|  |
| --- |
| 1. Open Dashboard Designer, connect to the server that hosts the DWASDataBase, and then click Service Manager WorkItems Cube. Or, if you have previously saved a designer workspace file that contains the connection information, open that file.  2. In the Workspace Browser, right-click the PerformancePoint Content list, select New, and then click Report.  3. In the Select a Report Template dialog box, select the Analytic Grid template, and then click OK.  4. In the Create an Analytic Grid Report wizard, on the Select a Data Source page, select the SystemCenterWorkItems data source, and then click Finish.  5. In the Workspace Browser, modify the name of the report to Incidents by Analyst, and then press Enter.  6. To configure the report, in the Details pane, expand Dimensions, expand the AssignedToUserDim dimension, and then drag the User Name attribute into the Rows drop zone.  7. To configure the hierarchy member selection, in the Rows drop zone, click the down arrow to the right of the AssignedToUserDim hierarchy to open the Select Members dialog box.  8. In the Select Members dialog box, right-click All members member, point to Autoselect Members, click Select “User Name”, and then click OK.  9. In the Details pane, expand Measures, and then drag the IncidentDimCount and Incidents Resolved Count measures into the Columns drop zone.  10. Right-click the Incidents Resolved Count column heading, point to Sort, and then click Smallest to Largest.  11. Right-click anywhere in table, point to Filter, and then click Filter Empty Rows.  12. In the Details pane, expand Dimensions, expand the IncidentDim\_IncidentClassification dimension, and then drag IncidentClassificationValue into the Background drop zone.  13. On the Edit ribbon tab, in the View group, click Settings.  14. In the View Settings window, click Show Information Bar, and then click OK.  15. In the design pane, click the Query tab, and then review the MDX expression that was created automatically to support the report design.  16. To save the report, in the Workspace Browser, right-click the Incidents by Analyst report, and then click Save. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Create the Resolved Incidents Dashboard

Use the following procedure to create and assemble the Resolved Incidents Dashboard. This involves the Resolved Incidents Scorecard and the Incidents by Analyst report. You will then create connections to pass values between the dashboard items.

To create the Resolved Incidents Dashboard

|  |
| --- |
| 1. Open Dashboard Designer, connect to the server that hosts the DWASDataBase, and then click Service Manager WorkItems Cube. Or, if you have previously saved a designer workspace file that contains the connection information, open that file.  2. In the Select a Dashboard Page Template window, select the 2 Columns template, and then click OK.  3. In the Workspace Browser, modify the name of the dashboard to Resolved Incidents Dashboard, and then press Enter.  4. To add the Resolved Incidents Scorecard to the dashboard, in the Details pane, expand Scorecards, expand the PerformancePoint Content list, and then drag the Resolved Incidents Scorecard into the Left Column zone.  5. To add the Incidents by Analyst report to the dashboard, in the Details pane, expand Reports, expand the PerformancePoint Content list, and then drag the Incidents by Analyst report into the Right Column zone.  6. To create the connection between the scorecard and the report, in the Right Column zone, click Incidents by Analyst.  7. On the Edit ribbon tab, click Create Connection.  8. In the Connection dialog box, in the Get Values From list, select Left Column – (1) Resolved Incidents Scorecard.  9. Click the Values tab, and in Connect To, select the Incident Classification IncidentClassificationValue hierarchy.  10. In the Source Value list, select Member Row: Member Unique Name, and then click OK.  11. Save the dashboard and the workspace. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

How to Deploy the Resolved Incidents Dashboard

Use the following procedure to deploy the Resolved Incidents Dashboard to the SharePoint Dashboards library.

In this procedure you deploy the Resolved Incidents Dashboard dashboard to the SharePoint Dashboards library using the selected master page. Each dashboard is published as a folder that consists of a web page for each page in the dashboard.

After you deploy the dashboard, you can select values in the Resolved Incidents Scorecard to show information that applies only to that classification. For example, if you select an E-Mail Problems value, only incidents with the E-Mail Problems classification appear in the scorecard portion of the report.

To deploy the Resolved Incidents Dashboard

|  |
| --- |
| 1. Open Dashboard Designer, connect to the server that hosts the DWASDataBase, and then select Service Manager WorkItems Cube. Or, if you have previously saved a designer workspace file that contains the connection information, open that file.  2. In the Workspace Browser, right-click the Resolved Incidents Dashboard dashboard, and then select Deploy to SharePoint.  3. In the Deploy To dialog box, notice the selection of the Dashboards library.  4. In the Master Page list, select Minimal, and then click OK.  5. Internet Explorer starts and opens the first dashboard page. |

See Also

[Creating and Deploying Dashboards](#z08d397c0f3af424ca2cf9490b4825834)

Customizing the Data Warehouse

After the System Center 2012 – Service Manager data warehouse is deployed and you have viewed its reports, you can customize the information in the reports to better suit your organization. For example, you might want to recreate reports that you have used in the past with other information systems using Service Manager. Or, you might want to customize the reports for your internal business processes for incidents or change management.

The information in this section can help you determine how to extend and customize the data warehouse to enable in-depth analyses.

Customizing the Data Warehouse Topics

 [About Data Warehouse Dimensional Modeling Using a Star Schema](#zc6dc86af1505407aad5ff076e4a38d35)

Explains concepts of the dimensional modeling schema that is used in the data warehouse.

 [About Fact Tables in the Data Warehouse](#ze3151e6394b648a9a5ca42551b7275d5)

Explains concepts of fact tables that are used in the data warehouse.

 [About Outriggers in the Data Warehouse](#z30637bf9375e460f800506defefc79cc)

Explains concepts of outriggers that are used in the data warehouse.

 [About Dimensions in the Data Warehouse](#z2b2380cb85a44434b11206e9734d3723)

Explains concepts of dimensions that are used in the data warehouse.

Other Resources for This Component

 TechNet Library main page for [System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220655)

 [Operations Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=220656)

 [Administrator's Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209669)

 [Planning Guide for System Center 2012 – Service Manager](http://go.microsoft.com/fwlink/p/?LinkId=209672)

About Data Warehouse Dimensional Modeling Using a Star Schema

The data warehouse in System Center 2012 – Service Manager is a set of databases and processes. The processes add information to the databases automatically. In short, the purpose of the data warehouse is to add information to the data mart where you and other users run reports and perform analyses to help manage your business. System Center 2012 – Service Manager stores data warehouse data longer in the warehouse than in the Service Manager database because of the usefulness of the data for trending and analysis. Also, data warehouse data often outlives its usefulness for normal transactional processing needs.

The data warehouse is optimized for aggregating and analyzing a lot of data at once in many seemly unpredictable ways. This behavior differs from transactional processing systems, which are optimized for write access on few records in any given transaction, making the behavior of those transactions more predictable.

To optimize the data warehouse for performance and ease of use, Service Manager uses the Kimball approach to dimensional modeling. (For more information about the Kimball approach, see [Dimensional modeling](http://go.microsoft.com/fwlink/p/?LinkId=246459).) This means that tables in the DWDataMart database are grouped logically into subject matter areas that resemble a star when they are laid out in a diagram. Therefore, these groupings are often called star schemas, and they include the following:

 In the center of the star is a fact table. Fact tables represent relationships, measures, and key performance indicators (KPIs). Fact tables are normally long and have relatively few columns, but they contain a large number of transactions.

 The fact table joins to dimension tables, which represent classes, properties, and enumerations. Dimension tables usually contain far fewer rows than fact tables, but they are wider because they have attributes by which report users slice and dice reports. These attributes can include status, classifications, and date attributes (such as Created Date or Resolved Date) of a class.

 An outrigger is a special kind of dimension table that hangs off another dimension table for performance and usability reasons.

When you think about a star schema, consider what a star schema for a coffee shop might resemble. If the transactions represent coffee purchases, the dimensions might include the following:

 A date dimension to consolidate the transaction by both Gregorian and fiscal calendars

 A customer dimension that indicates who bought the coffee

 An employee dimension that indicates who made the coffee

 A product dimension that indicates the coffee type, such as espresso, drip coffee, latte, or breve

 A store dimension

When you consider the measures that the fact table might include, the list might include the following:

 Quantity sold

 Price per unit

 Total sales

 Total discounts

Information technology (IT) processes are not very different from the coffee shop example when you are designing a dimensional model. There are transactions that occur, such as incident creation, resolution, and closure, that can produce interesting and useful metrics, such as time to resolution, resolution target adherence, billable time incurred by analysts, and duration in status.

When you think about extending and customizing your data warehouse, consider the business questions that you want to answer, and investigate dimensional modeling for useful information and best practices. For additional information about customizing the data warehouse, see the other topics in this section.

See Also

[Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)

About Fact Tables in the Data Warehouse

This topic describes how to define relationship facts in the data warehouse in System Center 2012 – Service Manager. A relationship fact in the Service Manager data warehouse is similar to a relationship in Service Manager. You can use a relationship fact to help answer queries, such as the following:

 Which work items are currently assigned to the user John Smith so that you can determine their status?

 What is the list of all the computers in the domain that currently have Windows 7 installed so that you can update them to Windows 7 Service Pack 1 (SP1)?

 What are all the review activities that list Samantha Smith as a reviewer so that they can be reassigned because she is on vacation?

In each of these scenarios, there is a source instance and a target instance that are joined together by a relationship. Without a relationship fact, it is difficult to determine the associations between the instances. Consider the relationship in the Microsoft.Windows.ComputerHostsOperatingSystem in the Microsoft.Windows.Library management pack in the following example:

<RelationshipType ID="Microsoft.Windows.ComputerHostsOperatingSystem" Accessibility="Public" Base="System!System.Hosting">

<Source ID="Computer" Type="Microsoft.Windows.Computer" />

<Target ID="OperatingSystem" Type="Microsoft.Windows.OperatingSystem" MaxCardinality="1" />

</RelationshipType>

In a Service Manager relationship, the source and target are always modeled by a management pack class. In this relationship, the class Microsoft.Windows.Computer is the source and the class Microsoft.Windows.OperatingSystem is the target. The following information defines the corresponding RelationshipFact based on the Microsoft.Windows.ComputerHostsOperatingSystem relationship:

<RelationshipFact ID="ComputerHostsOperatingSystemFact" Accessibility="Public" Domain="Domain.ConfigurationManagement" TimeGrain="Daily" SourceType="Windows!Microsoft.Windows.Computer" SourceDimension="ComputerDim">

<Relationships RelationshipType="Windows!Microsoft.Windows.ComputerHostsOperatingSystem" TargetDimension="OperatingSystemDim" />

</RelationshipFact>

Notice how the relationship fact defines a source dimension and a target dimension. You might notice that the source and target dimensions target the source and target classes from the original relationship that the relationship fact is modeled on. For more information about dimensions, see [About Dimensions in the Data Warehouse](#z2b2380cb85a44434b11206e9734d3723).

You can use relationship facts by associating two dimensions together, which makes it possible for reports to use the association to display important information from each dimension in relation to the other. For example, you can use the WorkItemAssignedToUser relationship to display information about incidents or change requests for a specific user in the report. This makes it possible for you to navigate in the data to find information that is specific to your needs. This is just one example of how relationship facts are useful in creating specialized views of data in reports.

The attributes and subelement tags that are required for modeling a relationship fact in a user-defined management pack are described in the following table for the <RelationshipFact> tag.

|  |  |
| --- | --- |
| Attribute | Description |
| ID | A unique identifier for the relationship fact element. This is also the table name of the relationship fact in the data warehouse and data mart. |
| Accessibility | This element should always be set to Public because the deployment process creates system-derived management packs that refer to this outrigger during the generation of the automated transforms. |
| Domain | The scope of the relationship fact. Possible values include the following: Instance Management Activity Management, Incident Management Change Management, and Problem Management.  The value for this attribute must be an enumeration that is a child of the parent Domain enumeration, which is defined in the Microsoft.SystemCenter.Datawarehouse.Base management pack. |
| TimeGrain | The detail level of the relationship fact. The value must be one of the following: Hourly, Daily, Weekly, or Monthly. |
| SourceType | The management pack class for the source of the relationship. |
| SourceDimension | The dimension that targets the source class. This is an optional field. If no SourceDimension is specified, Service Manager automatically finds the dimension that directly targets the source class itself or the closest parent class of the source class in the class hierarchy. |

In a multiple-relationship fact, the source dimension always remains the same. However, the target dimension can change, depending on the specific relationship. Every relationship type attribute in a multiple relationship fact must be unique. The following is an example of the relationship fact in the WorkItemAssignedToAndCreatedByUser management pack:

<RelationshipFact ID="WorkItemAssignedToAndCreatedUserFact" Accessibility="Public" Domain="Domain.InstanceManagement" TimeGrain="Daily" SourceType="WorkItem!System.WorkItem" SourceDimension="WorkItemDim">

<Relationships RelationshipType="WorkItem!System.WorkItemAssignedToUser" TargetDimension="UserDim" />

<Relationships RelationshipType="WorkItem!System.WorkItemCreatedByUser" TargetDimension="UserDim" />

</RelationshipFact>

In this example, you can see that although the target dimension is identical for both relationships, the relationships themselves are unique. Therefore, the relationship fact is valid. For more examples of outriggers, dimensions, and relationship facts, you can examine any of the data warehouse management packs that are included in Service Manager. A good example is the base data warehouse management pack named Microsoft.SystemCenter.Datawarehouse.Base.

See Also

[Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)

About Outriggers in the Data Warehouse

An outrigger in the data warehouse in System Center 2012 – Service Manager is essentially a list that can logically group together a set of values. The following tables show two examples that display a logical grouping of values that denote Priority and Windows Operating Systems.

|  |
| --- |
| Priority |
| Low |
| Medium |
| High |

|  |
| --- |
| Windows Operating Systems |
| Windows XP |
| Windows Vista |
| Windows 7 |

An outrigger is useful in two ways:

 You can use discrete values from an outrigger as a drop-down menu for a report parameter when you create and view reports in the Service Manager console.

 You can use outrigger values to group data in reports for advanced analysis.

Outriggers in the data warehouse can target one or more class properties and consolidate them into a single set of discrete values. These properties can only be a data type String or ManagementPackEnumeration. When they are based on an enumeration, outriggers also preserve the hierarchy. Service Manager does not support an outrigger that is defined on a data type other than String or ManagementPackEnumeration.

Although the benefit of defining an outrigger on an enumeration is evident, an advantage of defining an outrigger on a string column is that the data warehouse infrastructure combines the distinct values of a property from the instance space into a small list. You can then use the list in an easy-to-use drop-down list in a report. A good example of a string-based outrigger is the Manufacturer property on the Computer class, which is modeled as a string in the Service Manager database. By defining an outrigger on that property, Service Manager provides the ability to select a value from the drop-down list, instead of searching among manufacturers that you procured your computers from.

To view an example of how an outrigger is used in a report in the parameter header, open the Service Manager console; navigate to Reporting, Activity Management; and then run the Activity Distribution report. Next, review the Status list to see the values of the outrigger. You can see how the outrigger was modeled in the management pack in the following example. Note the class System.WorkItem.Activity, which is defined in the System.Workitem.Activity.Library management pack:

<ClassType ID="System.WorkItem.Activity" Accessibility="Public" Base="WorkItem!System.WorkItem" Hosted="false" Abstract="true">

< Property ID="SequenceId" Type="int" />

<Property ID="Notes" Type="richtext" MaxLength="4000" />

<Property ID="Status" Type="enum" EnumType="ActivityStatusEnum" />

<Property ID="Priority" Type="enum" EnumType="ActivityPriorityEnum" />

<Property ID="Area" Type="enum" EnumType="ActivityAreaEnum" />

<Property ID="Stage" Type="enum" EnumType="ActivityStageEnum" />

</ClassType>

Next, you might want to define an outrigger based on the enumeration property Status. The following example shows how you can define an outrigger in a management pack of your choice:

<Outrigger ID="ActivityStatus" Accessibility="Public">

<Attribute ID="Status" PropertyPath="$Context/Property[Type='CoreActivity!System.WorkItem.Activity']/Status$" />

</Outrigger>

As described previously, you—the management pack author—can define an outrigger on one or more class properties. Each class property is modeled by a corresponding attribute in the outrigger. The following is an example of enumeration-based outrigger visualization. In this example, Activity Status is based on ActivityStatusEnum:

<EnumerationTypes>

<EnumerationValue ID="ActivityStatusEnum" Accessibility="Public" />

<EnumerationValue ID="ActivityStatusEnum.Ready" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="5.0" />

<EnumerationValue ID="ActivityStatusEnum.Active" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="10.0" />

<EnumerationValue ID="ActivityStatusEnum.OnHold" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="15.0" />

<EnumerationValue ID="ActivityStatusEnum.Completed" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="20.0" />

<EnumerationValue ID="ActivityStatusEnum.Failed" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="25.0" />

<EnumerationValue ID="ActivityStatusEnum.Cancelled" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="30.0" />

<EnumerationValue ID="ActivityStatusEnum.Rerun" Parent="ActivityStatusEnum" Accessibility="Public" Ordinal="35.0" />

...

</EnumerationTypes>

Each of the values is included in the outrigger’s set of discrete values. The following table lists the column ID and ActivityStatusValue from the ActivityStatus outrigger, which contains all the enumeration values from ActivityStatusEnum.

|  |  |
| --- | --- |
| ID | ActivityStatusValue |
| ActivityStatusEnum.Completed | Completed |
| ActivityStatusEnum | Activity Status |
| ActivityStatusEnum.Active | In Progress |
| ActivityStatusEnum.OnHold | On Hold |
| ActivityStatusEnum.Rerun | Rerun |
| ActivityStatusEnum.Failed | Failed |
| ActivityStatusEnum.Ready | Pending |
| ActivityStatusEnum.Cancelled | Cancelled |

In the previous table, the ID column from the outrigger contains all the EnumerationValue IDs from the ActivityStatus enumeration type. The ActivityStatusValue is the actual user-friendly display name that appears in the report drop-down menus.

The following example provides further detail about how to construct and model an outrigger. Again, the outrigger ActivityStatus is used as an example:

<Outrigger ID="ActivityStatus" Accessibility="Public">

<Attribute ID="Status" PropertyPath="$Context/Property[Type='CoreActivity!System.WorkItem.Activity']/Status$" />

</Outrigger>

The following table describes the attributes for the <Outrigger> tag.

|  |  |
| --- | --- |
| Attribute | Description |
| ID | A unique identifier for the outrigger element. This is also the table name of the outrigger in the data warehouse and datamart. |
| Accessibility | This element should always be set to Public. |

Each <Outrigger> parent tag contains one or more <Attribute> subelement tags. The following table describes the attributes for this tag.

|  |  |
| --- | --- |
| Attribute | Description |
| ID | A unique identifier for each outrigger attribute |
| PropertyPath | PropertyPath syntax, which must uniquely identify the class and attribute that the outrigger attribute is targeting. |

See Also

[Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)

About Dimensions in the Data Warehouse

A dimension in the Service Manager data warehouse in System Center 2012 – Service Manager is roughly analogous to a management pack class. Each management class has a list of properties, while each dimension contains a list of attributes. Each dimension attribute corresponds to one property in a class.

Suppose that a user wants a report in Service Manager to display some information about the attributes for the computers in a particular domain. For example, the user may want to know the IP address, number of logical processors, and Domain Name System (DNS) name for each computer. Using dimensions, the user can bring the data over from Service Manager to the data warehouse where reports can query and display this data for each computer.

In the Service Manager data warehouse, a dimension always targets a single class. The dimension attributes then map to the target class’s properties. In this example, to get the information about the attributes from a computer, there is a computer dimension that is targeted at the Microsoft.Windows.Computers class.

In certain cases that are described in further detail in this topic, a dimension may also map to the properties of a target class’s base and derived classes. Therefore, while a dimension may be roughly analogous to a management pack class, it can also contain properties that are within that management pack class’s hierarchy.

You can see an example of how a dimension is used in the Activity Distribution report. In the report, under Select affected configuration item (optional), when you click Add, the Select dimension objects box opens and you can search for dimension instances in the ConfigItemDim dimension. You can filter on the Display Name property. When you select All Windows Computers as the dimension object, the report header is updated with the selected filter value. When you run the report, only activities that affect the selected configuration item, All Windows Computers, are displayed.

To see how the dimension was modeled, you can look at the System.Entity and System.ConfigItem classes that are defined in the System.Library management pack:

<ClassType ID="System.Entity" Accessibility="Public" Hosted="false" Abstract="true" Singleton="false">

<Property ID="DisplayName" Type="string" MinLength="0" Key="false" CaseSensitive="false" MaxLength="4000" />

</ClassType>

<ClassType ID="System.ConfigItem" Base="System.Entity" Accessibility="Public" Hosted="false" Abstract="true">

<Property ID="ObjectStatus" Type="enum" EnumType="System.ConfigItem.ObjectStatusEnum" DefaultValue="System.ConfigItem.ObjectStatusEnum.Active" />

<Property ID="AssetStatus" Type="enum" EnumType="System.ConfigItem.AssetStatusEnum" />

<Property ID="Notes" Type="richtext" MaxLength="4000" />

</ClassType>

To revise the configuration item dimension to target the ObjectStatus and AssetStatus properties of System.ConfigItem and the DisplayName property of the base class System.Library, you can define the dimension with the following three properties as attributes:

<Dimension ID="ConfigItemDim" Accessibility="Public" Target="System!System.ConfigItem" InferredDimension="true" HierarchySupport="Exact" Reconcile="true">

<InclusionAttribute ID="DisplayName" PropertyPath="$Context/Property[Type='System!System.Entity']/DisplayName$" SlowlyChangingAttribute="false" />

<InclusionAttribute ID="ObjectStatus" PropertyPath="$Context/Property[Type='System!System.ConfigItem']/ObjectStatus$" SlowlyChangingAttribute="false" />

<InclusionAttribute ID="AssetStatus" PropertyPath="$Context/Property[Type='System!System.ConfigItem']/AssetStatus$" SlowlyChangingAttribute="false" />

</Dimension>

The following table provides details about how to construct and model a dimension by examining the XML schema elements and attributes for a <Dimension>.

|  |  |
| --- | --- |
| Attribute | Description |
| ID | A unique identifier for the dimension element. This is also the table name of the dimension in the data warehouse and datamart. |
| Accessibility | This element should always be set to “Public”. |
| Target | The management pack class name that the dimension is targeting. |
| InferredDimension | This value is always to true. |
| HierarchySupport | The hierarchy of classes that help define the properties that will be included in the dimension. There are three possible values:  1. Exact  2. IncludeExtendedClassProperties  3. IncludeDerivedClassProperties  For details of these values, see the next sections of this topic. |
| Extends | Optional boolean flag to indicate whether the dimension is a base dimension or is extending another dimension. After a dimension has been defined, you can use the Service Manager data warehouse to “extend” the dimension and add more attributes at a later point in time.  If the Extends flag is set to true, HierarchySupport must be set to Exact and all the extension attributes must be listed. By default, this flag is set to false. |
| Reconcile | Optional boolean flag that indicates whether two instances, which are otherwise identical and only differ with regard to which source the data originated from, should be consolidated into one single row of data. By default, this flag is set to false.  Dimensions that are related to configuration items should have this flag set to true, and dimensions that are related to work items have this flag set to false. |

The HierarchySupport attribute determines which classes are processed and the specific attributes that are included in the dimension. Details for each possible value are described in the following sections.

Exact

When the HierarchySupport attribute is Exact, you must manually define each attribute that should be included in the dimension using the <InclusionAttribute> tag. These attributes can be either from the target class or any of the target class’s base and derived classes. Each inclusion attribute corresponds to one class property. The following table describes each of the attributes in the <InclusionAttribute> tag.

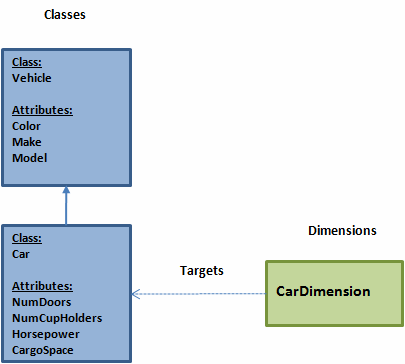
|  |  |
| --- | --- |
| Attribute | Description |
| ID | A unique identifier for the attribute element. |
| PropertyPath | PropertyPath syntax that must uniquely identify the class and attribute that the dimension attribute is targeting. |
| SlowlyChangingAttribute | This attribute should always be false. |

The previous ConfigItemDim dimension example had a HierarchySupport value of Exact. Therefore, only the listed inclusion attributes (DisplayName, ObjectStatus, AssetStatus) are processed in the transform and included in the dimension table in the data warehouse repository and datamart.

The Exact HierarchySupport value requires you to manually list each attribute that you want in the dimension. However, you might want all the attributes for a class, as well as attributes from its base and derived classes, to be included in the dimension. In these cases, it can take a lot of effort to list each attribute explicitly. To help, Service Manager includes two other HierarchySupport values that automatically handle these cases for you. These values are described in the following sections.

IncludeExtendedClassProperties

For a dimension with a HierarchySupport of IncludeExtendedClassProperties, all the attributes of the target class and all of its base classes are included in the dimension table and transform. The following illustration shows an example: CarDimension, which targets the class Car and has a HierarchySupport of IncludeExtendedClassProperties.



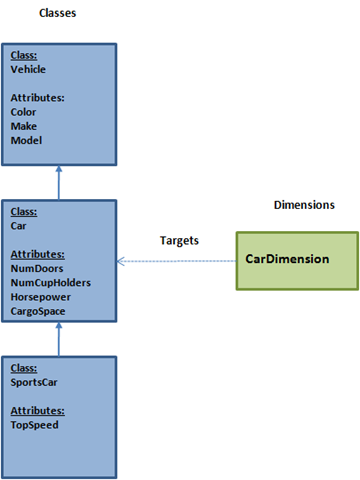
Because CarDimension targets the Car class and has a HierarchySupport value of IncludeExtendedClassProperties, it processes both the Car class and its base class, Vehicle. The resulting table and transform contain the attributes in the following table.

|  |
| --- |
| CarDimension Attributes |
| Color |
| Make |
| Model |
| NumDoors |
| NumCupHolders |
| Horsepower |
| CargoSpace |

IncludeDerivedClassProperties

For a dimension with a HierarchySupport of IncludeDerivedClassProperties, all the attributes of the target class, its base classes, and its derived classes are included in the dimension table and its associated transform.

Slightly modifying the previous example, CarDimension now has a HierarchySupport of IncludeDerivedClassProperties below. Because it processes both the base and derived classes of the target class, the dimension now processes the attributes of three classes: Vehicle, Car, and Sportscar, as shown in the following illustration.



The CarDimension dimension table and transform contain the attributes in the following table.

|  |
| --- |
| CarDimension Attributes |
| Color |
| Make |
| Model |
| NumDoors |
| NumCupHolders |
| Horsepower |
| CargoSpace |
| TopSpeed |

See Also

[Customizing the Data Warehouse](#z26cc6924b9c74c0cb20e0ab85d9c2140)