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# Agenda Service Manager overview Demos System Center

# What Does Service Manager Do?

- Configuration management CMDB
  - Connectors
- IT service management
   Incident management
   Change management
   Problem management
   Release management
   Service request fulfillment
- Portal
- Automation
- Reporting



Microsoft® System Center 2012 - Service Manager is a configuration management system allowing you to get all the data from your IT systems into one place, the configuration management database (CMDB). This data is brought into the CMDB through connectors to the other System Center components and other IT systems. Once the data is in one place, you can execute on IT services—including IT service management operations such as incident management, change management, problem management, release management, and service request fulfillment—using practices such as Information Technology Infrastructure Library (ITIL) and Managed Object Format (MOF).

Service Manager is a platform that enables and organizes the people and processes around these functions and tracks the data.

- Service Manager has a portal functionality for users to request services and report on problems with their systems.
- Service Manager is also an automation platform that can connect to other System Center components to automate IT processes.
- Service Manager is also a reporting platform providing a data warehouse that has all of the service management data and reporting data all in one place. As well, it can enable self-service reporting off this platform.

# **CMDB**

### Types of data

- Configuration items
  - Computers
  - Software/updates
  - Services
  - Service components
- Work items
  - **Incidents**
  - Change requests
  - Release records
  - **Problems**
  - Service requests
- Settings and customizations

### Model-driven database

- Classes
- Properties
- Relationships
- Extensible
- Common model



The CMDB is the central database for all of System Center. It stores different types of data, such as configuration items, information on users' computers in the organization, and on servers in the data centers. As well, it will track the software installed on computers, and the different services such as Microsoft Active Directory® directory services. It will store service components like websites and web services. It will also store relationships of configuration items to each other. For example, it can store a computer and the software that is installed on that computer. It can store services and the relationship to the databases and such that are used in providing those services.

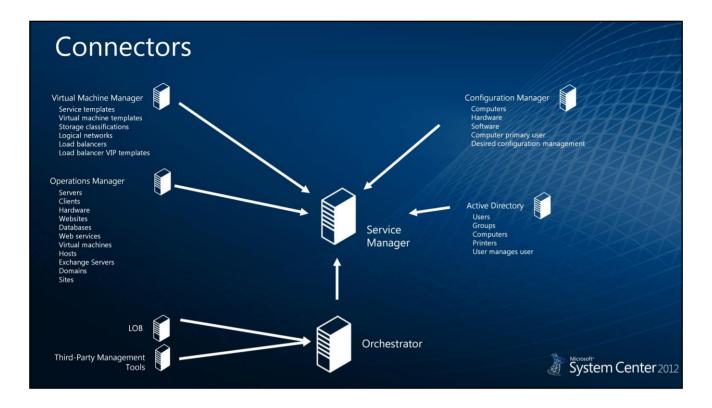
You can also store work items in the CMDB, such as incidents, change requests, and service requests, that represent the items people are working on day-to-day in an IT organization.

- An incident keeps track of something that has occurred in production that will make expected services unavailable. An
  incident is tracked through its resolution and closure.
- A change request keeps track of a change that someone wants to make to a system, ensuring that it is approved and goes
  through the proper procedures.
- A release record keeps track of a roll-out of a line-of-business (LOB) application or something that has a series of change requests associated with it, such as a quarterly release window.
- A problem work item helps the long-term resolution of some problem that is causing multiple incidents to happen over time.
- A service request tracks requests coming from customers to perform some function—for example, to add a user to a security group to allow them access to a system, or to provision a virtual machine.

The CMDB stores the settings and customizations for Service Manager itself.

The CMDB is a model-driven database, which means the entire schema of the database is defined by the classes of data that you want to manage and their associated properties, and the relationships between the classes. For example, you can define a class of things to manage such as computers running the Windows® operating system, and create a table in the database to store those computers. Then you might define the properties of these computers, such as the domain name, the IP address, and OS version. Each property that is declared in the model results in columns being created in the table. A data class also can store a relationship between a configuration item and work item, such as an incident about a computer. You can also extend the model by adding properties to the default classes, and creating custom classes and relationships.

The out-of-the-box model is shared across other System Center 2012 components, including Service Manager and Operations Manager. Thus, an inventory that is discovered by Operations Manager can be synchronized into the Service Manager database, because they share the common data model and database technology platform.



Connectors provide a way to get data into the CMDB. Service Manager comes with connectors to many other System Center components.

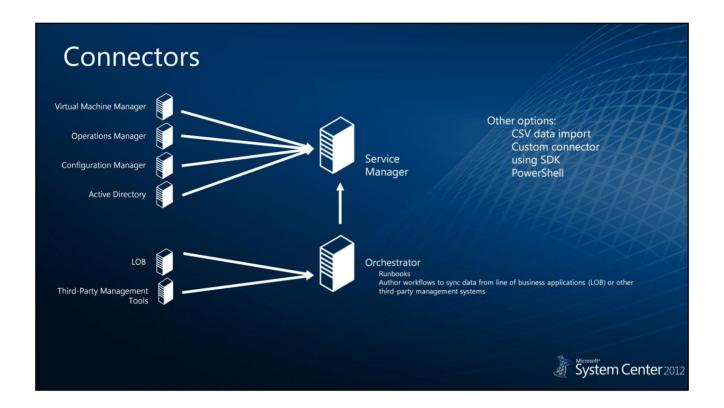
The System Center 2012 - Virtual Machine Manager connector brings in library content from Virtual Machine Manager, including items such as templates for virtual machines, storage classification, logical networks, and load balancers. Once this information is in the CMDB, it can be used for configuring work items. For example, to change the configuration of a service template, you can create a change request to get this change approved prior to actually changing the service template in Virtual Machine Manager. Because this service template object is in the CMDB, the change requests can be relayed to that particular service template object. This way, people that are approving the request understand what it is for.

The Operations Manager connector brings in servers, clients, hardware, websites, databases and other service components that Operations Manager can discover. There are hundreds of management packs for Operations Manager now, and these all define extensions to the data model for capturing different types of objects and the discovery rules for them. The Operations Manager connector can synchronize this discovered inventory into Service Manager automatically. In System Center 2012, Operations Manager now also has the ability to discover and monitor network devices, and this inventory can be automatically synced into the Service Manager CMDB through the Operations Manager connector.

The System Center 2012 - Configuration Manager connector brings in computers, hardware, and software, including mobile devices. The connector can identify the primary user of a computer and then synchronize the relationship between the computer and its primary user. This connector can monitor desired configuration as well. For example, you can set a policy for a registry key to be a certain value, or a piece of software that needs to be installed on a targeted collection of computers. Then anytime something drifts out of the desired configuration, it can automatically create an incident in Service Manager.

The Active Directory connector synchronizes users, groups, and computers from Active Directory. The scope of the synchronization can be set to a particular organizational unit or specific domain. or from a particular group. As well, you can use your own custom LDAP queries. The Active Directory connector also synchronizes the relationship of a user that manages another user, which is helpful when you want to have change requests be approved by the manager of the person that submitted the requests.

Service Manager also has integration with System Center 2012 - Orchestrator, allowing the use of runbooks to automate fulfillment of requests, or automating portions of rolling out a release, or fixing an incident automatically. Runbooks defined in Orchestrator are imported into Service Manager as objects in the CMDB. You can also use the integration packs in Orchestrator to automate the process of pulling data and inserting it into Service Manager. There are integration packs for LOB applications and for third-party management tools such as from BMC, HP, and IBM.



Other options for getting data into Service Manager include the comma-separated value (CSV) data import method, custom connectors, and PowerShell cmdlets. The CSV import method allows you to define the data mapping file and the CSV mapping file, and then import this data either one time, or periodically into Service Manager. You can also create customer connectors using the Service Manager software development kit (SDK). In addition, PowerShell cmdlets can be used to insert data into Service Manager.



This demo provides an overview of how the CMDB works, how to set up connectors, and what the user experience looks like. After these configuration items are discussed in detail, the next demo will show their relationships to work items such as incidents and change requests.

This demo begins in the Service Manager console, which has a user experience similar to the Microsoft Outlook® messaging and collaboration client. It has a navigation pane on the left with workspaces, which subdivide the user experience of the console into different areas.

The Configuration Items workspace shows the different views that are available for looking at configuration items.

The All Computers view shows all of the computers running Windows that are in the CMDB. Opening up one, you will see what a computer form looks like inside of Service Manager. This form will usually be fully populated by information from Configuration Manager, such as the DNS name, the user of the computer, MAC and IP addresses, and operating system information including version number.

You can also see hardware information, such as the number of processors, the amount of physical memory, the manufacturer of the computer, and the model number. Then you can see items common to all computers such as the status of an individual computer, including where it is being used and by whom.

On the Hardware tab, you can see information on the processors, network adapters, and physical and logical hard drives. In addition, with logical hard drives, you can see the amount of space available on that drive.

On the Software tab, you can see the installed software on a computer, including what software updates have been installed and what software updates are missing.

Some tabs are common to every object in the system—for example, the work items that are affecting the computer such as incidents or change requests. You can also see other work items or configuration items that might be related to it, including knowledge base articles.

Files can also be attached to a specific object if needed; for example, warranty information.

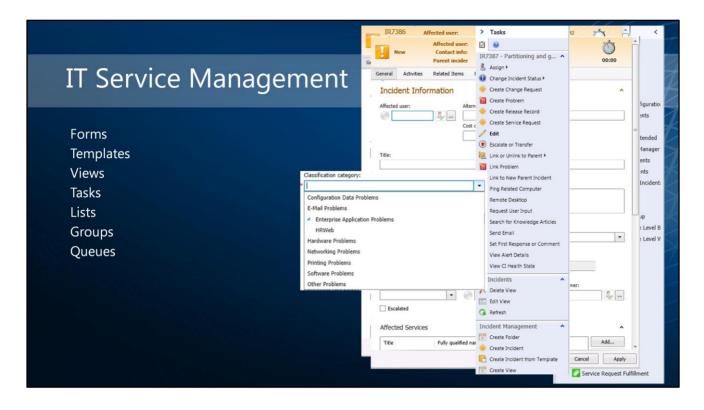
The History tab shows every property value change that happens and every relationship that is added and removed from the system over time, and who did it, and at what time. This produces a valuable audit trail.

Other types of data to bring into the system include LOB applications. Virtual Machine Manager and Operations Manager are automatically included as business services by virtue of being included in the overall System Center product. Databases and websites that Operations Manager is monitoring can show up as data sources. Users that have been discovered from Active Directory, and their associated details such as email addresses and other organizational details, can be brought in.

In the Connectors view, you can create connectors and view the ones you have. In this example, you have connectors to Orchestrator, Virtual Machine Manager, and Active Directory. To configure these connectors, open up the properties of the Orchestrator runbook connector. Enter the information when prompted, and then provide a URL to the Orchestrator web service; in the case of the Operations Manager connector, it is the name of the management server you want to connect to. Provide the credentials to connect, and choose what folder of runbooks you want to synchronize with.

Similarly, in the Operations Manager connector wizard, you choose what management packs you want to synchronize with, along with what collections you want to synchronize with from Configuration Manager. With the Active Directory connector, you choose what domain or organizational unit to use. There is a scoping page on each connector wizard that helps to you configure each of these.

There are also other configuration options, such as capturing the URL to the Orchestrator web console, which is used as part of the Service Manager user experience. As demonstrated, connectors are easy to setup, and once this is done, data starts to flow into the Service Manager CMDB automatically. The connectors all run on a schedule to keep the information up-to-date over time.



Here are several elements that lay the foundation for IT service management in Service Manager.

The first element is a form, which is filled out in the UI, with associated controls to capture user input. Each of the configuration items in Service Manager has an associated form, which is provided out of the box. The included form designer provides a lot of flexibility, enabling you to add or remove controls and rearrange the layout of the controls, as well as extend the data model, customizing forms for your different service management disciplines.

A template follows the same basic type of logic; a template is a partially completed object. You use the form to create a template, and you use the template to create an object. For example, you can create an incident from a template, and most of the information will be filled out automatically. If you have a printing issue template, it might specify that the classification category is a printing issue, and specify the impact, the urgency, and what support group it should be assigned to, what user it should be assigned to, and so on. This way, the information is pre-populated, allowing consistent and faster data entry. In addition to being able to create objects from templates, you can also apply templates to existing objects, either manually or as part of an automated workflow. For example, if an incident has not been modified for more than 30 minutes, you might have a workflow that is automatically triggered and applies a template to this incident, which then escalates this incident to a different tier and assigns it to somebody else.

A view is a list of objects that match certain criteria; for example, the demo featured the All Windows Computers view, which shows all of the objects of the computer class. You can see the All Computers with Active Incidents view, which will show you all the computers that have some incident related to them and with the status set to "active".

Tasks allow you to take context-sensitive action on a particular object. For example, if you wanted to assign an incident to someone, you could either do that directly in the form, or you could use this Assign Tasks function. Some tasks allow you to remote desktop or ping a related computer, which is useful for getting additional information or launching a tool quickly. Tasks are extensible, so you can add custom tasks to execute command-line tasks or custom code.

Lists allow you to offer a set of choices in a menu on a form. Numerous different list values are provided with the product, and you can customize them or add in your own list values.

Groups are collections of configuration items that match certain criteria. For example, you can create a group where the domain property is equal to Redmond, and we would call this group the Redmond Computers group. Queues are similar to groups, except that they are collections of work items. For example, you may create a queue of printing issue incidents, in which the classification of the incident equals printing issues. Once groups and queues are defined, you can use these for a number of different things, such as scoping a workflow or notification subscriptions. They can also be used for role-based security control, and in report parameters to build a scope around the data shown in reports.



This demo illustrates the incident life cycle, how the forms are filled out, and how to relate work items to one another. The subsequent demo in this module will look at how to automate processes around the incident life cycle to save time.

From the Service Manager console, in the Work Items workspace, you can see the All Incidents view, which shows all the incidents that exist. There are a number of views provided out of the box that allow you to get to a certain set of incidents that match the criteria. You can also see that we have areas in the work items space for change, indent, problem, and release management, and service request fulfillment.

One of the most common things to do in Service Manager is to create an incident. To view this process, click **Create Incident**, or click the task to create an incident from a template. Once the incident form appears, you can simulate what a user would see when logging their issue. The cost center text box is an example of a customization made to this form.

For capturing the title, you can give the example of "HRWeb is down". Further, you can capture the description, and do a classification. In this case, you can classify it as being an HRWeb issue.

Notice that the information bar appears as you choose the classification. When there is an existing parent incident in this same classification, Service Manager will suggest that this may be part of the same problem, so you can link this incident to a parent incident. Looking at the parent incident, you can see that the HRWeb incident exists and is assigned to someone. Here you can link the new incident to this. When you click **Link**, it will grab information from the parent incident, such as impact, urgency, the support group, and who it is assigned to, and transfer this to the new incident form that you are creating.

You can then add the affected service. A list of businesses you added earlier will appear. Then you can see how to relate your work items to configuration items.

Another feature allows you to check whether a particular person was a primary user of some computers; those computers will show up in the list, which makes it easy to identify where the problem is. Then this list can be added as a configuration item to this incident.

The Action Log allows you to keep track of what happened in the course of working on this incident. Here you can add custom notes to the log to keep track of what is happening as you work on the incident.

On the Activities tab, you can create child work items that are assigned to people to work on. You can see the activity to look at HRWeb has been assigned, and as this is worked on, the activity can be marked as completed and you can see when this is completed. This allows you to have sub-work items assigned to different people to complete different tasks.

With Related Items, you can see other work items that might be related to this incident, including other configuration items and knowledge articles and files.

On the Resolution tab, you can keep track of the amount of effort spent on resolving this incident, as well as the resolution details.

On the Service Level tab, you can keep track of service level objectives associated with this incident. For example, you can have service level objective associated with HRWeb incidents, such that these incidents need to be acknowledged within 30 minutes and resolved within four hours.

Once you have completed this process, you can submit the incident into the system

Once the incidents have been created about HRWeb being down, you can see how the process would go by clicking **Create Problem**. You need to make a change to the system to resolve this incident, necessitating a change request.

If you want to track the underlying reason why these incidents are happening, you would create a problem record. For example, you could have a problem record such as "investigate HRWeb server down issues", and create a category, assign the impact and the urgency, and assign this to someone to investigate. When you do this, Service Manager automatically relates the incidents to this problem record, which makes it convenient to track how these work items are related to each other.

At this point, you have three incidents and a problem record. If you go into the parent incident to resolve it, you can see how the process will work. To resolve this, you go to change incident status, and choose **Resolve**. This will prompt you for the resolution category, and this will allow you to see the activity associated with it. Once the parent incident is resolved, all the child incidents that are associated with it will be resolved as well.



This section of the module discusses portals, automation, and reporting.

# Portal User experiences Service catalog Create requests Create incidents View status of requests/incidents Approvals Complete activities Technology SharePoint 2010 Silverlight Create incidents Dynamic forms Customizable Extensible

While the Service Manager console is an installed application, the Service Manager portal is a website based on Microsoft SharePoint® Server 2010 with Microsoft Silverlight® web parts.

This allows users to perform different actions with Service Manager. First, users can go to the site and browse the service catalog for issues they need to report. Then they can create requests and incidents using a form that is configured by the administrator to provide different types of questions for each different type of request or incident that people need to report. This configuration allows forms to be dynamically generated, without the need for code to be written.

Customers making the requests can come to the portal and see the status of those requests and incidents. Then people can vote on the review activities on the portal, to approve or reject the requests. Then the people that are assigned manual activities within Service Manager can go to the portal and mark the activities as completed.

As the portal is based on SharePoint 2010, you can customize the layout of the site, with color schemes, fonts, and different pages. Basically anything you can do with SharePoint, you can do with the Service Manager portal. The portal is also extensible, so you can add in your own custom web parts that utilize the SDK to get additional data from the CMDB and display it in different formats.



It is important to automate things as much as possible in IT because automation reduces the cost of running the IT department and reduces the amount of human error. It also decreases the amount of time it takes to execute tasks. In Service Manager, there are a few different ways to automate tasks.

Notifications can be automated using event workflows called notification subscriptions. These can be set up using notification templates, and automatically sent out to those involved with the IT service management and appropriate points in the process. For example, when an incident is assigned to someone, an email message might automatically be sent to inform them that they have a new incident assigned to them.

There is a workflow platform in Service Manager that allows you to create custom workflows using a drag-and-drop experience. As well, Microsoft .NET Workflow Foundation can be used to create custom workflows to run inside the Service Manager workflow engine.

You can also automate things using Orchestrator runbooks. You can import the runbooks from Orchestrator into Service Manager and include these as runbook activity work items in the process of service requests and change requests. At the appropriate point in this process, Service Manager will call Orchestrator and trigger a runbook, passing the necessary contextual information to automate some portion or fulfilling an entire process.

There is also the possibility of automating things using PowerShell cmdlets that are provided out of the box. These are mainly for the administrator activities in Service Manager. There is also a Codeplex project called Smlets that allows you to use the Codeplex cmdlets to automate services in Service Manager with PowerShell.



This demo looks at the Service Manager portal running as a SharePoint site, and replicates what a customer will see if they come to the portal. It shows how Service Manager can call to Orchestrator and trigger a runbook to add a user to a group in Active Directory.

The service catalog is organized by categories, and within these are service offerings. A service offering is a container of request offerings. Request offerings are items a user can request. With the user account management service offering, you can see the different request offerings. The first is adding a user to a group, and the second is to reset a password.

By clicking **Add User to Group**, the user can request to add themselves to a group in Active Directory. You could also allow them to choose which users can be added to which groups. To add a user, you use a form that would be dynamically generated. In this demo process, you would ask for a business justification and what group they would like to be added to.

The list of groups to be added comes from the Service Manager CMDB, and is populated by the Active Directory connector, giving the latest information. Group lists can be limited based on criteria you select, such as being in a particular domain.

In this example, a service request has been created, and the user can click **View My Requests** and see the status of the requests that they have filed. From the Service Manager main console, you can see the service request is there, with the workflow that started, and change the status to be "in progress". Looking at the experience from an analyst's perspective, they will see all the details of the request, including title and affected users.

On the **Activities** tab, you can see the review activity that is used to approve an action such as a user requesting to be added to a group. Requests can either be approved from inside the main console, or through the portal. On the My Activities page on the portal, you will see the list of items that need the administrator's attention. Here you can see the approval for adding the user to the group. After approving, you can see the approval status changed from being in progress to complete.

With the runbook activity, you can use this approval to trigger an Orchestrator runbook that can be set to automatically add a user to a group.



On the **Runbook** tab, you pass in information to the Orchestrator runbook, including the GUID of the activity work item and the user name of the requestor. The user name is populated by the user requesting it from the portal. This information is used by the Orchestrator runbook to add that user to the group that they selected. The group that the user selected is listed in the configuration items list. The Orchestrator runbook will look up in the Service Manager CMDB which group to add the user to. To verify, you can look in Active Directory and see whether the user has been added to the group by Orchestrator automatically. This is one example of how you can automate fulfilling a request, and how to use Service Manager to integrate with Orchestrator.

The next example will show you how to configure the service catalog. From the Library workspace, you can access the service catalog area, where you can define request offerings such as the add user request offering. You can configure the title, the description, and the icon for the offering. Every request offering is backed by a service request template or incident template, which can be defined ahead of time to populate default values and define the activities that will happen, such as the runbook activity.

On the user prompt, you define the questions that you will ask the user, specifying whether or not a question is required, and the type of response you expect. For example, for business justification you expect a text response. For choosing the group, you expect a query result prompt, which means you would query the Service Manager CMDB to present the list of options that match the user and criteria.

You set data validation with configure prompts. Similarly, the setting to choose the group shows the query results prompt, and here you can specify to get Active Directory groups. You can specify other criteria as well, such as only retrieving certain groups from the database. You can specify how you want to relate selected objects to the service request, or to one of the activities inside of the service request.

Further, you can map prompts. In this case the business justification prompt was mapped to the description prompt property on the CMDB, so the reviewer could see the business justification in the context of approving the request. You can also relate the request offering to knowledge articles and change the status to publish in order to push it out to the service catalog.

Thus, once you define the request offerings, you can include them in service offerings. In the example, you can see user account management service offerings, and then you can see the request offerings that were on the portal. To add new request offerings you click **Add**, follow the prompts, and add it to the service catalog.

# Platform technology Data warehouse SQL Server Reporting Services OLAP cubes Reports Out-of-the-box reports Custom reports Analyze cubes in Excel Create dashboards in SharePoint

Service Manager will be the central reporting interface for System Center 2012. As well, it will provide the data warehousing infrastructure for System Center 2012.

Service Manager has a separate set of databases for the data warehouse. The data warehouse follows modern concepts and data warehousing technology. It is a star-schema based database with dimensions, outriggers, and similar concepts. End users can extend the data warehouse in the same way you can extend the CMDB, with additional types of data that you want to manage.

There are a number of different automated jobs on the data warehouse management server that will extract the data out of the CMDB and synchronize it to the data warehouse database. The data will be transformed into a structure that's more optimized for reporting purposes, and will be loaded into a data mart, which is the database for reporting.

The reporting platform for Service Manager is based on Microsoft SQL Server® Reporting Services. Thus, users familiar with this product can comfortably use this reporting platform in Service Manager, and use functions such as reporting, subscriptions, and security.

System Center 2012 includes online analytical processing (OLAP) cubes with Service Manager. It provides OLAP cubes for the most common types of data, such as work items and computers, and you can also create your own custom cubes. These cubes allow you to analyze data more efficiently.

Users can access the out-of-the-box reports from the Service Manager main console, or through the SQL Server Reporting Services browser interface. You can also set up report subscriptions, which automatically deliver reports to people by email, or by publishing them to a file share or SharePoint site.

You can also create your own custom reports using SQL Server report authoring tools, such as the Business Intelligence Development Studio, or Report Builder.

You can also analyze the cubes with Microsoft Excel® spreadsheet software. This is a powerful feature where you can use the Excel PivotTable dynamic view functionality to manipulate the data in the cube. This is very useful for ad-hoc reports.

System Center

# DEMO Data Warehouse Reporting Dashboards

Using the Service Manager main console, in the Data Warehouse workspace you can see all of the cubes provided out of the box. For example, there is a software update cube that shows the data coming from Configuration Manager about software updates and compliance of the computers in the network. This allows you to see which computers have a particular software update installed, and which ones are missing it. There is a work items cube, as well as configuration items, change requests, activity management, service catalog, and service requests. Power utilization data is also imported directly into Configuration Manager and displayed in a cube as well. Thus, you can get an idea of which types of computers are using the most power.

In order to analyze a cube, you select the cube and click **Analyze Task**. Once you click this task, it will launch Excel, automatically attaching the cube and placing a PivotTable dynamic view into the workbook.

In the Excel workbook example, you can see there are tables attached to the work items cube. This will give you a sense of how you can create a dashboard inside of Excel, by having a PivotTable report in Excel creating charts based off those tables. For example, the work items dimension is attached to a PivotTable report that shows the number of incidents associated with each of the different classifications. You can analyze the data by various means and add additional properties to it. You can assign incidents by classifications. You can analyze on one dimension being the incident classification, and the other dimension being who it is assigned to. You can also look at incidents resolved by particular people, which would give an idea of who is resolving the most incidents over time.

Once you have created the workbooks, you can save them to a file share and create an analysis library that will point back to the file share. This makes it easy to share the workbooks. You can control the security of this process using standard file system security settings, and set who has access to read or write to the specific files.

The out-of-the-box reports are organized by folders on the SQL Server Reporting Services site.

On the portal, you can add a page such as IT business intelligence, which can use a Microsoft PerformancePoint® sub-site to embed web parts that bring in the Excel workbooks as a dashboard for people to view. This shows the flexibility in creating the dashboards and experiences using standard SharePoint and SQL Server Reporting Services and Microsoft Office technologies.

# Conclusion

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