ServiceNow System Admin Study Guide

Thursday, November 10, 2011
5:11 PM

Accenture Demo sites:
Client Facing
https://accenturedemo1pov.service-now.com/

Demo 2:
Accenture ServiceNow Test Site

For reference Visit Service Now Wiki at:
Refer to wiki.service-now.com for more details
on information.

Pasted from <file:///C:\Accenture\ITSE-DCTO\Community%20of%20Practice%20CoP\Service%20Now%20Training\Labs%20and%20Notes%20for%20Service%20Now%20Class.docx>

Learning Domain		% of Exam
1.	Describe and use system information architecture	35
2.	Describe Security, Users, Groups, and Roles	20
3.	Monitor, Track, and Report using SLAs, Notifications, Knowledge Base, and Reports	15
4.	Create Service Catalog Items, Variables, and Workflows	15
5.	Maintain and Configure ServiceNow with Customizations, Update Sets, and Upgrades	10
6.	Import Data using Import Sets and Transform Maps	5
	Total:	100

Learning Domain 1: Describe and use system information architecture

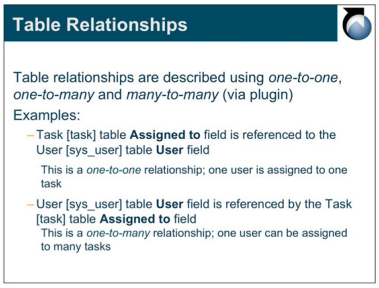
1. **Define and personalize a form, list, and field *(Chapter 2)***
   - A list is an information format that displays content from a table. Fields Display as Column Headers; Rows Display as Individual Records
     - A table is a database element (rows are records and fields are columns)
     - A field is a cell in a table
     - Record is one set of table fields
     - Key List Interface Elements
       - Title Bar
       - Breadcrumbs - offer a quick way to filter and sort
       - Column headings - display the table field names
       - Fields - Display the field data and offer right-click menus adjusted for field data
     - Record Identifiers - sys_id is a unique 32 character Globally unique ID to identify a record within a table. All tables have a sys_id column
     - To access the Personalize List Columns window (also called the slush bucket) click the gear icon
     - Personalize List Menu displays a submenu of controls that act on list data for all users
       - List Layout - This menu item displays the slush bucket
       - List Calculations - The menu item allows you to choose to display the maximum or minimum values used to calculate a numeric field
       - List Control - This menu item displays the List Control form. You can set which buttons are on the form
     - A form displays fields from one record; users can view and edit the record data
     - Form features
       - Light Red = Required field that has a saved value
       - Green = Modified field that has a saved value
       - Red = Required field that requires a value
       - Orange = Read-only data that is not editable on this form
       - A red dashed line indicates invalid data or a mistyped word
     - Saving Forms
       - Save modified records by:
         - Click Submit or update
         - Right-click the title bar and select Save
         - Right-click the title bar and select Insert or Insert and Stay to save a new record to the database instead of updating the current item.
2. **Create applications, modules and tables. Extend a table *(Chapter 5)***

   Quick note: The Task Table is one of the ServiceNow Core tables
   - A table is a collection of records in the database.
     - Each table has a *common name* and a **system name** - for Example the *User* **[sys_user]** table
   - Tables can be viewed and maniuplated through the following interfaces:
     - Record List View
     - Tables & Columns Module (Only admins have access to System Definition>Tables and Columns

       The Table & Columns module allows you to select a table and display all columns. It is divided into these panes:

       ␣ Table Names pane is the total list of tables in the ServiceNow instance. ␣ The Column Names pane lists all the fields in the table. Icons are used to describe the column position and use in the table.

       ␣ The Column Attributes pane lists the Data Dictionary information for fields in the table

- Schema Map
- A Reference Field stores a reference to a field in another table. Tables can be extended by other tables, creating parent tables and child tables
- Table Relationships
- 

  Some common many-to-many relationships exist in base instance tables, including:

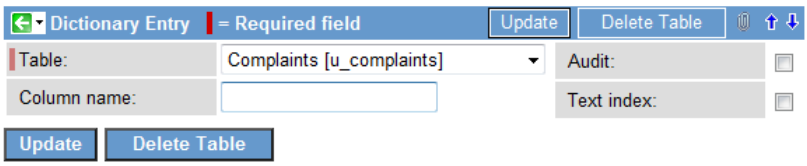
  - CI to CI Relationships
  - CI to Task Relationships (Affected CIs)
  - CI to Group Relationships
  - Task to Task Relationships
- Data Policy Controls enable administrators to set mandatory and read-only states for fields and can be used to enforce data consistency across applications
- Deleting Tables - System tables provided by ServiceNow cannot be permanently deleted; if a system table is deleted, it is restored once the instance is upgraded

  . When you delete a table, things that reference that table are also removed, including choice list items for that table, forms, form sections, lists, related lists, reports and gauges, and reference fields that reference that particular table.
  To delete a custom table (table name begins with u_) navigate to Personalize > Dictionary and select the table dictionary record. Then click the Delete Table button.

Deleting a table refer to:
http://wiki.service-now.com/index.php?title=Deleting_a_Table

Overview

To delete a custom table (where the table name begins with "u_"), go to the dictionary record for that table and click the "Delete Table" button. To get to the dictionary record for a table, open the form for that table, right-click the form header, and select "Personalize -> Dictionary". Note that deleting an extended table does not automatically delete associated records. To delete an extended table, delete the records in the extended table before deleting the extended table.



Upon deletion, things that reference that table are also removed, such as:

3. Choice list items for that table
4. Forms, Form Sections, Lists, Related lists for that table
5. Reports and Gauges for that table
6. Reference fields that reference that table

Pasted from <http://wiki.service-now.com/index.php?title=Deleting_a_Table>

Research Overriding data dictionaries:
http://wiki.service-now.com/index.php?title=Dictionary_Overrides

Overview

Dictionary Overrides provide the ability to override four aspects of a field in extended tables:

7. Reference Qualifiers
8. Dictionary Attributes
9. Default Values
10. Calculations
11. Default column display values

For example, if a field is defined on the **Task [task]** table, a dictionary override can change its default value on the **Incident [incident]** table without affecting how it appears on **Task [task]** or on **Change [change]**.
Dictionary Overrides are defined on a related list which appears on the form for fields whose table is extended.

2 Defining a Dictionary Override

To define a dictionary override, navigate to the dictionary entry of the field and click **New** from the Dictionary Overrides related list.
The following fields define the override:

Field	Input Value
Table	This is the extended table to which the dictionary override applies.
Override Reference Qualifier	Checking this box displays the **Reference Qualifier** field, which defines a new reference qualifier to apply on the field on the extended table.
Override Dependent	Checking this box displays the **Dependent** field, which defines a new field for this field to depend on.
Override Attributes	Checking this box displays the **Attributes** field, which defines new attributes to apply on the field on the extended table.

	Note: Attributes from the base table are discarded if any attributes are specified. If there are attributes on the base table that should still apply to the extended table, make sure to include them in this field.
Override Default Value	Checking this box displays the **Default Value** field, which defines a new default value to apply on the field on the extended table.
Override Calculation	Checking this box displays the **Calculation** field, which defines a new calculation to apply on the field on the extended table.
Override Display Value	Checking this box makes this field the display value on the extended table. This option is available with the Aspen release.

3 Overriding a Column Display Value

An administrator can override a column display value for a specific, extended table. Reference fields for a table in which a display value is overridden use the override value rather than the default value for the column. For example, in the Story [rm_story] table in the SDLC - SCRUM Process Pack plugin, we want to use **short_description** for a display value in reference fields instead of **number** as defined in the Task [task] table.

To override a display value:

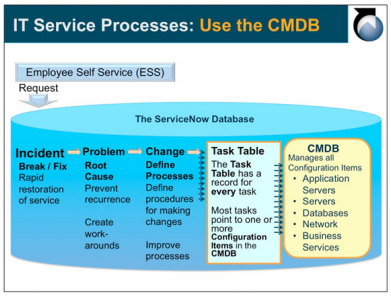
- Navigate to **System Definition > Dictionary**.
- Open the column dictionary entry for **short_description** for the Task [task] table.
- Open the Dictionary Overrides related list.
- Click **New**.
  The Dictionary Entry Override form appears, showing the default display column for reference fields in the Task [task] table as the **number** field.
- Select the extended table for which you want to define an override.
  In this example, we select the Story [rm_story] table from the SDLC application.
- Check the **Override display value** checkbox.
- Click **Submit**.
  Wherever a reference field points to the Story [rm_story] table, the display value shows data from the **short_description** column and not the **number** column.

Pasted from <http://wiki.service-now.com/index.php?title=Dictionary_Overrides>

12. **Describe the technologies used by ServiceNow and navigate the User interface. *(Chapter 1)***
    - Home Page: Power Edge
      Power Edge: Gray toolbar on the left side of the screen in the UI11 interface which provides the following functions:
      - Show or hide the Application Navigator or the banner frame.
      - Split the screen (content frame) vertically or horizontally into list and form panes.
      - Create and manage bookmarks.
    - Homepage: Banner
      The banner frame runs across the top of every page. It contains a logo and the following information and controls:
      - Welcome message - shows the name of currently logged in user.
      - Impersonation key (administrators only) - allows administrator to switch user views without logging out; useful for testing security and role-specific setup functions.
      - Logout - returns to the Welcome page for subsequent login.
      - Homepage - provides links to various homepages.
      - Print - opens a printable version of the current content frame.
      - Help - opens the ServiceNow Wiki in another window or tab.
      - Debug (administrators only) - opens the client-side JavaScript Debug window.
      - Global Text Search - searches for text across the instance. Global text search is also powered by Zing which is the text indexing and search engine that performs all searches in the ServiceNow platform
      - Header Expand/Collapse - alters the amount of space the banner frame occupies.
    - Home Page: Application Navigator
      - Allows you to see all of the Applications in the product
      - An application is a group of module s
      - Seen as the organization element in a ServiceNow instance
      - Use **Type filter text** to quickly access applications
    - Home Page: Content Page
      The Content Pane contains various types of information such as:
      - homepages
      - service catalog
      - schema map
      - business service map
      - forms
      - Lists
    - Impersonate Key
      This is a powerful testing feature. There are security implications since an action done while impersonating another user is recorded as having been done by that user. This includes transaction log entries, auditing, and record update stamping.
      -

13. **Identify the CMDB and view CIs. *(Chapter 8)***
    - The CMDB is a series of tables that contain all the assets and business services controlled by your company, as well as their configurations
    - A CI (Configuration Item) is any tangible device, or intangible dedicated software in the CMDB
      - Computers
      - Devices on the Network
      - Software contracts and licenses
      - Business Services
    - CMDB Contains Two Major Record Types:
      - Core Configuration Item - [cmdb_ci] table stores the basic attributes of all the CIs

- CI Relationship [cmdb_rel_ci] table defines all existing relationships between CIs

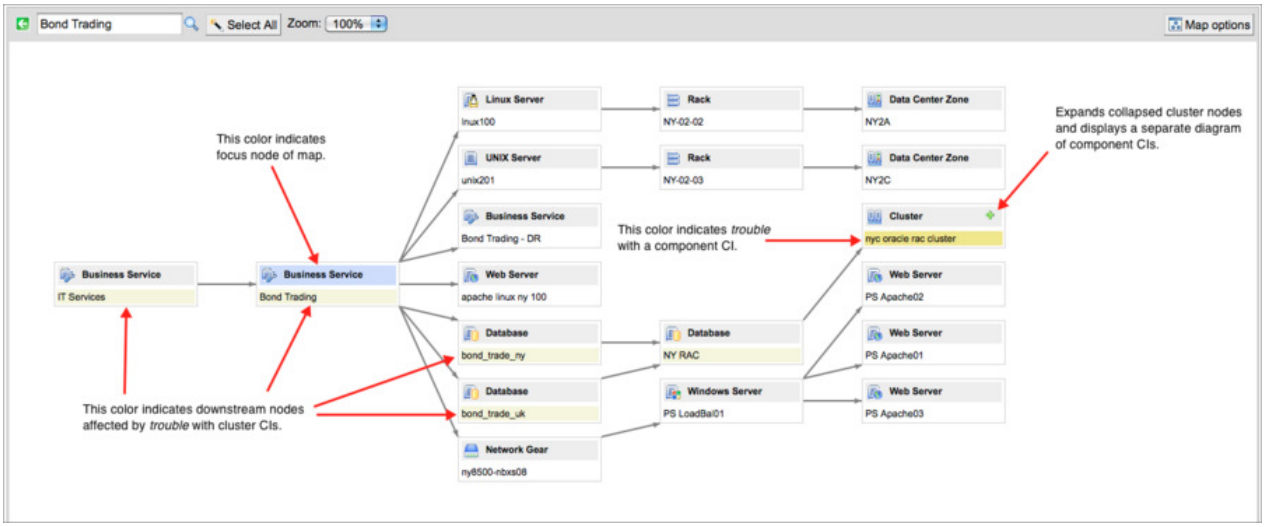


All IT Service Management Processes relate to and involve the CMDB.

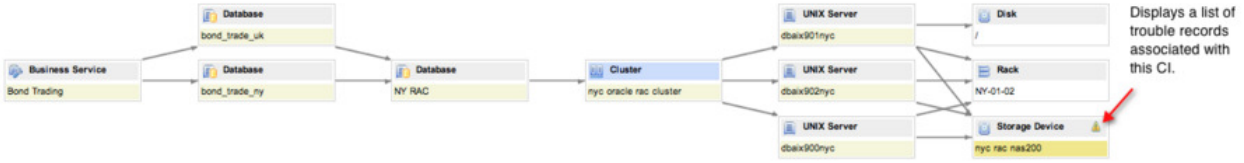
- Questions to consider for a CMDB Implementation:
  - How is data entered or imported then managed? (Consider people, process and technology)
  - Where is data stored? (Identify and extend tables accordingly)
  - What data is necessary? (Store only the data being used; Omit unused data fields)
  - When should imports or refreshes of CI data happen? (
- Benefits of a CMDB
  - Helps located failed changes and associated incidents
  - Facilitate quick analysis of impact, helping reduce or eliminate downtime
  - Increase in cost savings to the business
- CMDB Schema Map provides a graphical representation of other tables related to that table, either through class extension or reference
- CI Attributes: The position of a CI in the classification hierarchy is determined by the attributes it shares with the CIs below it. Each time a CI has a different attribute from its parent, the classification hierarchy branches
- CI Relationships: ServiceNow relationship rules use separate tables to define the relationships between specific CI base classes and dependent classes
- Business Service Map (BSM) graphically displays the CIs that compose a business service and indicates the status of those CIs

Using a Map

BSM maps are similar to an organizational chart - there is only one starting point. A BSM map never has multiple starting points. After the starting point, information goes upstream and downstream with BSM maps commonly showing the downstream relationships of a parent CI. Relationships have a parent and child. For relationships, BSMs only show what is upstream from the focused CI (the CI named in the upper-left corner of the BSM map).
Note: Upstream relationships for other CIs that occur to the right of the focused CI in the BSM map are not displayed. Doing so could result in a very large map with multiple starting points.
BSM maps only show related items that are downstream from the CIs displayed. For example, if a cmdb_ci_computer is shown on the BSM map and a cmdb_ci_disk has a reference to that same cmdb_ci_computer, cmdb_ci_disk will show on the BSM map as well (the default behavior is that there is an active "related items" record). The upstream direction is not checked for related items.
In a BSM map, icons and color-coding for nodes enable an administrator to follow CI relationships, determine where issues exist, and access CI *trouble* records directly. Different colors are used to tag clusters and CI nodes that have incidents, problems, or outages associated with them, and to indicate which nodes downstream are affected by the trouble. Use the icons on a node to expand and collapse the node and to open the trouble records associated with that node. Use the control bar in the map to switch the map view, adjust the perspective, move the diagram, or change the update interval.
The first level of a map with a collapsed cluster showing trouble might look like this:



An expanded cluster node shows a detailed diagram, upstream and downstream, of the component CIs and provides access to the related issues through distinct icons.



Pasted from <http://wiki.service-now.com/index.php? title=Business_Service_Management_Map>

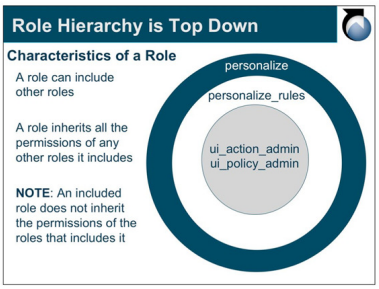
- Use the BSM Map to view other configuration items "upstream" that feed data into this email service, and then "downstream," you can see all the other configuration items that are affected by the email service.
- Ways to Populate the CMDB
  - Manual
  - Discovery,
  - Imports Sets
  - Integrate with external CMDBs (also called Federation)
  - Web Services
  - Help the Help Desk (from ServiceNow) - Tool within ServiceNow that populates the CMDB automatically with information about their Windows computer (only works with Windows PCs and is not customizable)
- Populate by Federating Data - A Federated database is the full-integrated logical composite of all constituent databases
  If the data required for the CMDB has already been collected by another CMDB, it is possible to collect the information from that CMDB in an automated process.
  What is a MID Server?
  The Monitoring, Integration, and Discovery (MID) Server is a Java server that runs as a Windows service or UNIX daemon.
  The MID Server facilitates communication and movement of data between the ServiceNow platform and external applications, data sources, and services.
  A JDBC Probe runs on the MID server to query an external database and returns the results to ServiceNow.
  Examples of External CMDB's are: SCCM/SMS, Altiris and LANDesk. See http:// wiki.service-now.com/index.php?title=CMDB_Import for more information.

14. **Define and refresh gauges and create homepages *(Chapter 6)***
    - Global Text Search is on the HomePage Banner
    - ServiceNow homepage provides:
      - Dashboard of frequently used content which usually includes reports
      - A personal space that is configured to be the first page seen after log in
      - Access to multiple personal homepages
      - Access to other global homepages the user has the rights to view
    - A gauge is a refreshable widget viewable as a homepage section
    - Reports are packaged as gauges. Gauges report up-to-date information about current records that exist in ServiceNow tables
    - A gauge is a "mapped" graphic image; when you click on section of a graph; it links to the list of the records specific to that piece of the graph
    - Consider Homepage Content when setting the Automatically Refresh Control
      Report data is constantly being updated. When you refresh the Homepage, the entire page refreshes. When users load up their homepages with many reports, this can affect the refresh rate. By default, Refresh is set to Off. As an Administrator, you can select Off from the Refresh list to improve system performance, if required. You can refresh a Homepage by role

Learning Domain 2

1. **Define users, groups, roles and delegates *(Chapter 3) and (Chapter 12)***

- A user is one record stored in the User [sys_user] table. Users can view their own profile in Self Service > My Profile
- Users are Brought in through:
  - Single Sign On (SSO) - enables a user to log into their company portal page and are directed to their ServiceNow instance… basically Pre-authenticated
  - LDAP
  - Import Set
  - Manually
- A group is one record stored in the sys_user_group table and a group is a collection of users who share a common purpose
  Group Characteristics
  Users can belong to more than one group. Another purpose of a group is to make permissions management easier. Groups are assigned roles.
  Groups Establishment
  Import from a corporate directory (LDAP). A group is a part of the hierarchy, and a user is part of a group.
  Creating new groups in ServiceNow (manually) Why use Groups?
  Assign permissions to approve, change, or resolve incidents and requests Identify a subset of users based on role and skills assignment Provide a reference for alerts and notifications Receive email notifications
- A role is one record in the role [sys_user_role] table
  - Each role grants permission to parts of the system
  - A role may contain other roles. Any access that is granted to one role, is granted to any role that contains it

- 

  - Delegate is another user in the instance designated to receive and interact with approvals and tasks assigned or sent to you
    - The user and the delegate get identical email notifications. An administrator or role_delegator rolecan grant a user the right to delegate roles within a particular group

A User Interface (UI) Policy is:

a. A rule that applies to a form to dynamically change the form information or the form itself
b. An alternative to client scripts
c. Run on the client side (browser)

- Use a UI Policy to set forms on a field to:
  - Visible or Hidden
  - Editable or Read-Only
  - Optional or Mandatory

UI Policy Example: Implement the following controls in an incident form when the State changes to Resolved:

- Make a Close Notes field mandatory.
- Hide the Opened by field.
- Make the Priority, Severity, and Urgency fields read-only.
- Run a Client Script to display an alert message.

2. UI Action is a method to put buttons, links, and context menu items on forms and lists, making the UI more interactive, customizable and specific to user activities

These buttons, links and context menu items can be scripted, making them more powerful

- With the Aspen release, users with the ui_action_admin or admin role can right-click on a UI action (buttons, links, etc.) and select the Edit UI Action context menu option.
  Form UI Actions
  Form button: Appear on the top and bottom of a form.
  Form context menu: Are listed in the context menu (place your mouse over the form header (tool-bar) and right-click.
  Form links: Appear toward the bottom of a form as links (in blue and underlined) in the "Form Links" section of the form.
  List UI Actions
  List Buttons: Appear at the top of a list view.
  List context Menu: Are listed in the context menu (place your mouse over the list header (tool-bar) and right-click.
  List choices: Appear at the bottom of a list view. List links: Appear at bottom of a list view as links (in blue and underlined).
- UI Actions can be found in two places and can be run from either server side or client side scripts
  - System UI > UI Actions
  - System Definition > UI Actions

3. **Create an Access Control Rule - Access Control List (ACL) *(Chapter 15, pg 393)***

System Administrators typically use three security modules:

1. System Properties > Security is the application module Admins used to set advanced security options. For example, this is where you can set the Security Manager Default Behavior where there are no ACLs on a table (explicitly set Deny Access or Allow Access). Wiki: http://wiki.service-now.com/index.php?title=Security_options
2. System Security > Access Control manages the Access Control Rules and Lists.
3. System Security > High Security Settings is the module Admins use to set tighter security options. Wiki: http://wiki.service-now.com/index.php?title=High_Security_Settings

- These GLOBAL settings have the following characteristics:
  - Maximum file attachment size in megabytes (no limit in base instance)
  - List of roles (CSV) - Default is public meaning all roles can create attachments
  - List of file extensions that can attached - No default file extensions listed; specify
- Cookies:
  Enable additional cookie security. If checked, strict session cookie validation is enforced. With V3 cookies enabled, additional security requirements are also enforced.
  Secure session cookie debugging: Check to enable extensive debug logging of secure session cookie operations. Works with the previous control in that it allows communication over a secure line.
- Access Control is a security rule defined and set at the row-level and at the column level and is executed when attempting to access any ServiceNow table. An ACL is a list of all the Access Controls for a table. Access Controls are defined by roles, conditional expressions and scripts. Each Access Control specifies Type of record or table, Operation being secured and Unique object identifier. Access Control rules are defined for and applied to a specific table so the ACL is within the context of the table and the type of data is stored. Most security settings are implemented using Access Controls.
  An Access Control consists of two core specifications- a description of the entity and operation being secured (either a table or a record), and a description of the rights required to access it.
  ACLs are set at the Row Level (access to the record) and at the Column Level (access to the field) and are used to manage access to tables, rows, and other system components.
  ACLs provide:
  ␣ A global security mechanism to restrict the read, write, create, and delete operations of rows and columns for ServiceNow table records.
  ␣ Built-in flexibility by defining different types of components to evaluate to true. ␣ Easier management by the Contextual Security Manager, so there is an awareness of

all ACLs when adding or changing ACLs.
Access Control Evaluation:

- Access Controls are evaluated from the specific to general, allowing access only if all conditions evaluate to true:
  - All Conditions evaluate to true
  - Script in the Script field returns true or sets the variable "answer" to true
  - User has **one** of the roles specified in the Requires role related list

  Evaluation order is important; use the Order field to influence the evaluation order. The ACL rule engine looks for an applicable rule which determines if the user can access the object. If the system finds two rules for incident.number, both rules are evaluated. If either is true, then the requested access is allowed. If a row level rule and a field level rule are in conflict, both rules must be met before an operation is allowed

- The Elevated Privilege Role (security_admin) is manually assigned and not inherited from any role. When a user is assigned a role that is an elevated privilege, a lock icon appears next to the user's name in the header
- Elevated privilege role allows administrators to work with security controls for the duration of the user's session. An elevated privilege sets the elevated_privilege field to true.

NOTE: Session timeout or log-out removes the elevated privilege role.
Thus the duration of the elevated role is only for the current session

4. **Describe the High Security plugin**

With the Aspen release, a significant number of new ACLs were added to tables throughout the system in support of the optional Platform Security Settings - High plugin, which includes a property to enforce a default deny security model. In the default deny model, if there is no ACL that grants access to a record, the user does not get access. On the other hand, default allow (the standard for instances created before this release) grants access if there are no ACLs denying access. Instances using a default deny model need additional ACLs where none existed before, since, without them, users might not be able to access required records

http://wiki.service-now.com/index.php?title=High_Security_Settings#Elevated_Privilege

5. **Describe features of contextual security *(chapters 15, pg 393)***

Learning Domain 3

1. **Define metrics and create reports *(Chapter 6)***

- The standard report types in Service now are: Pie Chart, Bar chart, List, Calendar, Pivot Table, Box Chart, Control Chart, Histogram, Line Chart, Pareto Chart, Trend Chart, Trendbox Chart
- The Reports Application is used to locate existing reports, and it allows you to generate charts from any data in the database. Available reports are divided into sections: Global reports, My saved reports and My group reports
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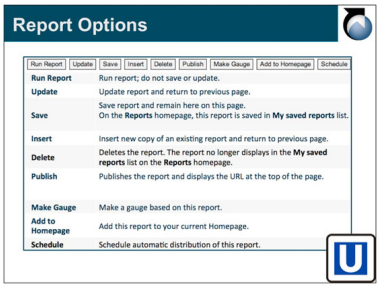


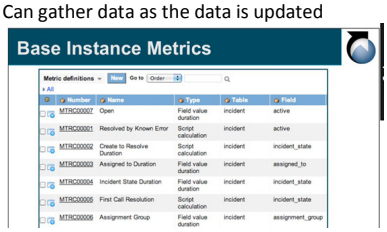
For more information on customizing homepages:
http://wiki.service-now.com/index.php?title=Customizing_Homepages

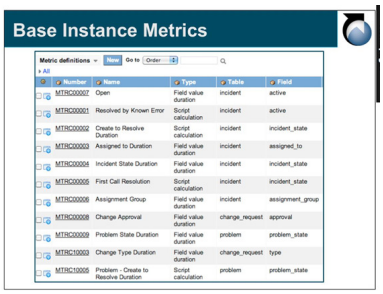
- Gauges report up-to-date information about current records that exist in ServiceNow tables. It's a "mapped" graphic image to a list of records specific to that piece of the graph

  A dropzone is an area on a content page or homepage where content can be added
- A metric is used to measure and evaluate the effectiveness of ITSM processes
  - Measure data overtime
  - Gather data as data is updated

  Metric Definition Plugin:
  http://wiki.service-now.com/index.php?title=Metric_Definition_Plugin
  Field value duration - A Field value duration metric can optionally specify a script. In that case, the script can terminate the processing of the metric if no further changes to the field value are expected. For example, when an incident's Active field is set to false. This is done in the script by setting the variable answer to false. The script can also carry out any other action such as closing the duration of other metrics defined on the same record.
  Script calculation - The script has access to the current row in the table (for example an incident) and the metric definition. The script can then perform any calculation and insert data into the Metric [metric_instance] table. The calculation does not have to result in a duration. It can calculate any type of value and store it in the metric instance value.
  The Custom Charts Plugin enables an administrator to create the following types of custom reports:
  - Combine reports that ServiceNow creates separately into a single chart, such as one that displays trends for open and closed incidents.
  - Combine data from outside the ServiceNow platform with internal data to produce a single chart.
  - Merge data from multiple tables in the platform to create a meaningful report.

  >
- A metric is used to measure and evaluate the effectiveness of ITSM process
  - Metrics measures data over time to show past history
  - Can gather data as the data is updated





- **Types of Metrics**
  - Field Value Duration measures a time interval from when a value in a field is achieved until it is changed
  - Script Calculation creates a metric instance using a script. The script does calculations and inserts data into the Metric [metric_instance] table

- Plugins
  - Plugins provide additional optional functionality that administrators can activate within a ServiceNow instance
  - Most plugins are published, meaning that administrators in the global domain can activate any published plugin

2. **Define Service Level Agreement (SLA), make changes and monitor actions in the SLA workflow *(Chapter 11)***

- A Service Level Agreement is a record in the SLA [contract_sla] table which defines a set amount of time for a task to reach a certain condition.
- If the SLA task does not reach the condition, the task is marked breached
- SLAs allow an IT service desk to track if their representatives are providing a specific level of service, and run reports on the success rates of the SLA actions.
- SLA Overview
  - SLA Definition - The record defining the conditions to trigger the SLA
  - Task SLA - Individual instances of the SLA associated with particular tasks
  - SLA Automation - The business rule and scheduled job that automates the SLA
  - SLA Workflow - The workflow driving events or actions based on the SLA definition

While each type of Service Level Agreement is defined differently, their basic structure in the tool is the same: they track things we want tracked.

- The Task SLA form is used to define Operational Level Agreements or Underpinning Contracts in exactly the same way as SLAs.
- The only difference between SLAs, OLAs, and Underpinning Contracts is the Type field on the Task SLA form. These SLA types basically all behave the same way.
- Changing the type field does not change the behavior of the Task SLA.

  - Operational Level Agreement (OLA) defines how departments work together to meet the SLA
  - Underpinning Contract is a type of SLA that defines and monitors the guarantees established with an outside supplier; it's a tool for supplier management. Goals of supplier mgmt include monitoring:
    - Reliability and cost effectiveness of outside suppliers
    - Adherence to schedule and contract commitments
  - SLA Workflow

    First, Wait 50% of the SLA duration
    After the 50% wait time, then the SLA will Notify assignee
    After the Notify assignee, wait 25% of SLA duration 6 hours
    Next, Notify assignee again
    Next, Wait 25% of SLA duration to 8 hours; breached the SLA Next,
    Notify the assignee and the Notify assignee's manager
    Finally, the SLA is at the End
  - SLA Form - Retroactive Start Field
    - When activated, works with the "Set Start to" field and calculates the start time to equal when the ticket was created

    Retroactive Start Example: A complaint is received saying that the email is down; an hour later the compliant becomes the mail server is down, but the start time is the same for both actions. Retroactive start must be activated to display the Set start to field and list of choices.

    SLAs are defined by the following conditions: a Start condition, a Stop condition and optionally a Pause condition
    Start Conditions
    - As soon as the start conditions are met (must be true), the SLA is triggered.
    - The incident must be Active.
    - The incident will not run if it is set to Closed.

    Stop Conditions
    - When the incident state is resolved.
    - The timer is not going to stop until the incident state is set to resolved.

    Pause Conditions
    - When the pause conditions are met, the SLA pauses its timing.
    - For example: you are waiting for user information, a problem, or evidence. Those conditions can pause or freeze an SLA. If you are waiting for a user to get back to you with information to resolve the issue, the clock is going to continue clicking, but the time will not count towards the SLA.

    SL

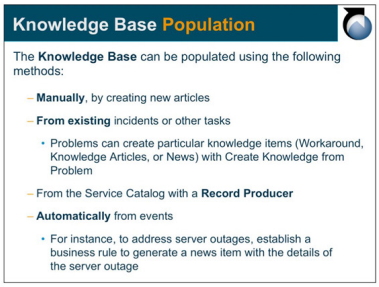
3. **Follow a notification back to the business rule *(Chapter 16)***

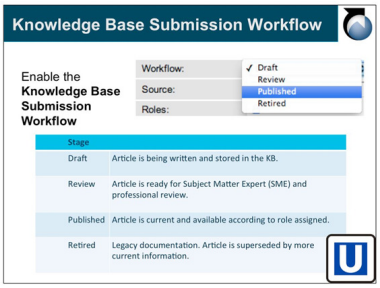
  - Notification is an email or SMS triggered by an event in the platform. For example: Notifications can be sent when an incident is opened on their behalf, assigned to them and/or closed or resolved
  - An event is a change that occurs in the ServiceNow platform. Events are defined in the Event [sys_event] table
    - Events are used to control email notifications for system activity

    Workflows have a "create event" activity before following the same flow. Email notifications are initiated by system events, which can be triggered by all types of user activity in database tables, from general updates to the selection of specific field values.
    Scripts and Business Rules add events to the Event Queue. After checking the Event Registry event [event] table, a notification is sent. The notification itself may use an email template.

- An inbound email action defines an action taken when an email is received by ServiceNow. Note Conditions must evaluate to true for the inbound Email Action to run
  - Inbound email actions include
    - Opening an incident (default)
    - Creating a problem
    - Creating a change Request
  - Inbound email actions are similar to Business Rules, because both use conditions and scripts. Check the email for a watermark that associates it with a task, and checks for other conditions. If conditions evaluate to true, the inbound email action performs its script. For emails with a watermark of an existing incident, the response email will update the new incident according to the inbound email action rules. Other inbound email actions could include creating a problem, change request, or a user; assigning tacks, and adding attachments to records.
    Each email watermark is evaluated for an incident:
    - If the email watermark is for an existing incident, notification scripts are run.
    - If the email watermark is not associated with an incident, a new task is created (default)

- A Business Rule is a control that applies permissions, sends notifications and triggers other processes when a record is displayed, inserted, updated, deleted or when a table is queried

4. **Define, access, search, populate and customize the Knowledge Base** ***(Chapter 4) Refer to this link:*** http://wiki.service-now.com/index.php?title=ITIL_Knowledge_Management
   - The KnowledgeBase is a repository used for the storage publication of important information that requires distribution within an organization
   - 

   - Knowledge Base Structure
     - Topic - The highest level of hierarchy
     - Category - The second level is a category
     - Articles - Accessed directly from a topic box or from within the category list
     - 

     - If the Knowledge Base is public, a user does not have to log in to access the article information
       - Public users cannot see articles that are protected with roles, but they can see unprotected articles
       - Users can navigate to a public KB by using the /kb_home.do address
       - The Search Knowledge icon is sometimes the "blue book icon

Learning Domain 4

1. **Create a Service Catalog item with record producers and variables** ***(Chapter 9)***
   The Service Catalog is a robust ordering system for services, hardware and software.

- The official definition of an ITIL Service Catalog is:
  - (ITIL Service Design) A database or structured Document with information about all Live IT Services, including those available for Deployment. The Service Catalogue is the only part of the ITIL Service Portfolio published to Customers, and is used to support the sale and delivery of IT Services. The Service Catalogue includes information about deliverables, prices, contact points, ordering and request Processes
  - Service Catalog is a central repository of goods and services that an IT service desk provides for users
    - An ordering system for goods and services
    - "One stop shopping" for users
    - Provides access to the Service Desk
    - Help and Training Portal
  - Categories define the organization for Service Catalog items, and each catalog item or subcategory appears as a single item within a category. In Service Catalog, Employee Self Service (ESS) users can order pre-defined, bundled goods and services from the IT organization, or other departments. ITIL users or Administrators see additional choices; Administrators can view all the Service and Item categories. Top Requests is a dynamic category displaying the five most ordered items.

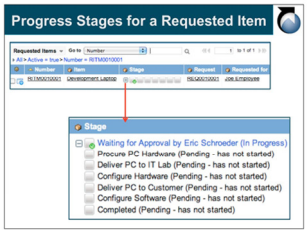
- A record producer is an interface used to create Service Catalog records. It is an alternative to lists and forms.
- Record Producer allows ESS users to add information to the database using the Service Catalog front end and provides a user-friendly alternative to the regular form interface
  Record Producers ask users a series of questions to assist them in providing the correct and relevant information on forms. Record producers populate record data using variables and scripts. You can ask users a series of questions, provide a single point of entry to create an incident or request.

A record producer allow customers to add information to the database using the service catalog front end. It provides a user-friendly alternative to the regular form interface for ESS users. Record Producers populate record data using variables and scripts.
A Record Producer asks questions that need to be filled out for a specific request, then submits the answer to those questions to an official Change form automatically calling the proper template.

- An Order Generates a Request - When a user orders an item from the catalog, a request is generated to keep track of the specific order
  When a user clicks the Order Now button, the following things happen:
  1. The request is generated and given a REQ number. [Request - REQ (Number)]
  2. Each item in the order is assigned a RITM number. [Requested Item - RITM (Number)]
  3. For each Requested Item, a set of Catalog Tasks are created.
  4. Each task is assigned a Catalog Task number [Task (Number)]
  5. Each task is assigned an Assignment Group within the Workflow (formerly called the Delivery Plan or Execution Plan).

- Reqnnn: Request number
- RITMnnn: Requested Item - Within a request generated from a catalog order each discrete item ordered is given a specific "Requested Item Number" known as an RITM

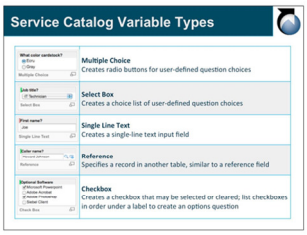
Employee Self Service Users – Can only access Service Catalog through the Self Service application.
ITIL Users – Access Catalog through the Service Catalog application, but can only see Open Records and Requests, Items, and Tasks.
Administrators – Can see everything and access Catalog through the Service Catalog application:
Catalog Definitions Catalog Policy Catalog Variables including all their sections and topics



- Service Catalog Major Components
  - Record producers build the system components associated with the request
  - Items are the building blocks of the Service Catalog
  - Variables provide questions to help the requestor specify what item, option or service to order
    - Service Catalog Variable Types are Multiple Choice, Select Box, Single Line Text, Reference and Checkbox
  - Order Guides provide easier ordering by bundling items
  - Workflows communicate the stages of the approval process to the requestor

2. **Order Items using an Order guide and track requests *(Chapter 9)***
   - Once an item is built, you can:
     - Publish the item to the Service Catalog
     - Group with other items into a bundle
     - Use an Order Guide to assist users in determining what items they actually need
     - Show users relevant questions/choices regarding service catalog items
   - To create a new Item or Modify an existing Item go to Service Catalog>Maintain Items
   select Maintain Items to begin the process to create a new item or modify an existing item.

- Service Catalog Variables
  - Options to tailor a catalog item to the customer's needs
  - Definitions of available item options using question choices
  - Defines the questions to ask the end user ordering the catalog item
  -



    - Variable Set is a modular unit of variables that can be shared between catalog items. Define it once and then use it in multiple places
  - Order Guide provides the ability to order multiple related items as one request
    - Best Practices Define a order guide to assist customers in ordering a complete set of needed items
    - Group items into an order guide to help users see item relationships
    - Questions can be used to present item options; present users with only relevant questions and choices at the appropriate time in the ordering process

3. **Create, modify, monitor and publish workflow for a Service Catalog item with approvals and tasks *(Chapter 9 & 10)***

Learning Domain 5

1. **Define customization and customize screen components *(Chapter 13)***
   - A customization is a change made to a table, form, field, business rule, client script and/or view
   - ServiceNow does not consider the following as a customization: New records, New users and groups, Modified Cis and Schedule
2. **Describe the process to create, complete, retrieve, preview and commit Update Sets *(Chapter 14)***
   - An Update Set is a group of customizations that can be moved from one instance to another

- Allows administrators to group a series of changes into a named set and then move this set as a unit to another instance
  Basically an Update Set record is a "point in time" XML snapshot of the record. An update set works by writing changes from tracked tables to the customer update tables [sys_update_xml].
- Allows customizations to be developed in one instance (DEV) and then be applied to another instance (PROD)
  An Update Set works by writing every change (to tracked tables) to the Customer Update [sys_update_xml] table. Use an Update Set to migrate your code.
- ***You CAN Customize - Table, Form, Field, Business Rule, Client Script and View***
- You CANNOT customize - New Records, New users and groups, modified Cis, Schedules
- Homepages must be manually added to an Update Set
- You can now compare versions and revert changes to objects on a table with the update_synch attribute. The Versions [sys_update_version] table has been added to support this feature
- The preview function now detects a Problem if an updated object does not exist on the local system or in the current update set. The Update Problems [sys_update_preview_problem] table has been added to support this feature
- The Baseline update set has been removed
- A new access control rule restricts the ability to delete update sets
- Update Sets can be merged.

  To Merge Update Sets:
  Navigate to System Update Sets > Merge Update Sets. Select the Update Sets to be merged from the Available side of the slushbucket (List Collector), and move them to the Selected side. Type in a name for the new Update Set (which will contain the merged updates). Click Merge selected.

  If both Update Sets have an update for the same object (for example, both Update Sets modify the Incident form), the most recent change will be the one moved to the new merged Update Set. The other update will be left in its original Update Set. Once a merge is performed, the other Update Sets remain, and if there were collisions, the duplicates remain where they were.

  This provides a reference for what got moved and what did not. After merging and validating, it is a good idea to delete or empty the original Update Sets. The system will not remove an update from an Update Set unless it was the one chosen for the merge.

- Process to Create an Update Set
  - Create and Update set on the DEV instance
  - Make the customizations on the DEV isntance
  - Mark the Update Set as Complete
  - Logon to the PROD instance and Retrieve, Preview and Commit the Update Set to bring the completed Update Set over to PROD
  - Apply the Update Set and test the customizations

  Update Sets allow you to move just configuration changes from the Development instance to the Production instance.
  TIP: To clearly differentiate each instance, you may want to change the colors of your Development instance to NOT match the Production instance. This can help prevent confusion, so you do not make changes in the Production instance

3. **Identify good practices, recommendations and common mistakes regarding upgrades, update sets and customizations *(Chapter 13 & 14)***
   - Manage Changes and Communicate Effectively
     - Have a plan & identify a common migration path
     - Know what's being developed & make sure the Administrators are aware of developments
   - Include many changes in one set
     - Not: "Many changes, many sets"
     - Group like items in a small manageable set
     - Use Preview before moving the Update Sets to compare potential conflicts
   - To Change the Name of Your Instance: Go to System Properties>System
   - To Change Your Logo: System Properties>My Company; Click the Your name here record
4. **Describe the ServiceNow Release process to a customer (Chapter 18)**

- When a new build is created and "assigned" to your instance, your instance automatically downloads and applies the assigned WAR file approximately an hour after the assignment. After the WAR has been unpacked, Tomcat is restarted, then the upgrade process begins to apply the changes into the database.

Release Type	Scope	Upgrade Policy
Feature Release	• Introduces new features • Includes all available fixes to existing functionality • Is production-oriented	• Applied automatically during the rollout period unless a customer pins the instance • Customer receive advanced notice
Patch Release	• Supports existing functionality with a collection of problem fixes • Includes all previous fixes for a given release	• Applied as needed on a per customer basis • Patches are for the current and previous feature release only
Hot Fix	Supports existing functionality for a specific problem s	• Applied as needed on a per customer basis • Fixes are for the current and previous feature release only

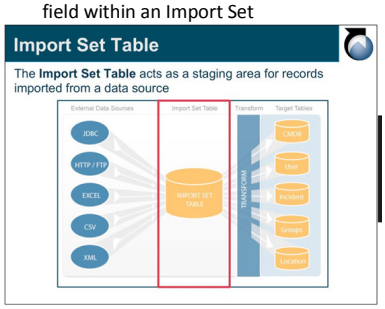
ServiceNow has introduced a new naming convention based on an alphabetical system using names of world cities. The Aspen release introduced the new naming convention
Customers and partners are notified by email 30 days prior to the start of the rollout period for an upgrade
Base state is the state of an instance provided by ServiceNow before any modifications have been made by the customer. Supported customer customizations are preserved by the upgrade process by the following mechanism:

- When an object is customized, a corresponding record is added in the Customer Updates [sys_update_xml] table. This table maintains the current version information for all objects that have been customized.
- To prevent customizations from being overwritten or broken by system upgrades, the upgrade process automatically skips changes to objects that have a current version in the Customer Updates table.
- Any baseline script that is user modified will NOT get upgraded and there is no way to recover the original script; it is always tagged as a modified script.

- Under System Diagnostics, the Upgrade History module tracks every upgrade made to the system.

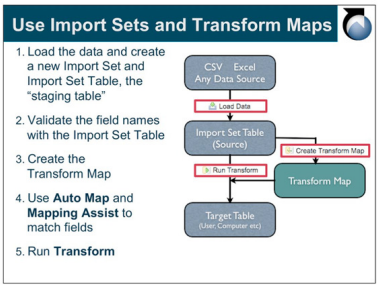
- Information about what the system actually decided to do with a particular record is kept
- You can configure your instance to send an email at the end of the upgrade
  - Navigate to System Policy > Notifications and locate the email notification named System Upgraded
  - Update the notification by adding the appropriate User to receive an email
  - NOTE: This is not done in the System Logs section :(

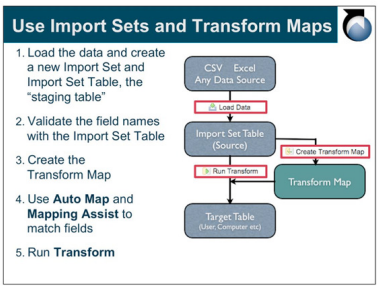
Learning Domain 6

1. **Define an Import Set *(Chapter 7)***
   - An import set is a tool used to import data from various data sources and map the data into ServiceNow tables. Import sets provide a mechanism to pull data into ServiceNow. Import Sets store data in Import Set tables. Any user logged in with the Admin role can manage and set up Import Sets. The import process skips records when the data in the instance matches the data being imported.
   - Import Sources include:
     - Files (supported file types): Excel, XML, CSV
     - Network (supported online data retrieval methods) HTTP, FTP, JDBC
     - Import destinations: ␣ Any table in ServiceNow is a potential destination for transformation of an Import Set ␣ Any field within a table can serve as a potential destination for transformation from a field within an Import Set
   - 

   - The Import Set Table acts as a staging area for records imported from a data source
   - Transformation Mapping – Transform Maps provide a guide for moving data from Import Set tables to “Production” tables; field mapping provides direct field to field data moves. Transformation mapping is flexible; the specification can be as simple as having the application auto-match field names from source and destination, or mapping can use advanced logic and the full power of the ServiceNow scripting environment. A single Import Set field can also be mapped to multiple fields on a production table
   - Data Sources are records in ServiceNow that contain information regarding an Import Set data source. A data source can be from a file, an LDAP connection or a JDBC connection.
     Once defined, it is possible reuse existing Transform Maps for mapping data from an Import Set to a ServiceNow table. In the System Import Sets application, the Transform Maps module allows you to define destinations for imported data on any ServiceNow tables
   - Integration Overview
     - ServiceNow integrates with many third party applications and data sources
     - Integration is the exchange of info between company applications and a ServiceNow instance
     - The most common integrations are with CMDB, Incident Management, Problem Management, Change Management, User Administration, and Single Sign-on (SSO). A variety of techniques can be used. ServiceNow has performed the following integrations with enterprise systems and platforms: integration technologies, login, SSO, user data, event-based or batch load data and process, user interface integration and integration between ServiceNow instances.
       Integrations can be done before and after the ServiceNow Go Live. LDAP integrations are typically done before the Go Live, but can be done after. Data and process integrations can be categorized as either event-driven or batch-loaded. Batch or a data-load based integration is typically done with a scheduled Import Set where mappings and scripts are defined to gather data from a variety of data sources and transform them into table records.
       Event-driven integration records typically use an external queuing table called the ECC Queue
   - Best practice note:
     Before importing any data, it is important to understand what data you are bringing in and where that data should go. You should “scrub” the data before you import it since bad data will complicate things later in the import and transform processes. Extra time spent planning and scrubbing data before import will save time and potential problems later.

2. **Load data and create a Transform Map *(Chapter 7)***
   Data Sources - Files can be local and uploaded from the browser or can be accessed by defining a remote data connection as the file retrieval method. When using Import Sets to map data from one ServiceNow table to another it is not necessary to define a data source, rather this can be done simply by using the Import Set mapping tools.
   Transform Maps - A transform map matches fields from an import set to fields in a single destination table. A single import set field can be mapped to multiple fields in the destination table. When creating a transform map, the automap feature can be used to match fields, or scripting can be used for advanced logic. Once defined, a transform map can be reused, and multiple transform maps (each for a specific table) can be applied to an import set in the order you specify.
   Scheduled Imports - If a remote data source is chosen then it will be refreshed via the remote connection prior to the import operation





Coalesce- In an import coalescing on a field (or set of fields) means the field will be used as a unique key. If a match is found using the coalesce field, the existing record will be updated with the information being imported. If a match is not found, then a new record will be inserted into the database

ADDITIONAL LEARNING

Scripting Information:

Client Script Types

3.1 onLoad() Scripts

An onLoad() script runs when a form is first drawn and before control is given to the user to begin typing. Typically you use an onLoad() script to perform some client side manipulation of the document on screen.
An onLoad() script **must** contain a function named **onLoad()**. Otherwise it's entirely up to you what your script does once it gets to the client.
For example here's a trivial onLoad() script that pops up a dialog that says "Loading ..." while the page loads.

```
function onLoad() {
  alert('Loading ...');
}
```

3.2 onSubmit() Scripts

An onSubmit() script runs when a form is submitted. Typically you use an onSubmit() script to validate things on the form to make sure the submission makes sense. As such, onSubmit() scripts can potentially *cancel* a submission by returning *false*.
An onSubmit() script **must** contain a function named **onSubmit()**.
For example here's an onSubmit() script that prompts the user to confirm that he really wants to submit a priority one ticket. If the user clicks cancel at the confirmation dialog box, the submission will be canceled.

```
function onSubmit() {
  var priority = gel('incident.priority');
  if (priority && priority.value == 1)
  return confirm('Are you sure you want to submit a priority one ticket? The CIO will be notified!');
}
```

The important thing to remember here is:
To stop form submission, return false from your onSubmit() script

3.3 onChange() Scripts

Unlike onLoad() or onSubmit() scripts, onChange() scripts apply to a particular widget on a form, rather than to the form itself. They are fired when a particular value on screen changes.
An onChange script **must** contain a function named **onChange()**.
All onChange() scripts are called with three parameters:

- control -- the DHTML widget that just changed
- oldValue -- the value of this widget before the change
- newValue -- the value of this widget after the change
- isLoading -- identifies whether the change is occurring as part of a form load or not

For example, here's an onChange() script that notifies the user whenever they change the short description field on a form.

```
function onChange(control, oldValue, newValue, isLoading) {
  alert('you changed short description from ' + oldValue + ' to ' + newValue);
}
```

To prevent an onChange() script from running when the form loads, add the following to the top of the script.

```
if (isLoading) {
  return;
}
```

3.4 onCellEdit() Scripts

Scripts can be defined as **onCellEdit** to run on the client side when the list editor interacts with a cell. This option is available with the Aspen release.

> **Note:** *onCellEdit() scripts do not apply to embedded lists.*

An onCellEdit script **must** contain a function named **onCellEdit()**.
An onCellEdit script takes the following parameters:

- **sysIDs** - The sys_ids of all item(s) being edited.
- **table** - The table of the item(s) being edited.
- **oldValues** - The old values of the cell(s) being edited.
- **newValue** - The new value for the cell(s) being edited.
- **callback** - A callback that will continue the execution of any other related cell edit scripts. If 'true' is passed as a parameter, then the other scripts are executed or the change is committed if there are no more scripts. If 'false' is passed as a parameter, then any further scripts are not executed and the change is not committed.

Example:

```
function onCellEdit(sysIDs, table, oldValues, newValue, callback) {
  var hasDifferentValues = false;
  for (var i = 0; i < oldValues.length; i++) {
    var oldValue = oldValues[i];
    if (oldValue != newValue){
      hasDifferentValues = true;
      break;
    }
  }
  var success = hasDifferentValues && performSomeFurtherValidation(sysIDs, table, oldValues, newValue);
  callback(success);
```

}

Workflows: A workflow is a virtual representation of tasks consisting of connected steps planned out in a sequential manner

- Service Catalog general workflow stages
  - Waiting For Approval
  - Fulfillment
  - Delivery
  - Completed
  - (or Request cancelled)
- Activities are the workflow blocks that organize the individual actions the workflow performs as it runs.
  - Approvals allow workflows to generate and manage approvals while driving a record to fulfillment
  - Conditions are activities available for a workflow
  - Notifications allow workflows to notify users of events that occur during the workflow
- **Notifications**

  A notification is an email or SMS message that is triggered by an event in the platform
  An event is a change that occurs in the ServiceNow platform. Events are used to control email notification for system activity
  An Inbound Email Action defines an action taken when an email is received by ServiceNow. Conditions must evaluate to true for the inbound Email Action to run

  SOCIAL IT COMPONENTS
  - Chat - Instant messaging provides real-time text comm between users
    - By default a user can read the chat messages for a room if the room is public and the user is a member of the room
    - Defaults can be changed by updating the chat_messages_read Access Control on the Chat room {chat_room} table
  - Chat Status Icons *[Similar to MS Lync]* -
    - Online
    - Away
    - Away with a message: In a meeting, On the phone, Out to lunch
    - Invisible
    - Offline
  - Help Desk Chat - Communication between users and Help Desk staff
  - Live Feed/Company Feed - User messages, links and images from a searchable knowledge source for sharing information within the company
  - In the incident record "Related Links" section click "Create or Join Chat Room"
  - Help Desk Chat can be accessed from the ESS portal
  - To remove a message from all feeds:
    - Navigate to Social IT > Feed Administration > Messages
    - Open the message you want to remove
    - In the "State" field, select "deleted
    - Click Update