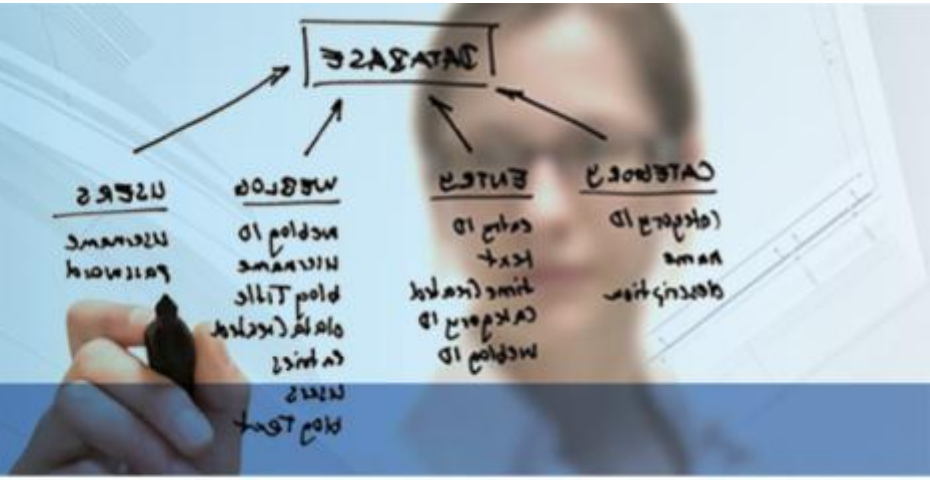
Microsoft | Services

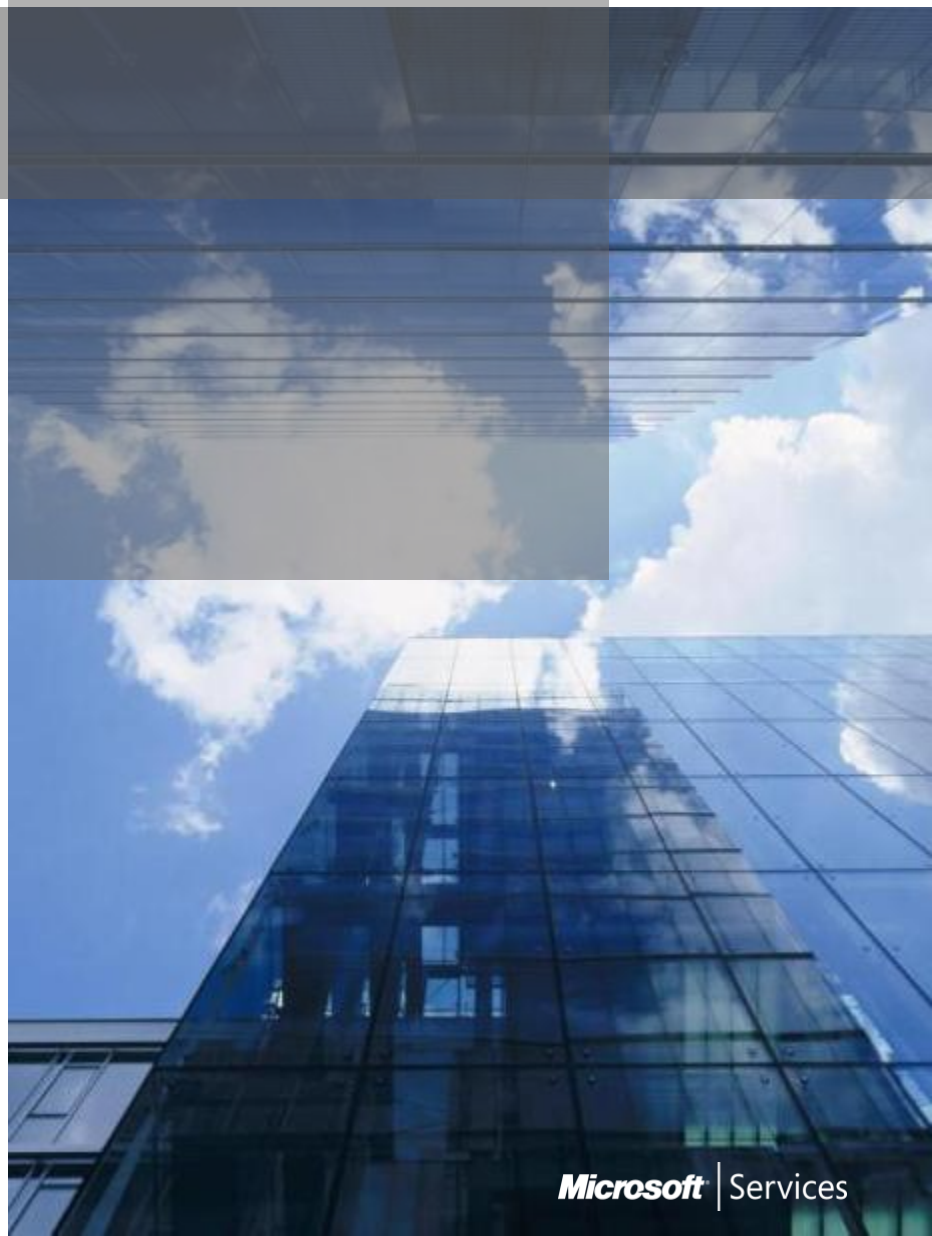
Customizations



STRATEGY ■ CONSULTING ■ SUPPORT

Customizations

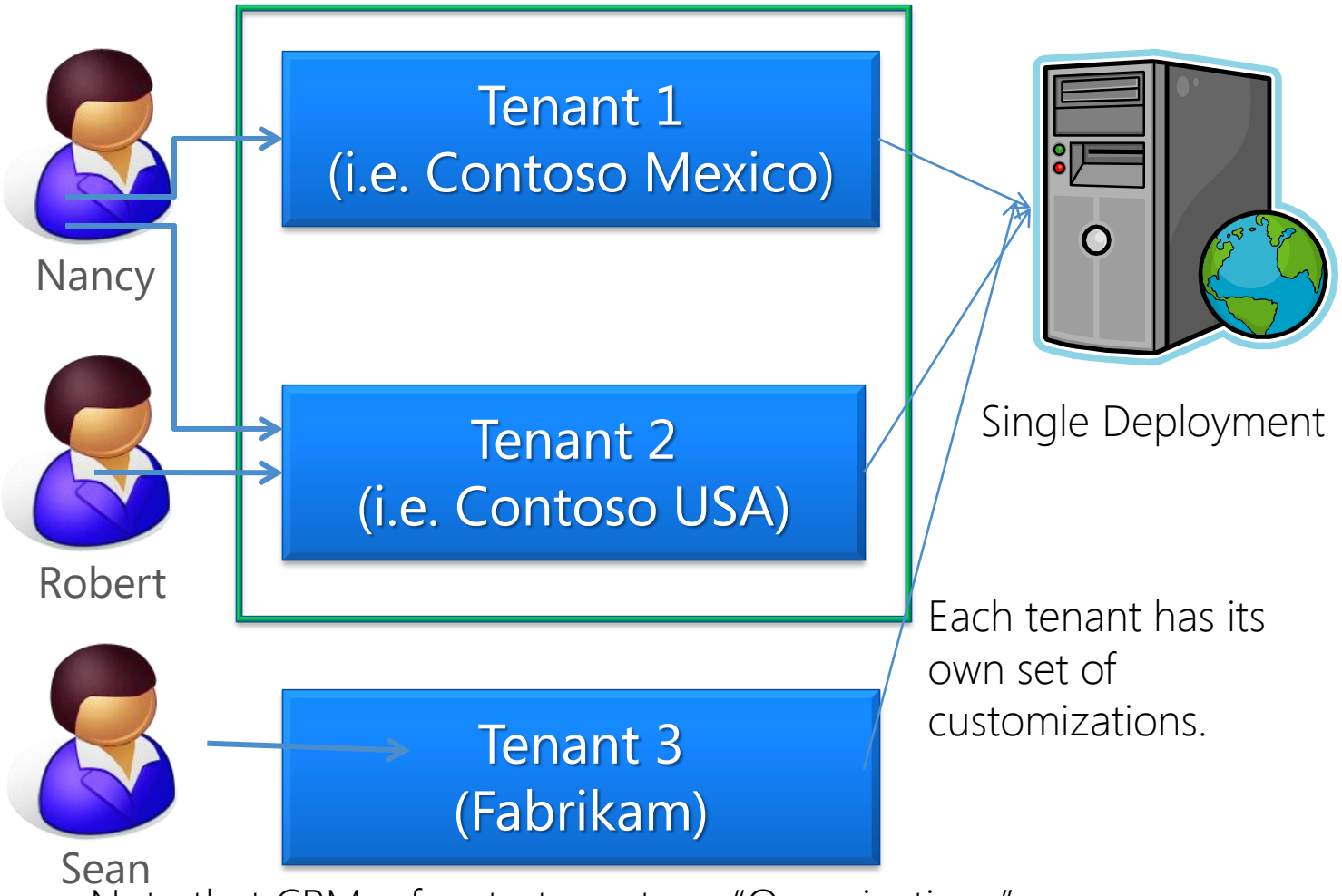
- Entities
  - Fields
  - Forms & Views
  - Charts
  - Relationships
- Dashboards
- Options Sets
- Web Resources
- Solutions
- SiteMap
- Mobile Express
- SDK



What Can I Customize?

- Schema:
  - Entities
  - Fields
  - Relationships
- User Interface
  - Forms & Views
  - Charts
  - Navigation

Multitenant Customizations



Note that CRM refers to tenants as "Organizations"

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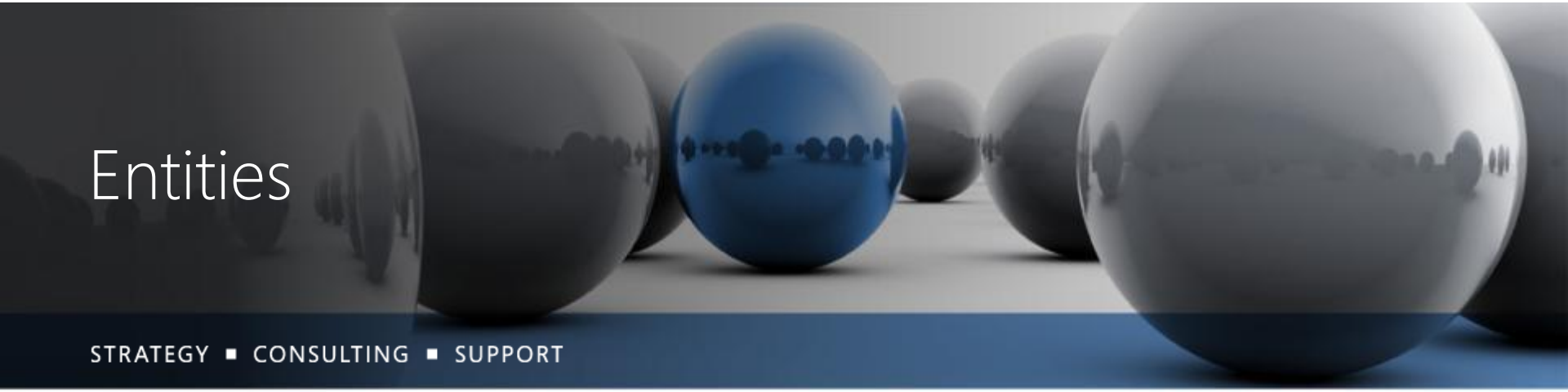
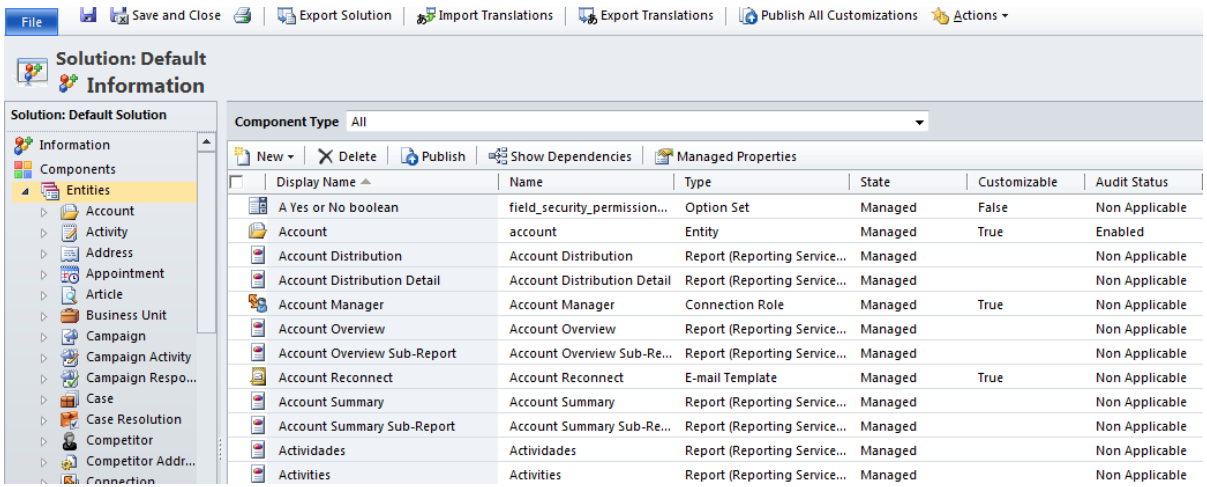


Entities

STRATEGY ■ CONSULTING ■ SUPPORT

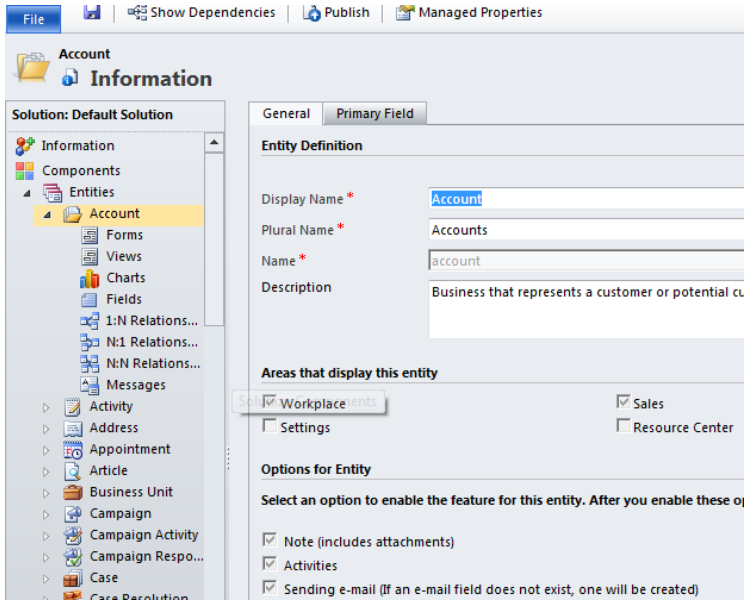
Entities Area

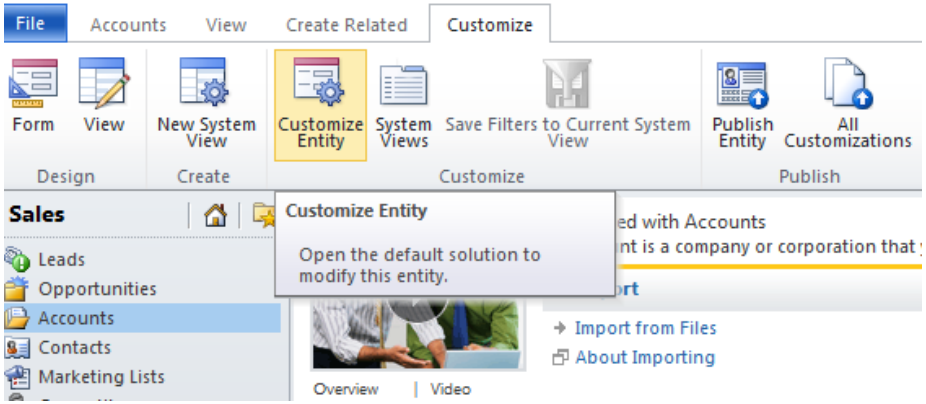
- Access point for Entities
- Overview of certain properties
  - ex. Audit Status & Customizable
- Deleting Entities (and attributes) will result in lost data!
- Managed Properties



Individual Entities

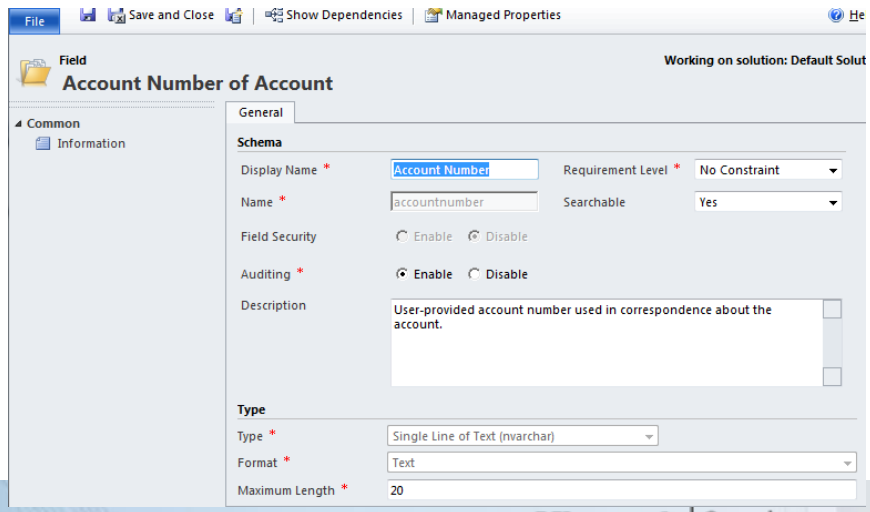
- Structure used to store and manage data (ex. Account)
- Access through Settings, or from inside the core app
- Primary Field (business required)
- Publish after changes
- Custom entities can be defined as Activity entities





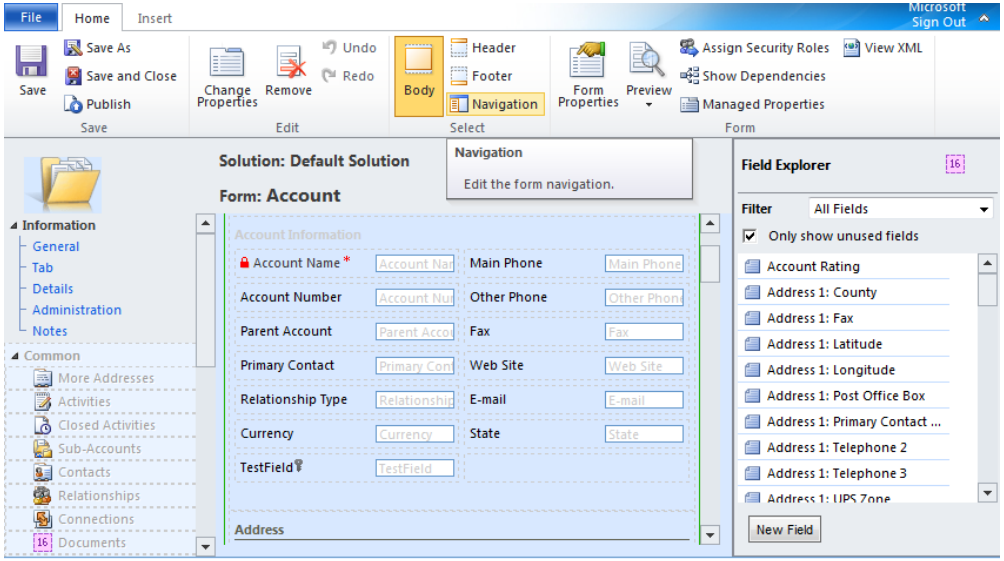
Fields

- Fields are available to add to the entity's form
- Important fields
  - Requirement Level
  - Searchable
  - Field Security
  - Auditing
  - Type
- Precision option available when Type = Money
  - Pricing Decimal Precision
  - Currency Precision



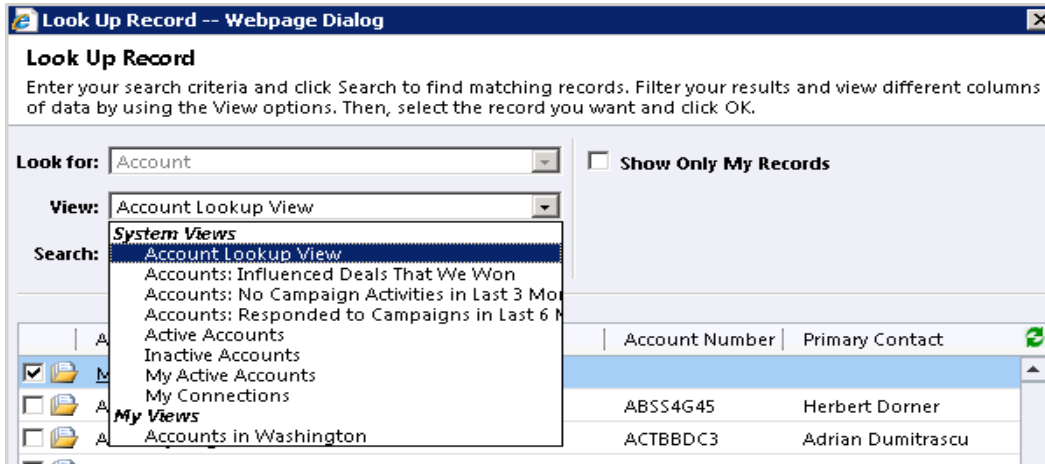
Forms

- Form Design
  - Drag & drop fields
  - Sub-Grids
  - Side tabs
  - Add new fields
- Field & Form Properties
- Header/Footer
- Navigation
  - Rename tabs
- Form Assistant
  - Available for Case, Product, Service Activity



Filter Lookups

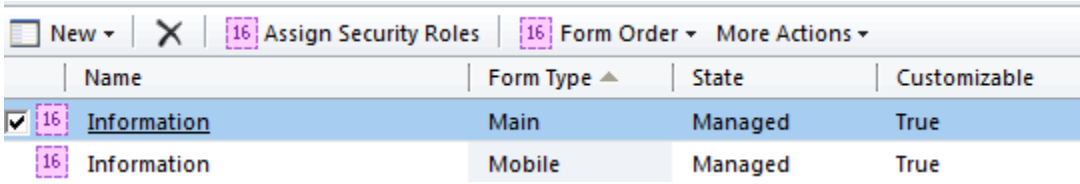
- Lookup view selector to filter results by view
  - Show Only My Records option available



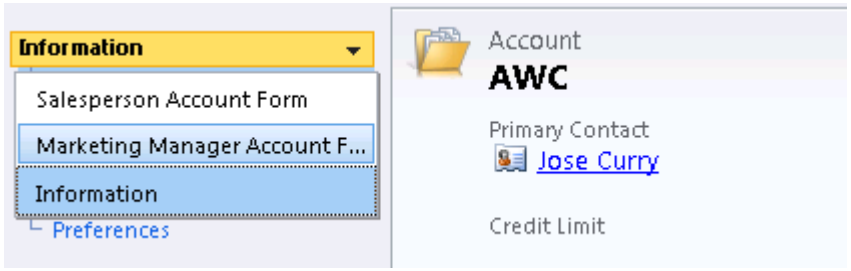
- Quick Find
- Related Record Filter
- Runtime Lookup View Filtering

Forms – Managing Multiple Forms

- Multiple forms per entity available
  - Ex. General Form and Salesperson Account Form
- Forms assigned to all, or per security role
- Form Types: Main or Mobile

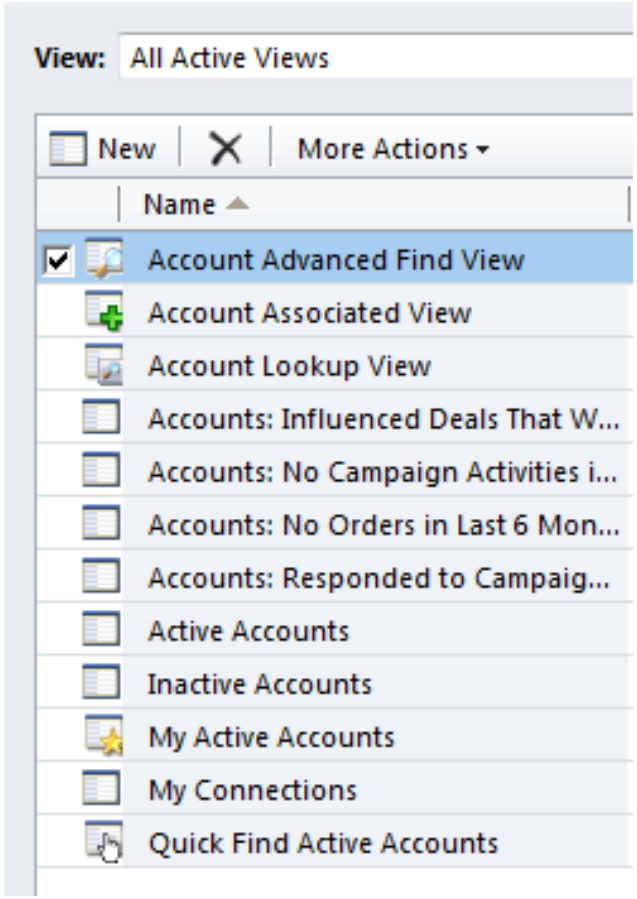


- Fallback forms
- User's can have more than one form assigned



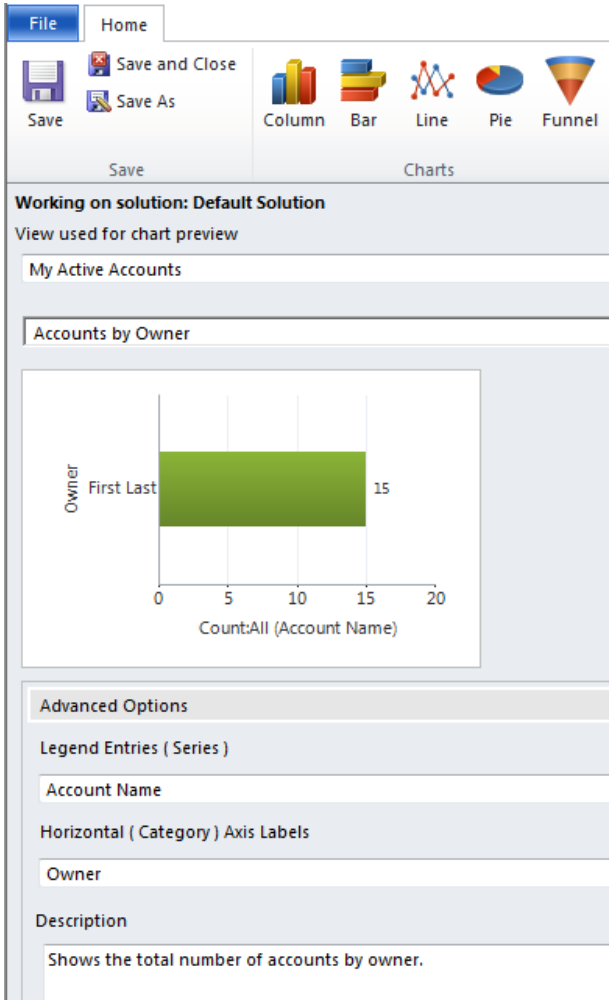
Views

- View Types
  - Advanced Find Views
  - Associated Views
  - Lookup Views
  - Default Public View
  - Public Views
  - Quick Find View
- Other
  - Personal views (can be default user views)
- Add columns
  - Related entities can be added



Charts

- Exposed at the right or top of grid
- Chart Drilldown
- Customizable
  - User Charts
  - System Charts
- Chart Types
  - Column
  - Bar
  - Line
  - Pie
  - Funnel



Relationships

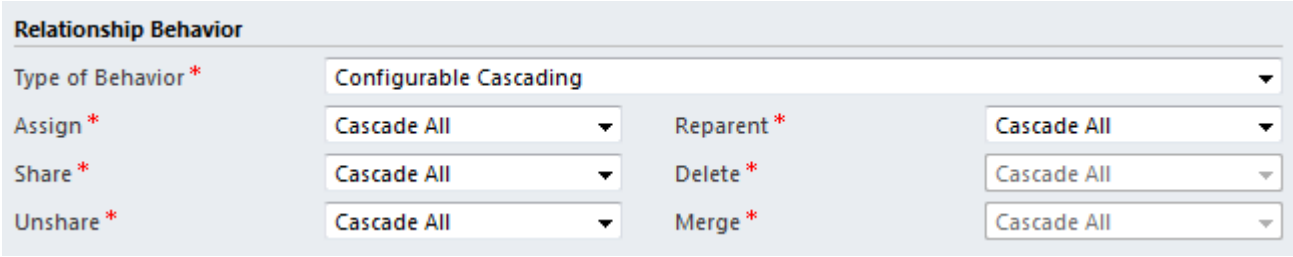
- Relationship Types
  - 1:N
  - N:1
  - N:N
- System Relationships
  - Example: N:N User to Account
- Self-referencing
  - Example: Case / Sub-Case
- Many to Many (N:N)
- Multiple relationships between the same entities
  - Bank Account : Primary Contact and Secondary Contact

Relationships

- Customizable (if Type of Behavior <> System)
- Relationship Behavior (per relationship)
  - Parental
  - Referential
  - Referential, Restrict Delete
  - Configurable Cascading

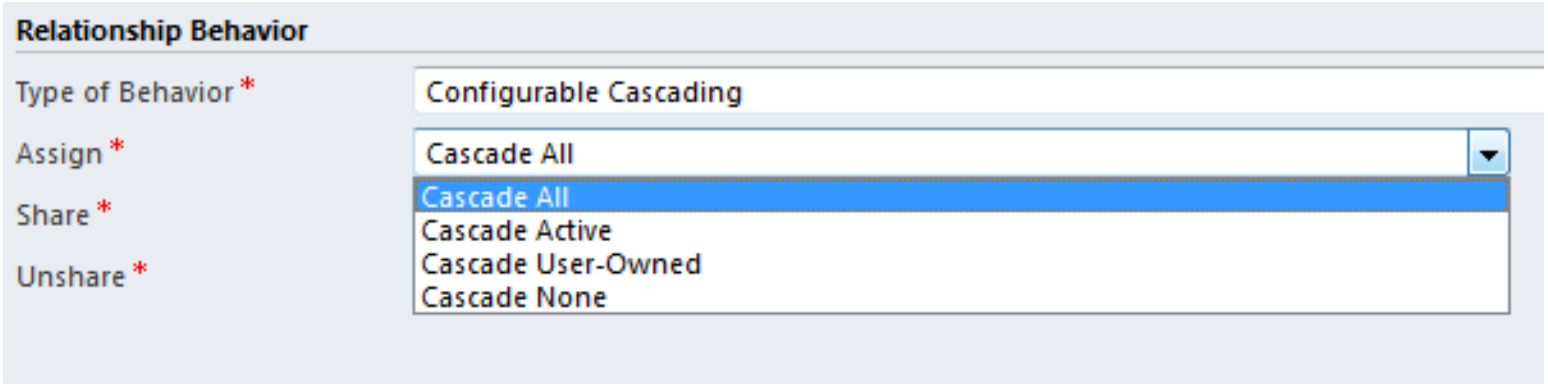
Relationships

- Behavior Types (Configurable Cascading)
  - Assign
  - Share
  - Unshare
  - Reparent
    - Can provide automatic share rights
  - Delete
  - Merge



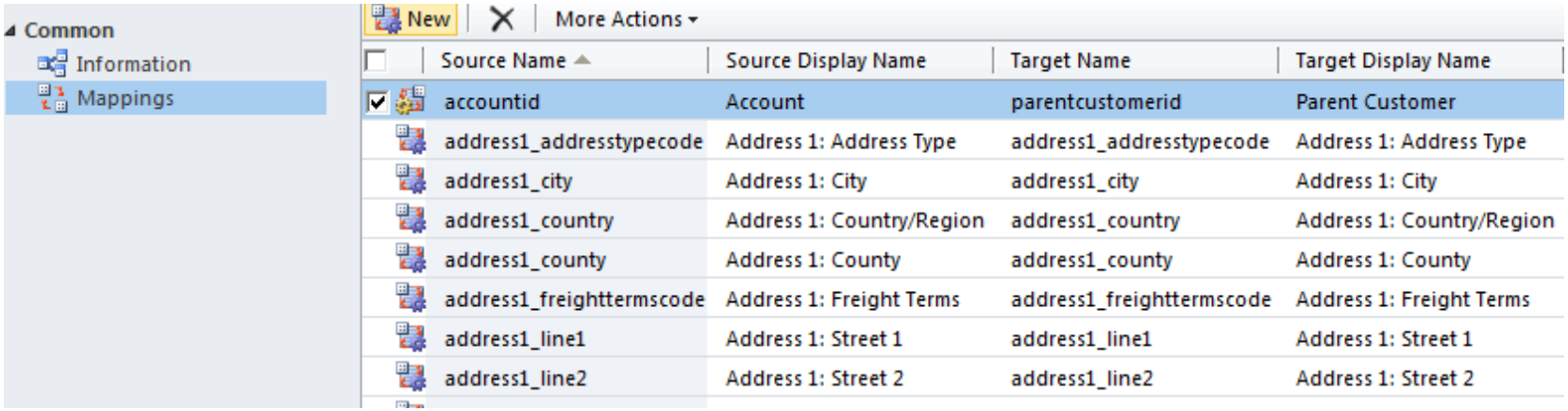
Relationships

- Cascade Levels
  - Cascade All
  - Cascade Active
  - Cascade User-Owned
  - Cascade None



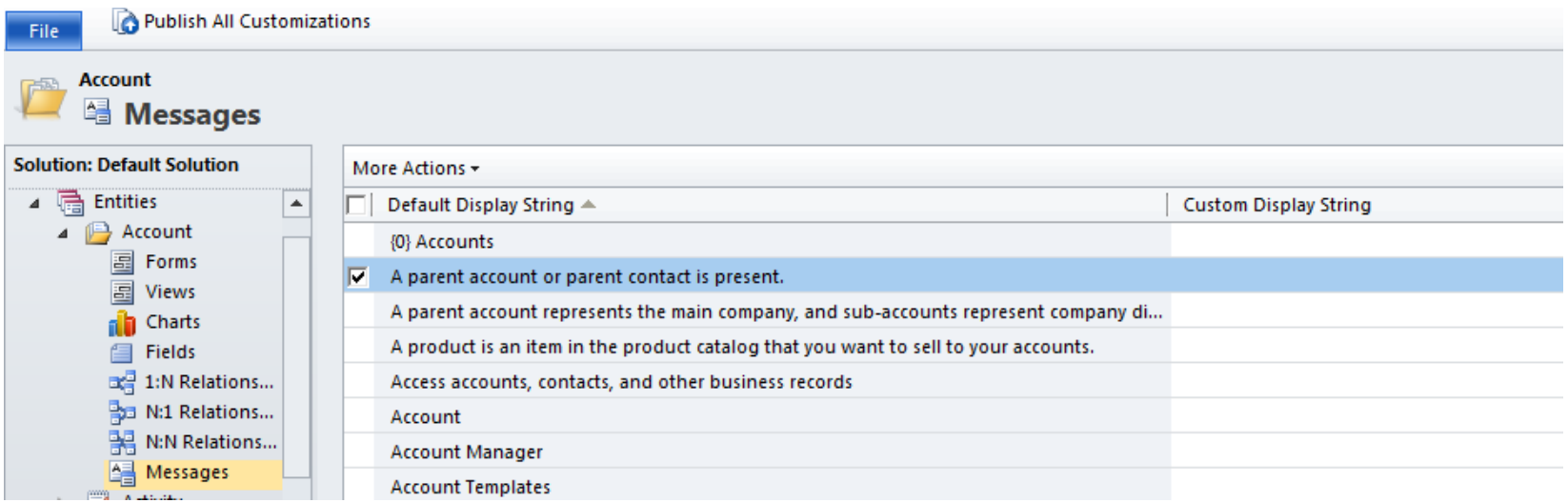
Mappings

- Allows data to flow to related entity
  - Ex. Account address to related contact address



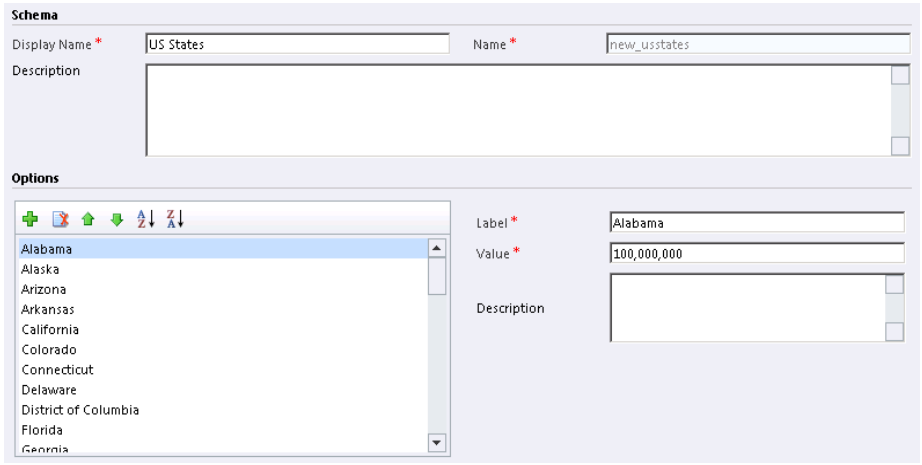
Messages

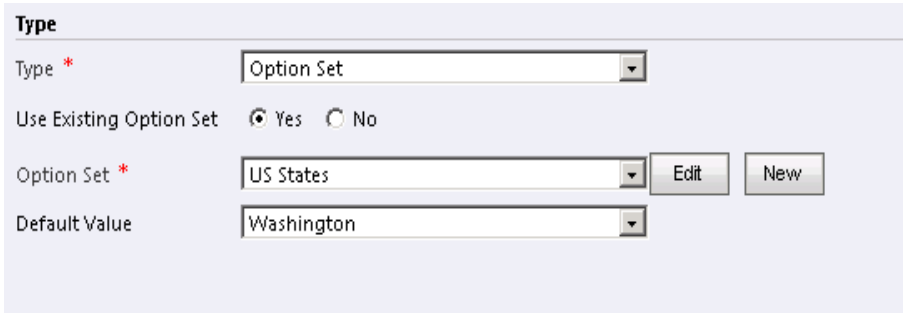
- Allows you to change messages displayed when the business entity or business field display names have been changed.



Global Option Sets

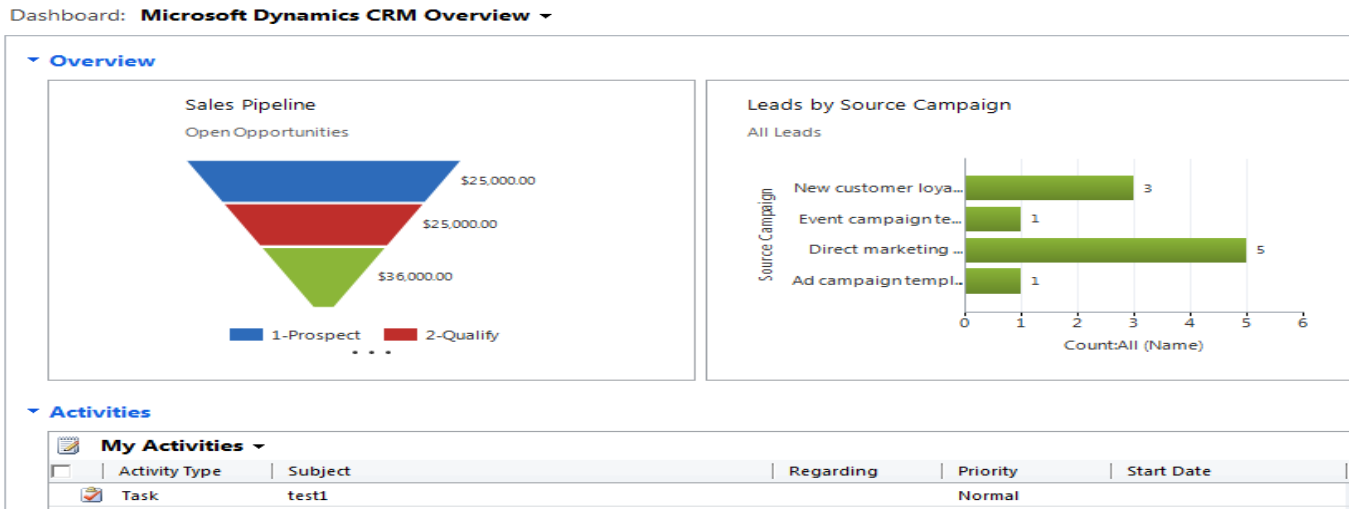
- Option sets are picklists
- Global Option Sets are sets of values that are available to be re-used across entities





Dashboards

- Collection of components used to present data from multiple entities
  - Charts, lists, web resources, iframes
- Dashboard Types
  - User
  - System
- User can select default dashboard



Web Resources

- Store and use common types of web content
- Allows for easy reuse of code, images, and other files
  - Ex. jscript
- Web resources can be used within:
  - Forms
  - Sitemap
  - Ribbon
  - Solutions framework
  - Microsoft Dynamics CRM for Microsoft Office Outlook with offline access (automatic synchronization)
- More within the CRM SDK section

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Solutions

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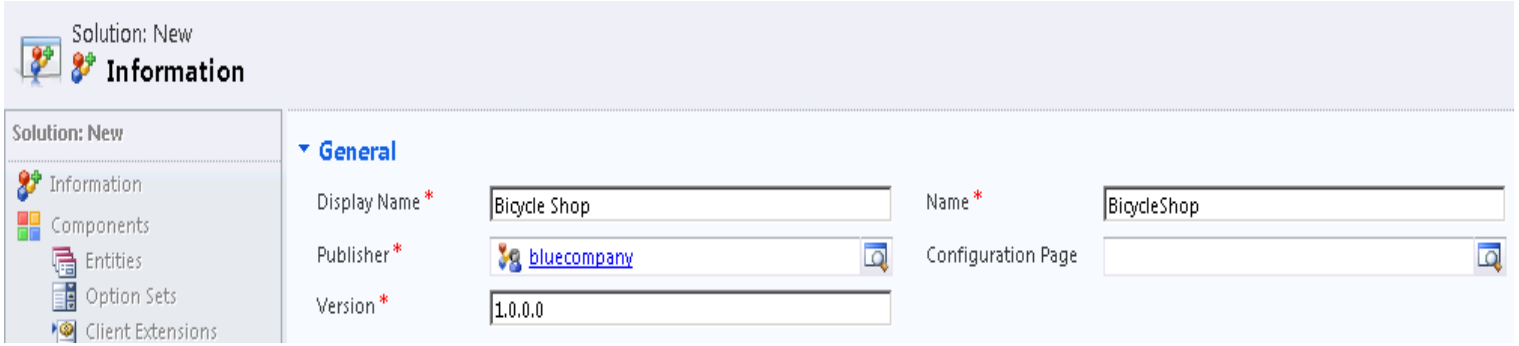
Solutions

- Used to author, package, and maintain a single unit of software that extends your CRM implementation
- Solutions are not required
  - Possible to modify default solution by:
    - Settings – Customizations – Customize the System
- Solution Publisher
- Export as Unmanaged or Managed



Unmanaged Solution

- When solution is unmanaged, it can be modified.
- Container that holds references to other system components
- Multiple unmanaged solutions is possible

Managed Solution

- Designed for final distribution of components
- Differences from Unmanaged solution:
  - Managed cannot be modified once it is imported
    - Unless Managed properties have been allowed
  - Managed cannot be exported after it's been imported
  - Deleting a managed solution will uninstall all of the solution components
    - All custom attributes or entities part from the solution would be deleted

Exporting Solutions

- Unmanaged
  - A need to edit the customizations.xml file (ex. sitemap or ribbons)
  - Moving unmanaged solution to a new org
    - Additional changes can be made in new org
  - Create a backup of your current customizations
- Managed
  - Cannot be exported
    - Only created while exporting an Unmanaged solution

Importing Solutions

- System Settings
- Post Import Actions
- Unmanaged
  - Import when you want to move customizations into a new org
    - The newly imported solution would be customizable
  - Changed applied while importing cannot be uninstalled
- Managed
  - After import into new org, the solution definition is locked
  - Use when you want to restore or revert back to earlier
  - Can't import a managed solution into an environment from which it was exported

Updating Solutions

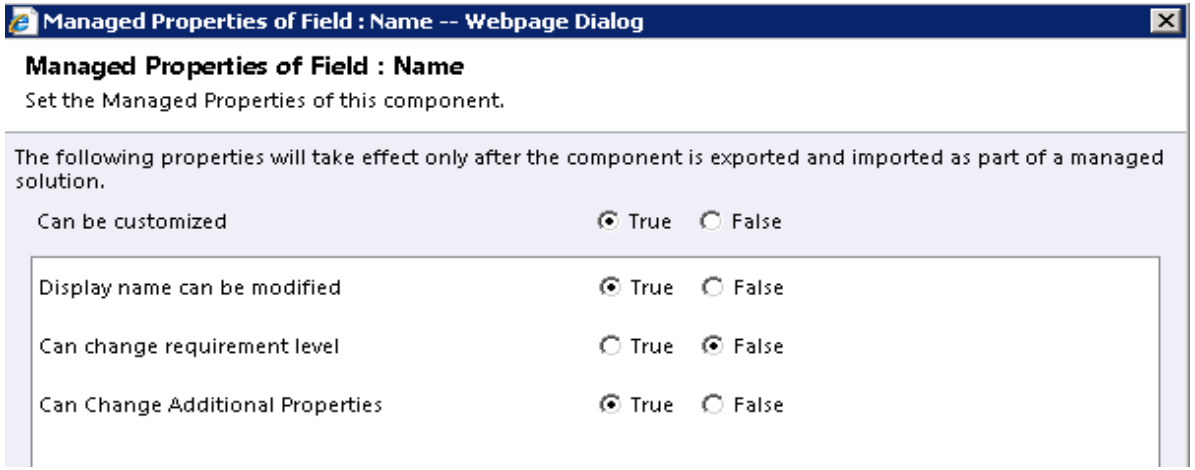
- Unmanaged
  - Changes cannot be uninstalled
  - If components already exist, the new solution will overwrite
- Managed
  - Cannot be changed
  - Uninstalling/reinstalling not an option (data would be deleted)
  - Updating is the best approach
    - Release a new version of the solution (upgrade)
    - Release an update of the solution (patch)
  - Updates can be rolled back by reinstalling a prior solution
    - Option to keep existing customizations

Delete/Uninstall a Solution

- Unmanaged
  - Deleting a solution simply deletes a single solution record in the db.
  - Actual components are not affected by this
- Managed
  - Deleting will uninstall the managed solution (including components)
  - Customizations made to components installed by the solution will also be uninstalled

Solutions – Managed Properties

- Standard entities can't be set to "not customizable"
- Only applicable to Managed solutions
- Defines whether or not to restrict users from customizing the solution's components.
- Managed Properties are set in the unmanaged solution
- By default, solution components set to customizable



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SiteMap

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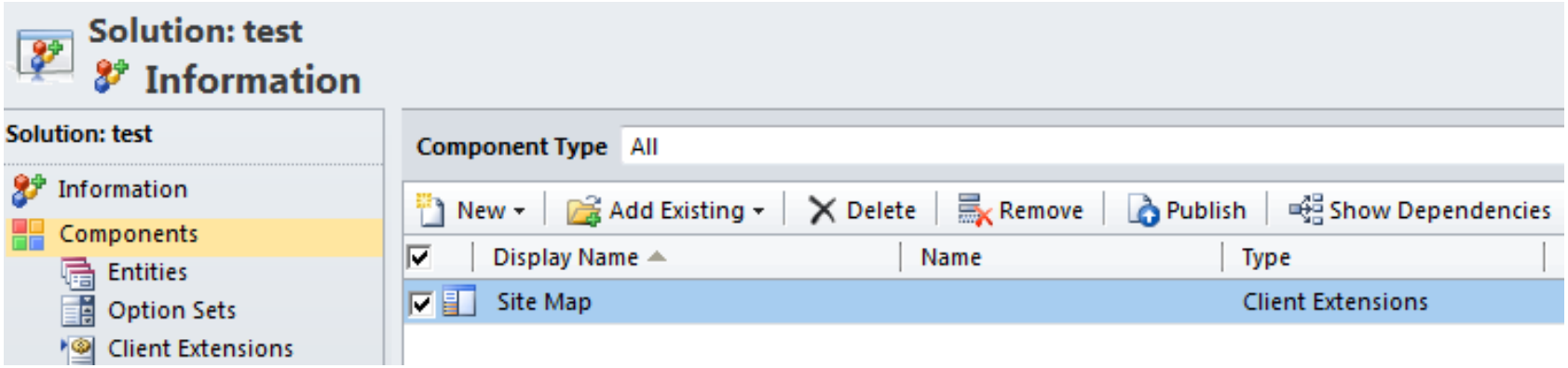
SiteMap

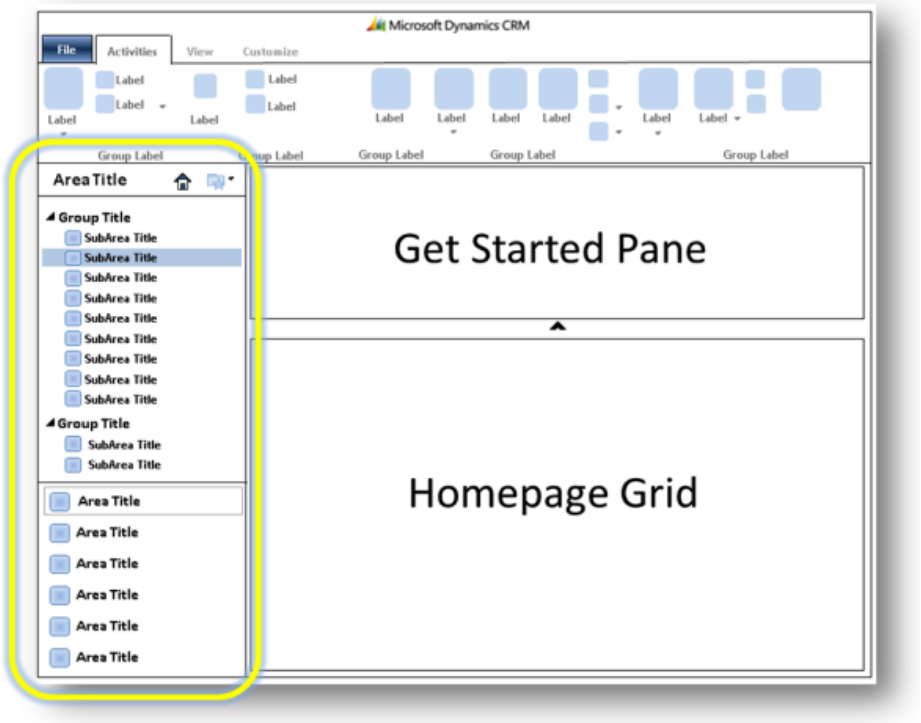
- XML representation of the structure of the CRM navigation pane
  - Incudes the areas, groups, and subareas
  - Privileges can be set within subareas
- Export the SiteMap by exporting an unmanaged solution that contains the SiteMap.
  - The solution could also be the default unmanaged solution.



SiteMap

- If your security privileges do not provide read access to an entity specified in the SiteMap that navigation option will not be displayed to you

- Application Navigation



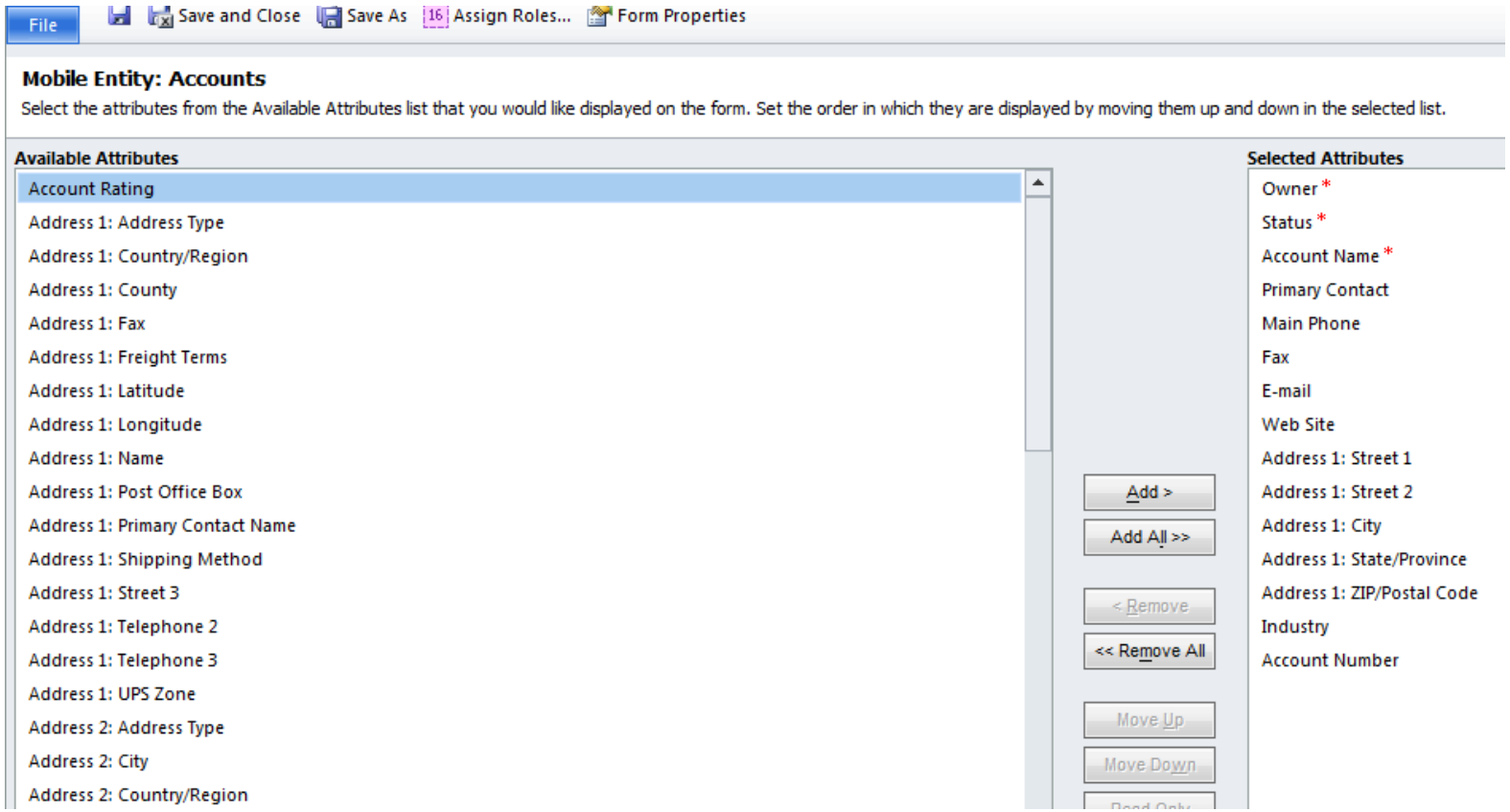
SiteMap

- Configuration Options Available Using SiteMap
  - Edit Labels
  - Add or Change Icons
  - Add or Remove Elements
  - Group Links within Areas
  - Add New Pages to an Area
  - Customize the Get Started Pane
  - Change Workplace Profile Options

Mobile Express

Mobile Express

- Customized CRM experience for your users with mobile devices.
- Works on virtually any mobile device



New Features

- Support for N:N relationships
- Ability to create related entities
- Role based forms, multiple forms
- Field Level security
- Solutions support for mobile forms
- Mobile customization is now done from the main application customization pages
- Default OOB Account, Contact, Case, Opportunity, and Lead Entities are enabled
- Auto redirect to /m if accessing Org from any Mobile Device

Software Development Kit (SDK)

- What is the SDK
  - Documentation
  - Sample Code
- Where is it?
  - MSDN Online Version
  - Downloadable Version
    - http://www.microsoft.com/downloads/en/details.aspx?FamilyID=420f0f05-c226-4194-b7e1-f23ceaa83b69

Main Components

- Server Side
  - Plugins
  - Workflow .NET Assemblies/Custom Workflow Activities
- Client Side
  - Web Resources
    - Jscript Libraries
    - Silverlight Applications
    - Images (JPG, PNG, GIF, ICO)
    - Text based pages (HTML, XML, XSL, CSS)
  - IFRAME
  - Site Map
  - Ribbon
- External Custom Applications (via CRM web services)

Plugins

- Modify or extend the CRM Business Logic
- Pre and Post Events
  - Create
  - Update
  - Delete
  - Assign
- Examples
  - Randomly generate an Account Number
  - Automatically fire a Workflow rule when a certain field is updated.

Plugin Deployment

- Plugin Registration Tool
- Ability to deploy in isolation mode (Sandbox)
  - Allows for use with CRM Online
- Plugin storage location
  - Database
  - Disk
  - Global Assembly Cache
- Register New Step
  - Message
  - Primary Entity
  - Event Pipeline
  - Execution Mode
  - Deployment

Custom Workflow Activities

- .Net assembly
- Can be a simple task, or complex logic
- Ability to call a web service through a Workflow Rule
- Assembly contains logic that cannot be completed through standard rule
- Can be used with workflows or dialogs
- Examples:
  - Send email from workflow as another user
  - Send email that contains URL to specific entity
- On-premises only

Web Services

- Two global installation-level Web services
  - IDiscoveryService Web Service
    - Returns a list of organizations that the specified user belongs
  - IOrganizationService Web Service
    - Used to access Microsoft CRM data and metadata
- REST (Representational State Transfer) endpoint
  - Uses Windows Communication Framework oData

Service Endpoints

- SOAP 2007
  - [org root url]/mscrmservices/2007/crmservice.asmx
- REST (OData)
  - [org root url]/xrmservices/2011/organizationdata.svc
- Discovery
  - [org root url]/xrmservices/2011/discovery.svc
- Organization
  - [org root url]/xrmservices/2011/organization.svc

Upgrades

- Plugins and Workflow .Net Assemblies will upgrade
  - Will not be able to take advantage of new functionality
- Supported Jscript will upgrade
- Custom applications may need additional configuration

Unsupported Customizations

- Direct SQL updates
- Modifications to default CRM files
- Undocumented jscript
- NOTE: There are many public blogs that contain unsupported customizations.

Customizations Summary

- Entities
  - Fields
  - Forms & Views
  - Charts
  - Relationships
- Dashboards
- Options Sets
- Web Resources
- Solutions
- SiteMap
- Mobile Express
- SDK

Questions?