



## irX for Microsoft Dynamics 365

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*Help Documentation for the InRule Decision Platform*

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# irX® for Microsoft® Dynamics® 365 Help

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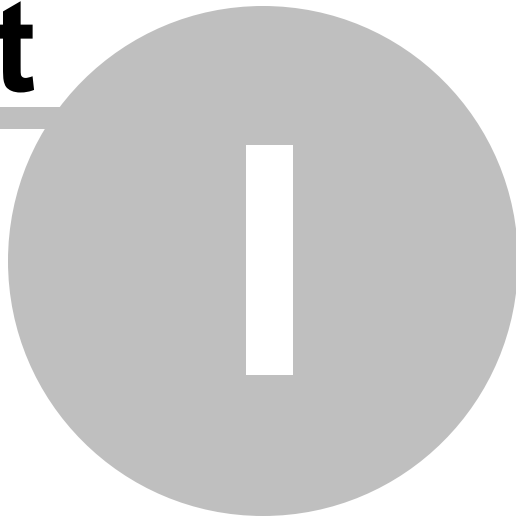
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# Part

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## Before You Begin

# 1 Before You Begin

irX® for Microsoft Dynamics 365 communicates with Microsoft Dynamics 365 in order to establish the InRule® Entities and Fields that correspond to those in Microsoft Dynamics 365. To facilitate that communication, you must define some environments. You will need one environment for each Microsoft Dynamics 365 environment that irAuthor® will connect to.

For each environment, you must specify or configure the following:

- The Dynamics 365 credentials (typically your Microsoft account username and password) needed to connect
- [Minimum Required Dynamics Permissions](#) in Microsoft Dynamics 365

This information is sufficient for [Advanced Login](#), but if using [Legacy Login](#), you will also need:

- The [Organization Service URL](#)

You will define these environments in [Manage Microsoft Dynamics 365 Configuration](#).

## 1.1 Minimum Required Microsoft Dynamics 365 Permissions

To use irX for Microsoft Dynamics 365, you must have the following minimum permissions for any Microsoft Dynamics 365 environment you would like to access.

### Business Management Tab

- User Settings: Read - User

The screenshot shows the 'Security Role: New Security Role' configuration window in Microsoft Dynamics 365. The 'Business Management' tab is active, displaying a table of permissions for various entities. The 'User Settings' row is highlighted, indicating the required permissions for the 'User' role.

Entity	Create	Read	Write	Delete	Append	Append To	Assign	Share
Business Unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Channel Property Group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Currency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Document Template	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email Server Profile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field Security Profile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field Sharing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goal Metric	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mailbox	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marketing Auto Tracking Folder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal Document Template	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Principal Sync Attribute Map	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rollup Query	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security Role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sync Attribute Mapping Profile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User Settings	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Privacy Related Privileges**  
Enabling these privileges will allow users to extract customer data from Microsoft Dynamics 365. For more information, review the corresponding user documentation.

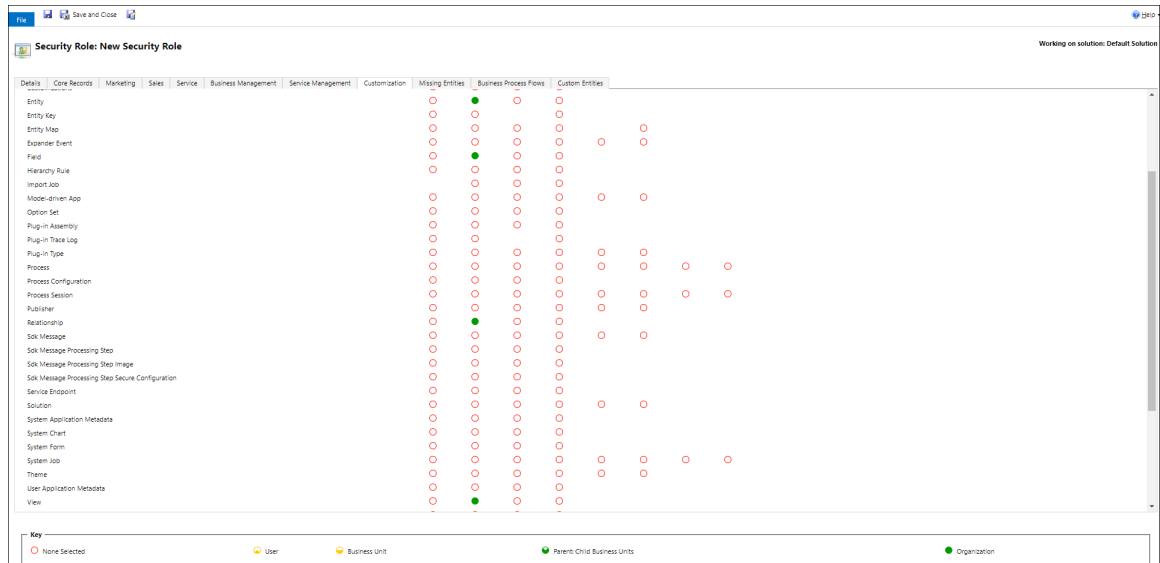
Document Generation	<input type="radio"/>	Dynamics 365 for mobile	<input type="radio"/>
Export to Excel	<input type="radio"/>	Go Offline in Outlook	<input type="radio"/>
Mail Merge	<input type="radio"/>	Print	<input type="radio"/>
Sync to Outlook	<input type="radio"/>	Use Dynamics 365 App for Outlook	<input type="radio"/>

**Key**

- None Selected
- User
- Business Unit
- Parent Child Business Units
- Organization

**Customizations Tab:**

- Entity: Read - Organization
- Field: Read - Organization
- Relationship: Read - Organization
- View: Read - Organization



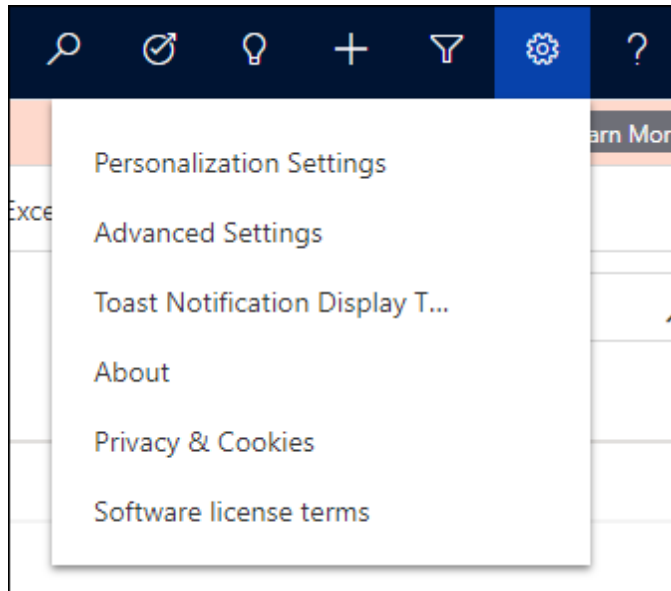
## 1.2 Determining the Microsoft Dynamics 365 Organization Service URL

When configuring irX for Microsoft Dynamics 365 to point to a Microsoft Dynamics 365 environment, you will need to provide a URL for the Organization Service.

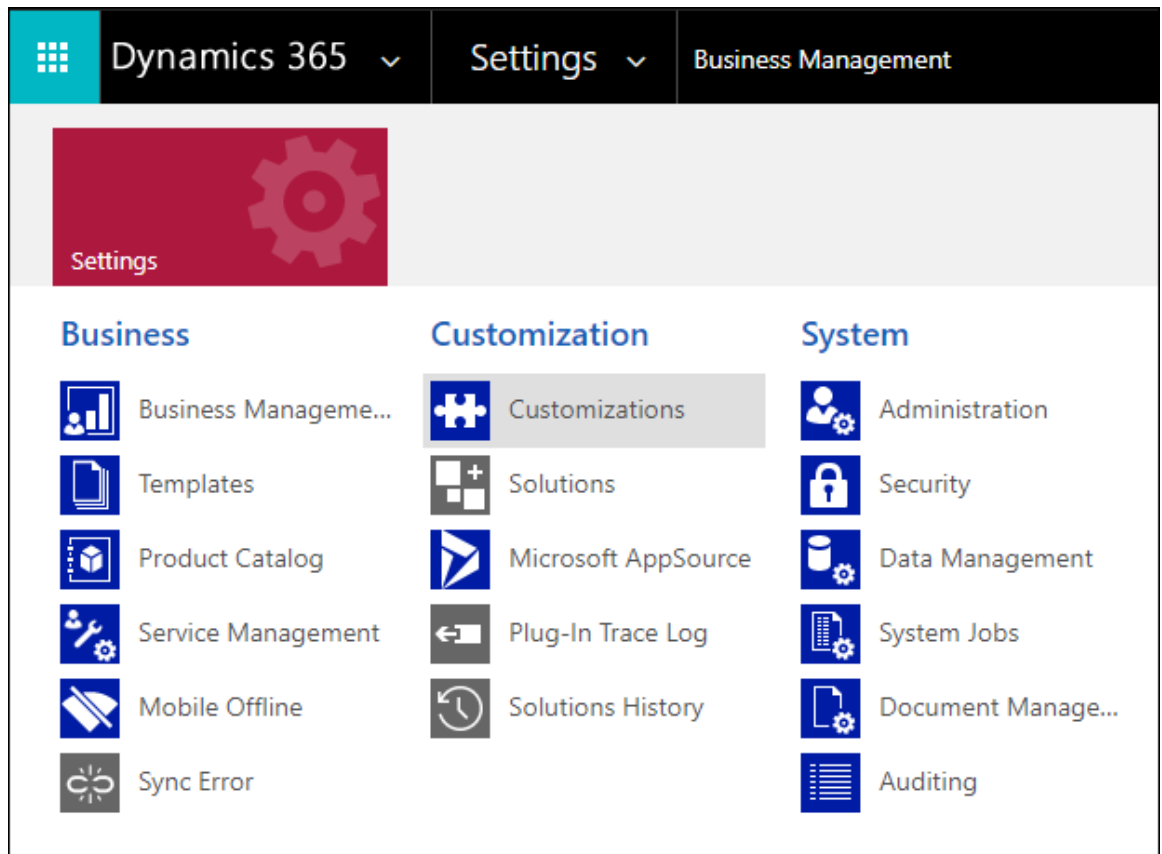
This URL is managed automatically when users configure an environment using the [Advanced Login](#).

If using [Legacy Login](#) following instructions explain where to find the Organization Service URL in the Microsoft Dynamics 365 user interface.

1. From the Dynamics setting wheel, select Advanced Settings







2. Then, in the settings dropdown, select Customization.



3. Click Developer Resources.



**Which feature would you like to work with?**

 <p><b>Customize the System</b> Create, modify, or delete components in your organization. Components include entities, fields, relationships, forms, reports, processes, and others.</p>	 <p><b>Publishers</b> Create, modify or delete a solution publisher.</p>
 <p><b>Solutions</b> Create, modify, export, or import a managed or unmanaged solution.</p>	 <p><b>Developer Resources</b> View information or download files that help you develop applications and extensions for Microsoft Dynamics 365.</p>
 <p><b>Themes</b> Adjust your organization's colors. Create, change, or delete themes that are used in your organization.</p>	

4. Use the Endpoint Address under Organization Service for irX for Microsoft Dynamics 365.

Developer Resources

**Getting Started**

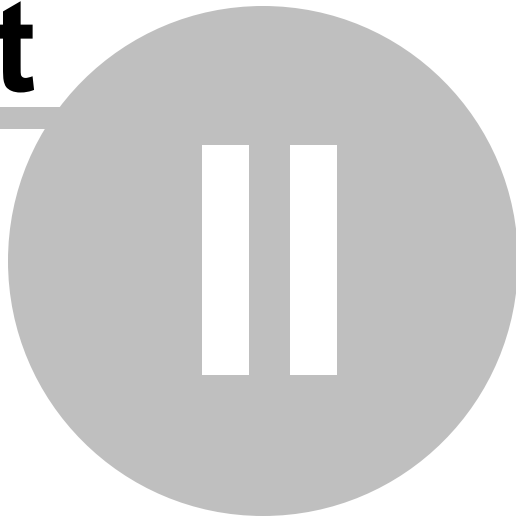
[Developer Center](#)   [Developer Forums](#)   [SDK NuGet Packages](#)  
[SDK Download](#)   [Sample Code](#)   [Developer Overview](#)

**Connect your apps to this instance of Dynamics 365**

<p><b>Instance Web API</b> HTTP REST API providing access to this instance of Dynamics 365. For more information see <a href="#">Microsoft Dynamics 365 Web API</a>.</p> <p>Service Root URL: <input type="text"/></p> <p><a href="#">Download OData Metadata</a></p>	<p><b>Organization Service</b> SOAP Service providing access to this instance of Dynamics 365. For more information see <a href="#">Use the OrganizationService web service to read and write data or metadata</a>.</p> <p>Endpoint Address: <input type="text"/></p> <p><a href="#">Download WSDL</a></p>
<p><b>Instance Reference Information</b> Use this information to uniquely identify this instance of Dynamics 365. You can use this to retrieve the current URL for this instance. For more information see <a href="#">Azure extensions for Microsoft Dynamics 365</a>.</p> <p>ID: <input type="text"/></p> <p>Unique Name: <input type="text"/></p>	
<p><b>Connect your apps to the Dynamics 365 Discovery Service</b></p>	
<p><b>Discovery Web API</b> HTTP REST API providing connection information for the set of Dynamics 365 instances to which the caller has access. For more information see <a href="#">Discover the URL for your organization with Discovery Web API</a>.</p> <p>Endpoint Address: <input type="text"/></p> <p><a href="#">Download OData Metadata</a></p>	<p><b>Discovery Service</b> SOAP Service providing connection information for the set of Dynamics 365 instances to which the caller has access. For more information see <a href="#">Discover the URL for your organization with DiscoveryService web service</a>.</p> <p>Endpoint Address: <input type="text"/></p> <p><a href="#">Download WSDL</a></p>

# Part

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## **Manage Microsoft Dynamics 365 Configuration**

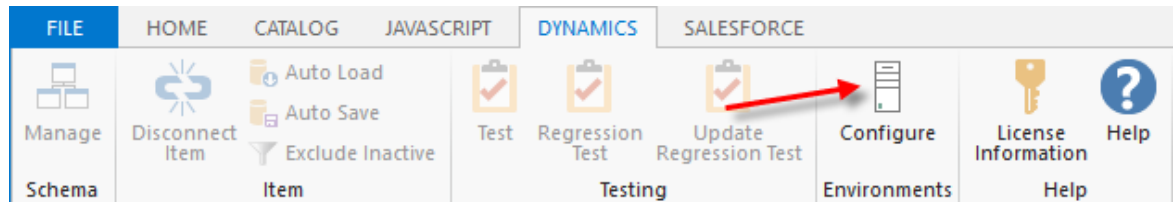
## **2 Manage Microsoft Dynamics 365 Configuration**

### **2.1 Configure Environments**

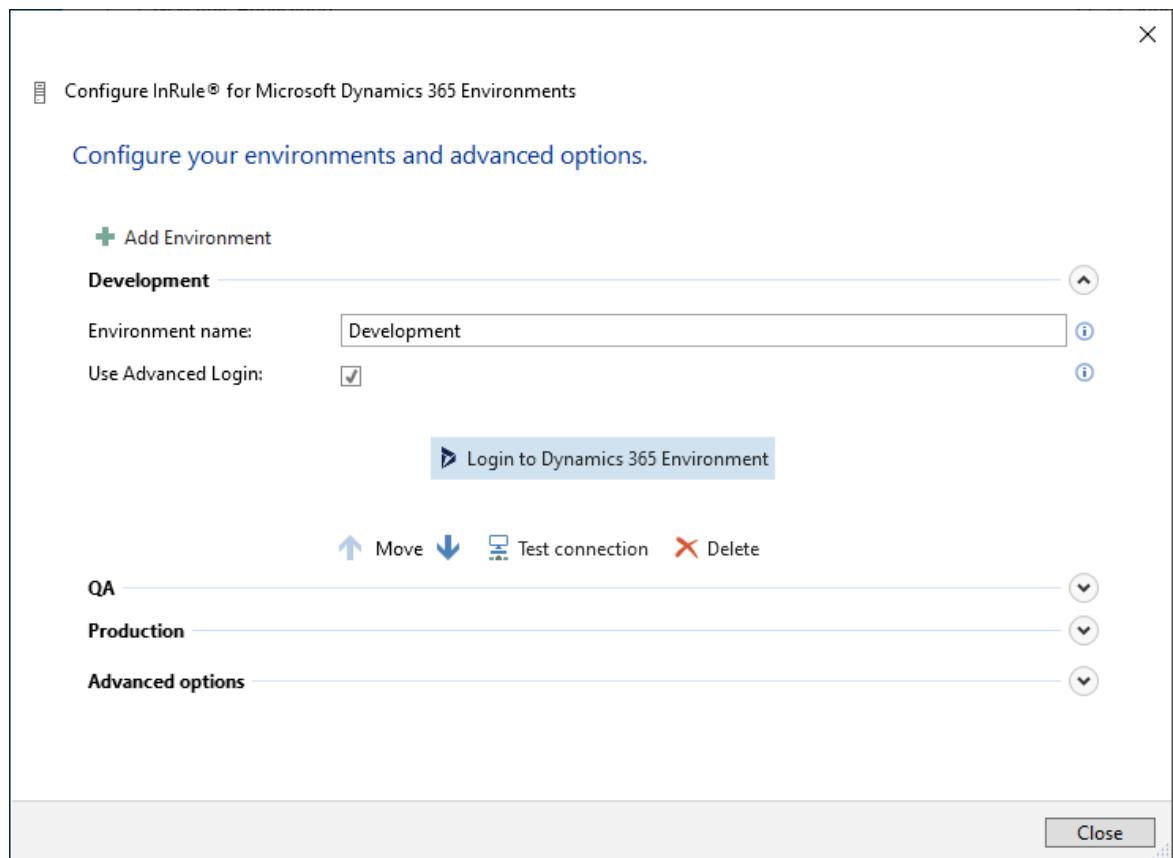
When irAuthor connects to a Microsoft Dynamics 365 service, it typically has a variety of services, credentials, and other options to select from in order to make the desired connection. You can specify those connection environments using the environment configuration dialog.

### Select the Environment Connection Dialog

To begin, select the DYNAMICS tab of the irAuthor ribbon, then click the Configure button.



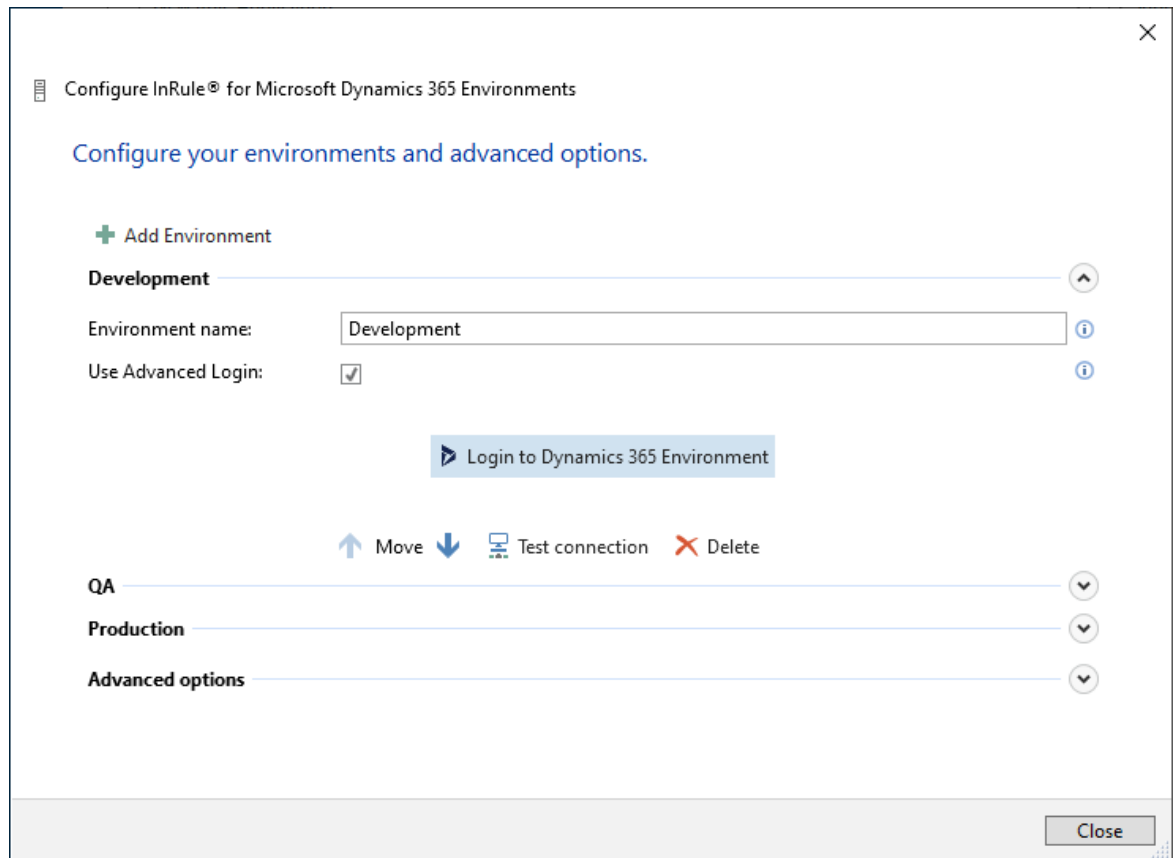
The dialog shows any environments that have been defined. If there are none, a new empty environment will display. Below we see three environments (Development, QA, and Production) and the first one has been expanded to the detail view.



### Advanced Login

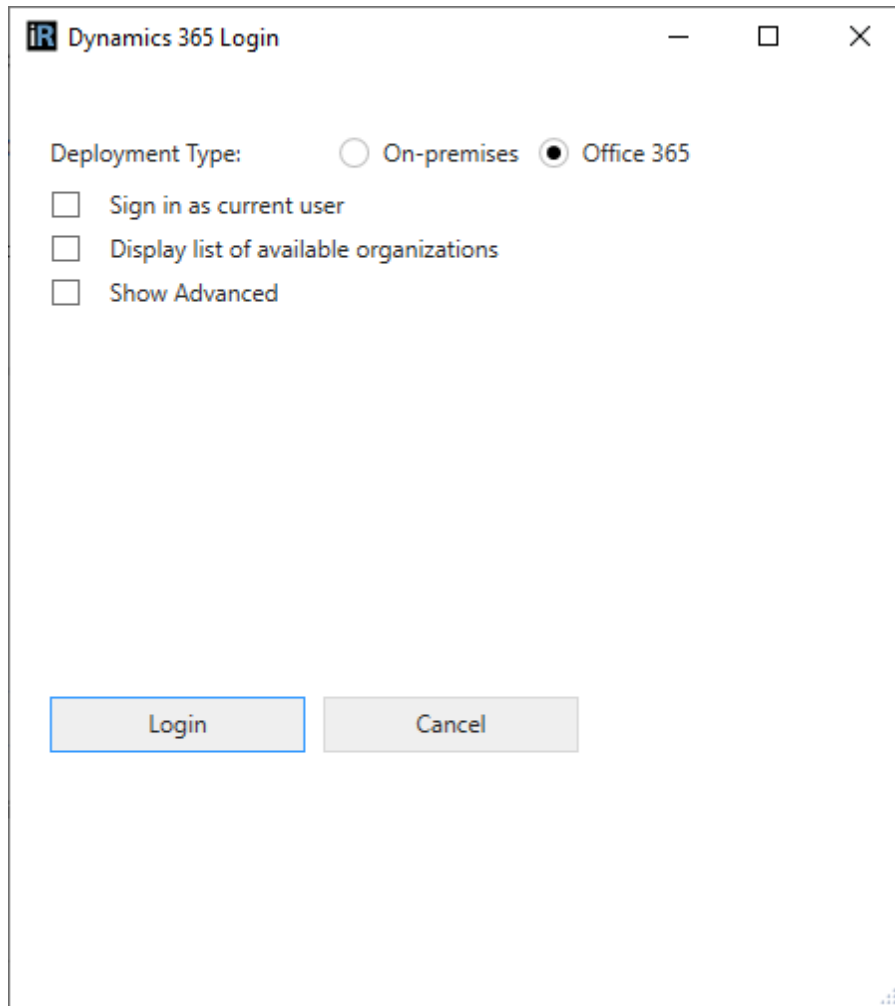
Advanced Login is the recommended means of environment configuration. It is the simplest and most secure, as it can utilize Multi-factor Authentication.

Select the Advanced Login checkbox and click the Login to Dynamics 365 Environment button.

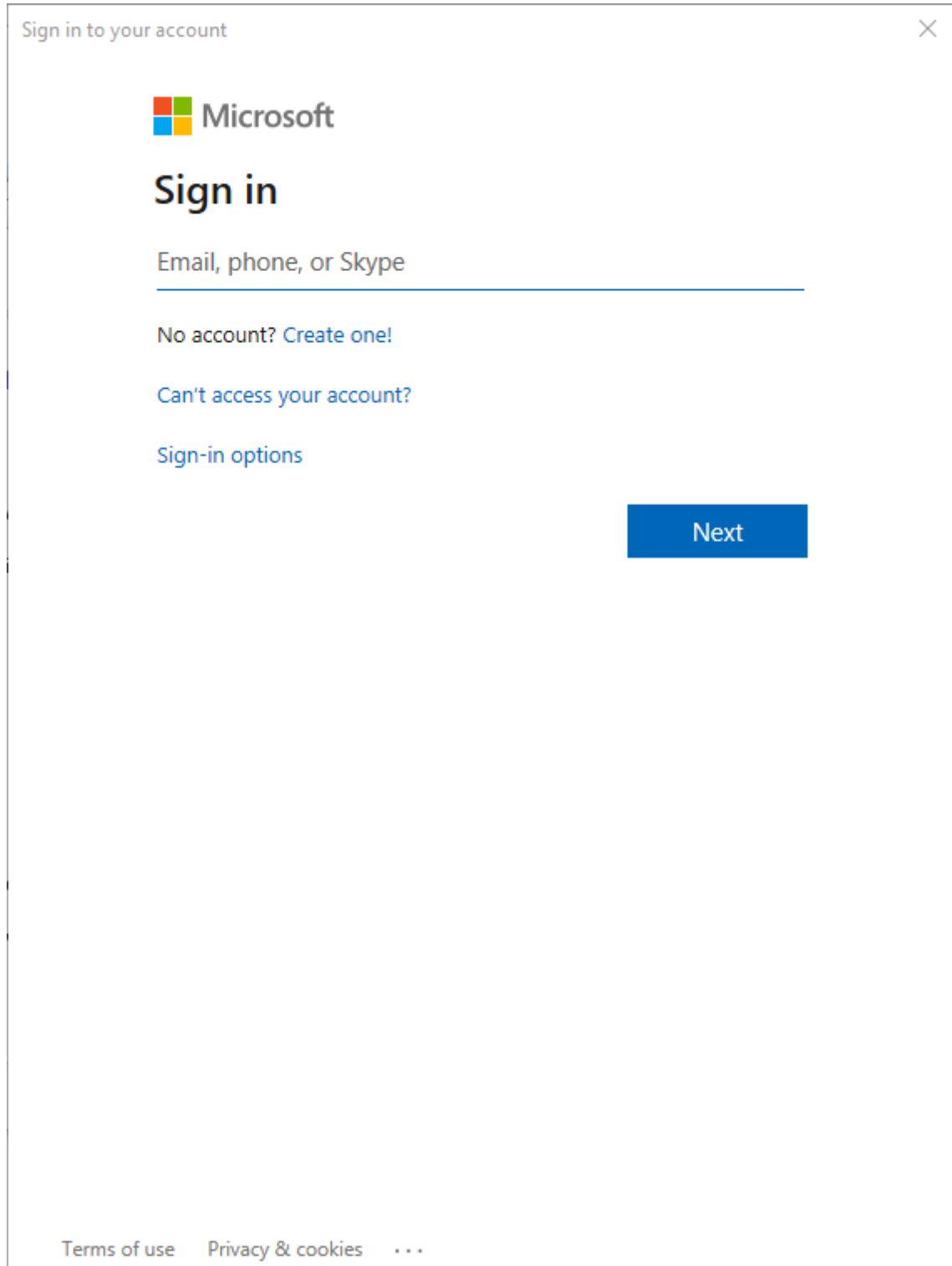


Then, with the Office 365 deployment type selected, click the Login button.


- In most scenarios, selecting Office 365 is all that is necessary, and all other options can be left unselected.
- Do not select Sign in as current user, as it is not currently supported.



This will open a window allowing users to enter their Office 365 credentials.



Sign in to your account

 Microsoft

## Sign in

Email, phone, or Skype

No account? [Create one!](#)

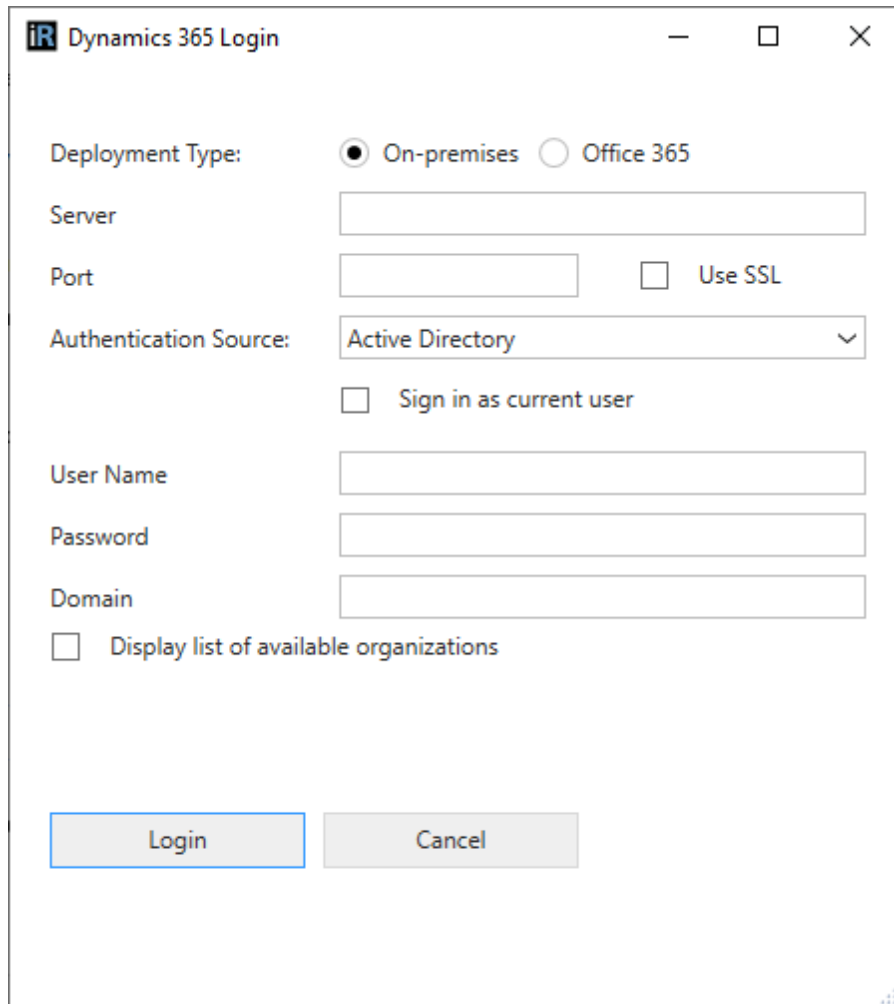
[Can't access your account?](#)

[Sign-in options](#)

[Next](#)

[Terms of use](#) [Privacy & cookies](#) ...

The Advanced Login flow also allows users to use credentials for an On-premises environment to set up their connection.



The screenshot shows a Windows-style dialog box titled "Dynamics 365 Login". It contains the following fields and controls:

- Deployment Type:** Two radio buttons, "On-premises" (selected) and "Office 365".
- Server:** A text input field.
- Port:** A text input field.
- Use SSL:** A checkbox.
- Authentication Source:** A dropdown menu currently showing "Active Directory".
- Sign in as current user:** A checkbox.
- User Name:** A text input field.
- Password:** A text input field.
- Domain:** A text input field.
- Display list of available organizations:** A checkbox.
- Login:** A button with a blue border.
- Cancel:** A button.

### Legacy Login



To use the Legacy Login, do not select any of the checkboxes, and simply enter the Username and Password for the environment, along with Organization Service URL, details for which can be found [here](#). If connecting to a Microsoft Dataverse environment, simply use the Dataverse URL as the Organization Service URL.

Configure InRule® for Microsoft Dynamics 365 Environments

Configure your environments and advanced options.

+ Add Environment

**Development**

Environment name:

Use Advanced Login:

Use Single Sign-On:

Username:

Password:

Organization Service URL:

↑ Move ↓ Test connection ✗ Delete

QA

Production

Advanced options

Close

### Single Sign-On


Use of Single Sign-On is limited to On-premises environments.

### Environment Configuration Panel Usage



Use the environment configuration panel to do the following:

- Add a new environment
- Expand or collapse the detail view of an environment
- Update an existing environment
- Delete an environment
- Change the display order of the environments
- Test the connection to an environment
- Adjust the connection timeout

**Add a new environment**

To create a new environment, click the "Add Environment" button . The new environment will be placed at the end of the list.


**Expand or collapse an environment detail**

Initially, environments are collapsed so you don't see their details. Click the Expand button  to see more details. Click the Collapse button  to see fewer details.



**Update an environment**

If you need to update any of the fields for an environment, simply type the new value(s). The updates are saved automatically.


**Delete an environment**

To delete an environment definition, click the Delete button  in its expanded view.

**Change the order of environments**

To move an environment to a new position in the list, click the Move Up or Move Down button   in its expanded view.

**Test an environment connection**

To test the connection to the Microsoft Dynamics 365 environment, click the "Test connection" button  in the expanded view.

**Set the connection timeout**

By default, a connection to the Microsoft Dynamics 365 server will time out after two minutes. If you experience timeout problems while communicating with the server, you might increase this value. Expand the Advanced Settings section, which applies to all environments, and edit the timeout value.

**Close the dialog**

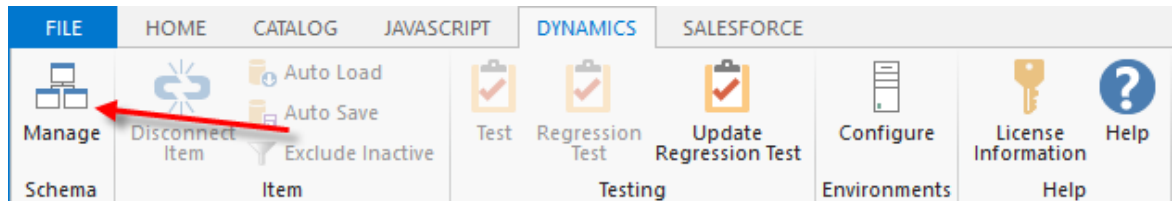
Once you have defined your environments, click the "Close" button.

## 2.2 Manage Entity Schema

This section describes how to use the Configuration wizard to select the Entities, Fields and one-to-many relationships to use as the foundation of a Rule Application.

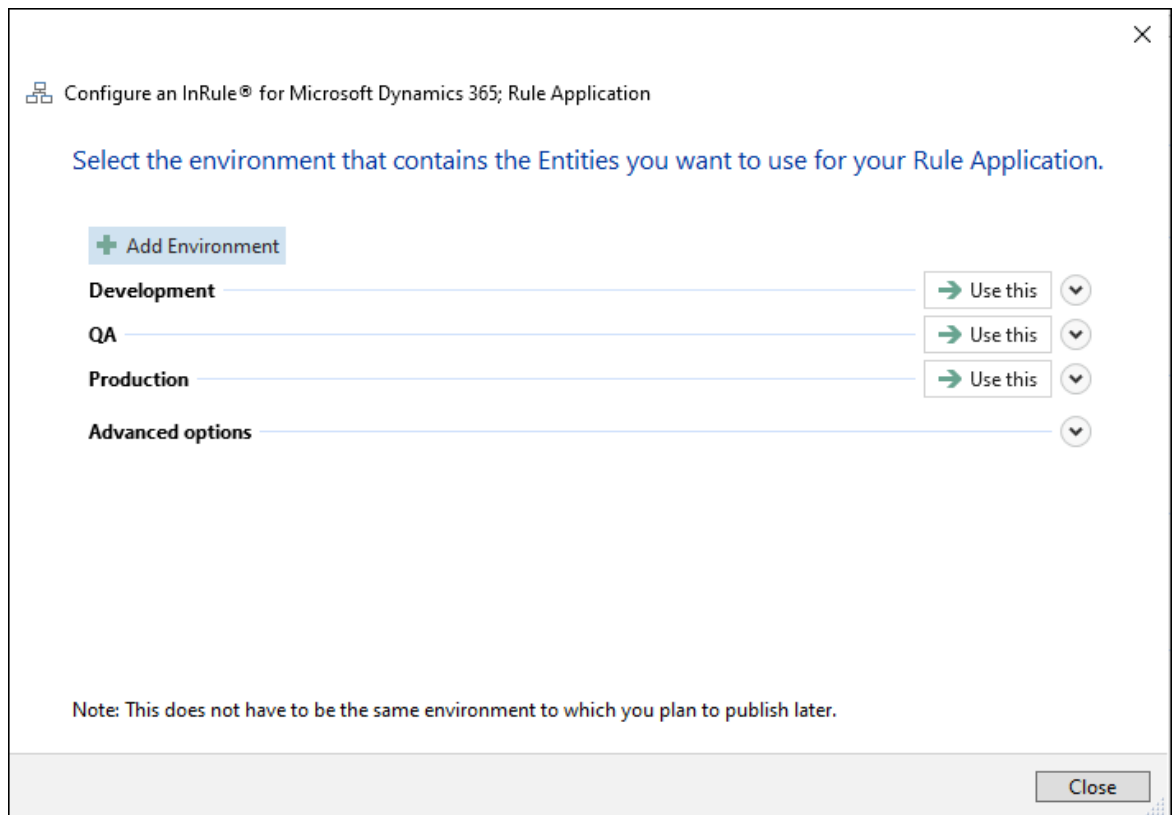
### Select an Environment

After you open or create a new Rule Application, you can manage its schema using the Manage Schema wizard. Start by selecting the DYNAMICS tab of the irAuthor ribbon, then click the Manage button.



If your Rule Application is not already identified as a Microsoft Dynamics 365 Rule Application, this will enable the Microsoft Dynamics 365 functionality.

The first panel of the wizard shows any environments that have been defined. If there are none, a new empty environment will display. Below we see three environments (Development, QA, and Production).



Use this panel to manage your environments, much the same as when you initially [configured your environments](#).

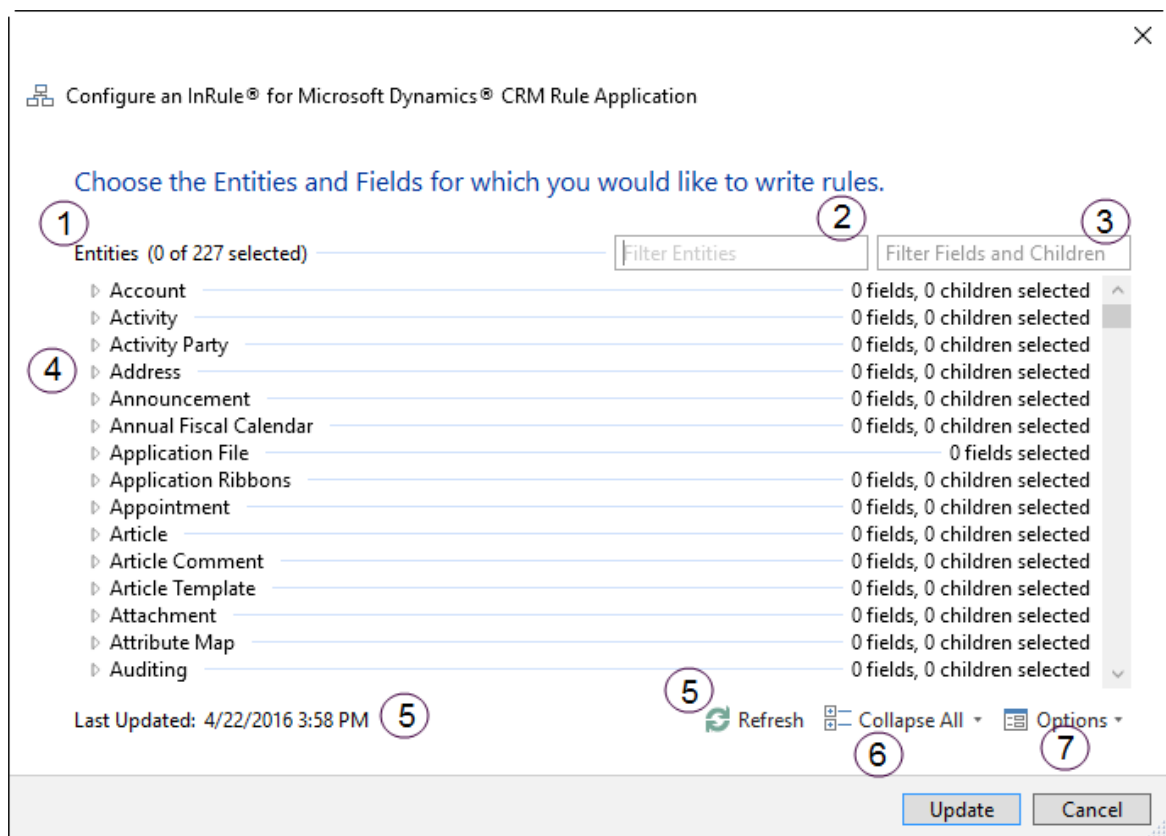
### Select an environment

Once you have defined your environments, select the one you want to connect to by clicking the "Use this" button → .

## 2.3 Select Entities to use in irAuthor

This section describes how to use the Configuration wizard to select the Entities, Fields and one-to-many relationships to use as the foundation of a Rule Application.

### The Select Elements Screen



1. The top node of the Entity tree shows the number of Entities that one or more elements (Fields or one-to-many relationships) selected underneath it.
2. The Filter Entities box allows you to narrow the list of Entities that are displayed by typing text. The list will shrink or grow automatically as you type or remove letters into the box.
3. The Filter Fields and Children box allows you to narrow the list of items displayed underneath each individual Entity.
4. The Display Name for each Entity is displayed as a node in the tree and is the name that will be used for the Entity in irAuthor. The display name will be used for the Field or relationship in irAuthor and the actual Microsoft Dynamics 365 name will be stored as an attribute in irAuthor for updates. When an Entity node is collapsed, the number of selected Fields and children that are selected underneath it are displayed. The name of an Entity with at least one Field or relationship selected will also appear in bold to give it added visual distinction. If the Entity does not have any

one-to-many relationships then only the number of Fields selected will be shown.

5. Because the Microsoft Dynamics 365 metadata can take some time to download, irX for Microsoft Dynamics 365 establishes a cache so the download is not required every time you use irAuthor. This screen shows the date and time this cache was last updated. If the metadata has changed since this date, click Refresh to update the cache. See [Refresh Microsoft Dynamics 365 Items](#) for more information.

The metadata cache is removed whenever the irX for Microsoft Dynamics 365 environment URL changes, or when irX for Microsoft Dynamics 365 is uninstalled. If you should ever need to remove the cache manually, it is stored in the %APPDATA%\Roaming\InRule directory.

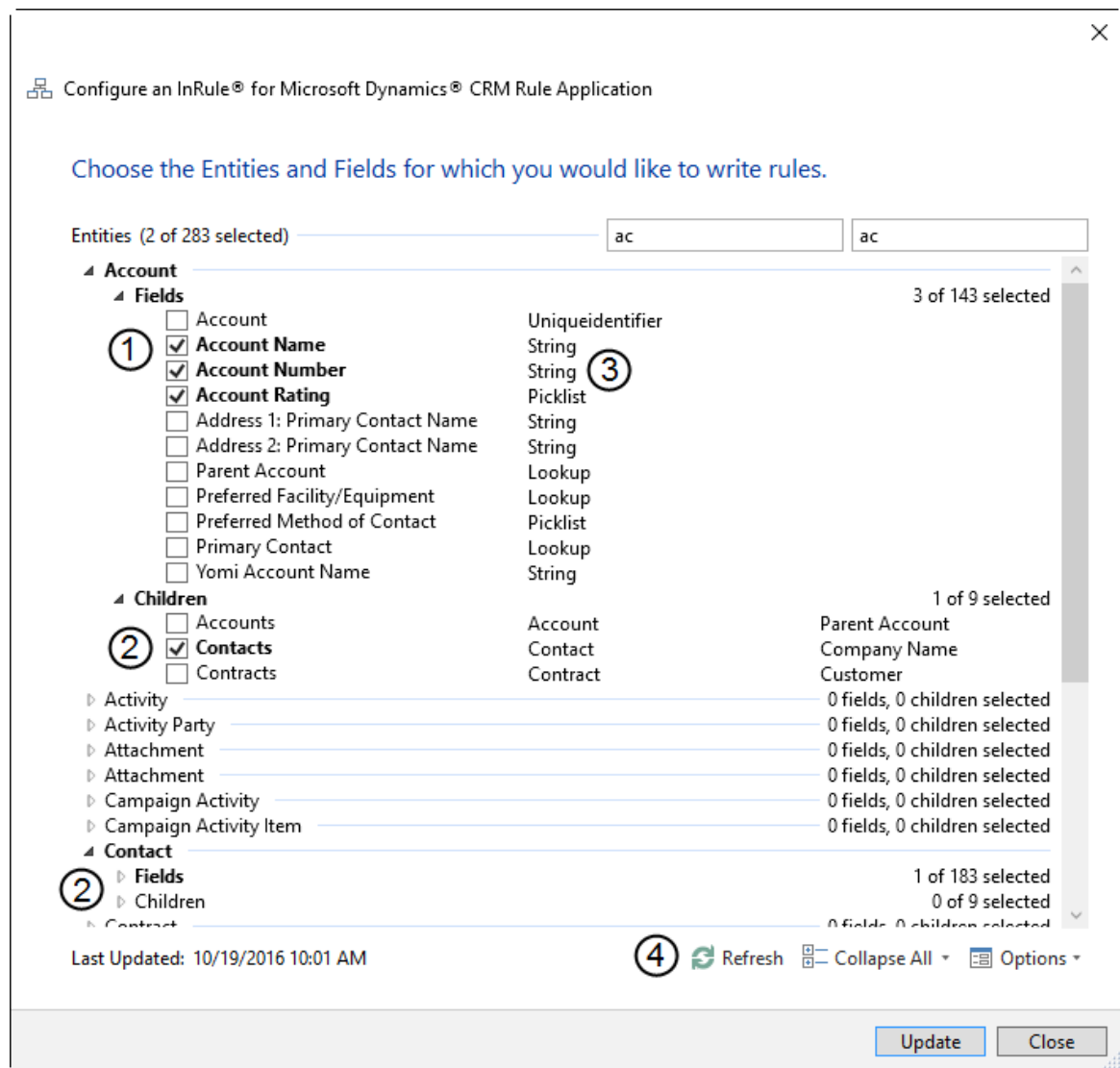
6. The Expand All and Collapse All buttons allow you to fully expand or collapse the tree. Click the drop-down arrow in the Collapse All button to expose the Expand All button. Note that due to the large number of Entities in Microsoft Dynamics 365, expanding the entire tree may take several seconds and cause irAuthor to appear unresponsive.
7. The Options drop-down menu exposes two checkboxes which allow you to customize which Entities, Fields, and children are displayed.

The **Show selected only** checkbox allows you to see just the Entities, Fields and relationships that have been selected. This is often used to preview the entity model that will be constructed in irAuthor once the Finish button is clicked.

The **Show children marked 'Do Not Display'** checkbox will include Dynamics 365 relationships in the Children subfolders, even if those relationships have been marked "Do Not Display."

**Note:** If items have been changed on the Microsoft Dynamics 365 server and those changes are not reflected on the screen, [Refresh Microsoft Dynamics 365 Items](#) to get the latest.

## Selecting Fields & Relationships



1. Each Field and relationship is identified by the display name specified in Microsoft Dynamics 365. The display name will be used for the Field or relationship in irAuthor and the actual Microsoft Dynamics 365 name will be stored as an attribute in irAuthor for updates. Use the checkbox to the left of each item to select it. Selected items appear in bold for additional visual distinction.
2. Lookup Fields and children (one-to-many relationships) in Microsoft Dynamics 365 point to other Entities. Because of this when you select either of those types of elements, the Name field on the related Entity is automatically selected. At least one Field on the related Entity must be selected so that the connection can be created in irAuthor. Thus if you unselect all of the Fields on a related Entity a warning message will appear stating that the Lookups or Children will be unselected on any other Entity referencing that one. You have the option whether or not to proceed with your changes.
3. Each Field has its Microsoft Dynamics 365 data type listed to the right while each Child (one-to-many relationship) has the related Entity's display name displayed on the right. See the article [How Microsoft Dynamics 365 Data Types are Mapped](#) for more information on how various Fields and Entity types are handled in irAuthor.
4. Because the Microsoft Dynamics 365 metadata can take some time to download, irX for Microsoft

Dynamics 365 establishes a cache so the download is not required every time you use irAuthor. This screen shows the date and time this cache was last updated. If the metadata has changed since this date, click Refresh to update the cache. See [Refresh Microsoft Dynamics 365 Items](#) for more information.

## 2.4 How Microsoft Dynamics 365 Data Types are Mapped

irAuthor supports basic data types such as string, integer, decimal etc. It also supports the ability to relate Entities with one-to-many and one-to-one relationships. This article discusses how the various Microsoft Dynamics 365 field data types and relationship types are handled in irAuthor.

### Field Data Types

Microsoft Dynamics 365 Friendly Data Type Name	Microsoft Dynamics 365 System Data Type Name	How it's handled in irAuthor
Single Line of Text	String	Creates a <b>String</b> field
Multiple Lines of Text	Memo	Creates a <b>String</b> field
Whole Number	Integer	Creates an <b>Integer</b> field
Floating Point Number	Double	Creates a <b>Decimal</b> field
Decimal Number	Decimal	Creates a <b>Decimal</b> field
Currency	Money	Creates a <b>Decimal</b> field
Date and Time	DateTime	Creates a <b>DateTime</b> field
Two Options	Boolean	Creates a <b>Boolean</b> field
Option Set	Picklist	Creates an <b>Integer</b> field and also links the field to a value list that contains both the values and descriptions for each value
Status	State	Creates an <b>Integer</b> field and also links the field to a value list that contains both the values and descriptions for each value
Status Reason	Status	Creates an <b>Integer</b> field and also links the field to a value list that contains both the values and descriptions for each value  Note: Since Status Reason is dependent on the Status, the display name in the value list is a composite of Status and Status Reason (e.g. Open: Pending)
Primary Key	Uniqueidentifier	Creates a <b>String</b> field which will store a textual representation of the Global Unique Identifier (GUID). E.g. 21EC2020-3AEA-1069-A2DD-08002B30309D
Customer	Customer	The Customer type in Microsoft Dynamics 365 allows for an Entity to link to either an Account or a Contact. Unfortunately, you will not know which one until the rules are running against a specific record. Since irAuthor requires that only one target Entity can be specified, a linking Entity



Microsoft Dynamics 365 Friendly Data Type Name	Microsoft Dynamics 365 System Data Type Name	How it's handled in irAuthor
		<p>called Customer Lookup is created.</p> <p>The Customer Lookup Entity in irAuthor has three fields: a link to Account, a link to Contact and a Customer Type field that specifies whether Account or Contact is used. This allows you to write rules to say If Customer Type = Contact, then... or If Customer Type = Account, then...</p> <p>If you select a field of type Customer, the Account and Contact Entities will be automatically selected and pulled into irAuthor.</p>
Multi-Select Option Set	Multi-Select Option Set	Creates a <b>Complex Collection</b> that contains <b>Integer</b> fields that link the fields to value lists that contain both the value and description for each value.

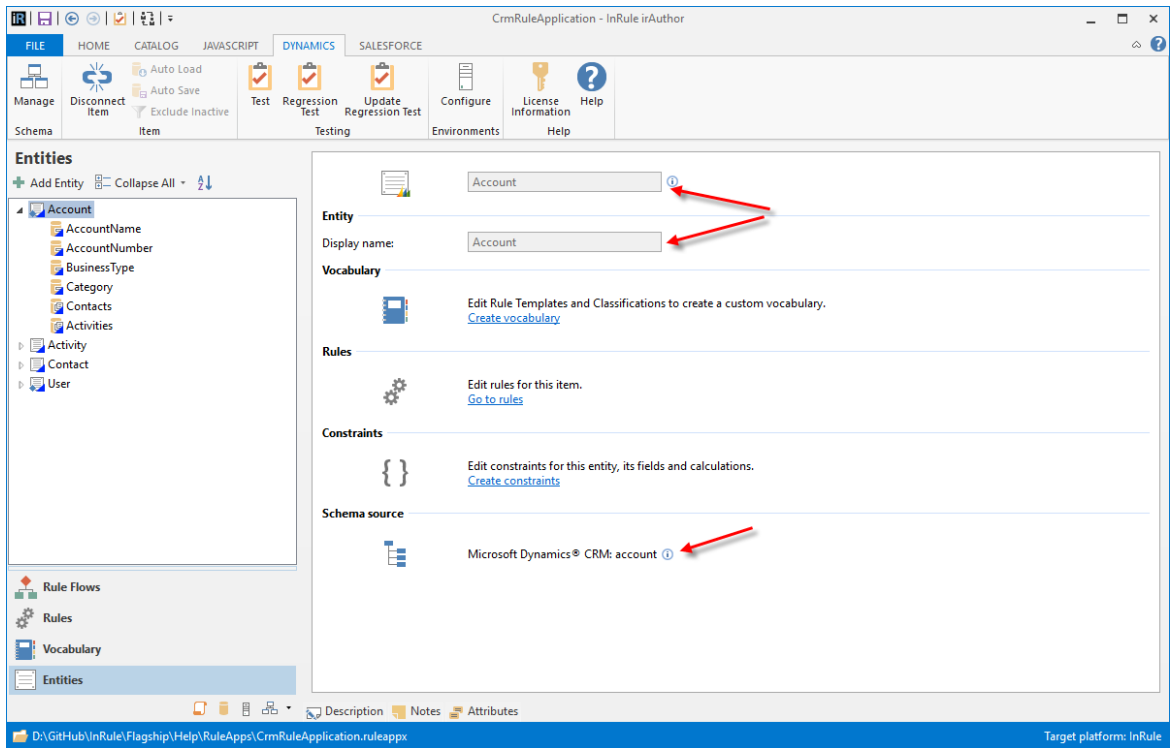
**Lookup Fields and Children (one-to-many relationships)**

Microsoft Dynamics 365 Relationship Type	Name Used in Configuration Screen	How it's handled in irAuthor
Single Entity Lookup (field)	Lookup	The target Entity is created in irAuthor and a field linking the two Entities is <u>created on the source Entity</u> .
1:N Relationship	Children	<p>One-to-many relationships are represented under the heading Children in the Configuration wizard. When you select a child Entity, the Name field of the target Entity type is automatically selected. During import both the parent and child Entities are created in irAuthor and linked through a collection on the parent.</p> <p>Rules written at the Parent context can be used to perform aggregation (sum, min, max, average, etc.) to retrieve data from a specific collection member or to execute rules against one or more of the collection members.</p>
Customer (field)	Customer	<p>The Customer type in Microsoft Dynamics 365 allows for an Entity to link to either an Account or a Contact. Unfortunately, you will not know which one until the rules are running against a specific record. Since irAuthor requires that only one target Entity can be specified, a linking Entity called Customer Lookup is created.</p> <p>The Customer Lookup Entity in irAuthor has three fields: a link to Account, a link to Contact and a</p>

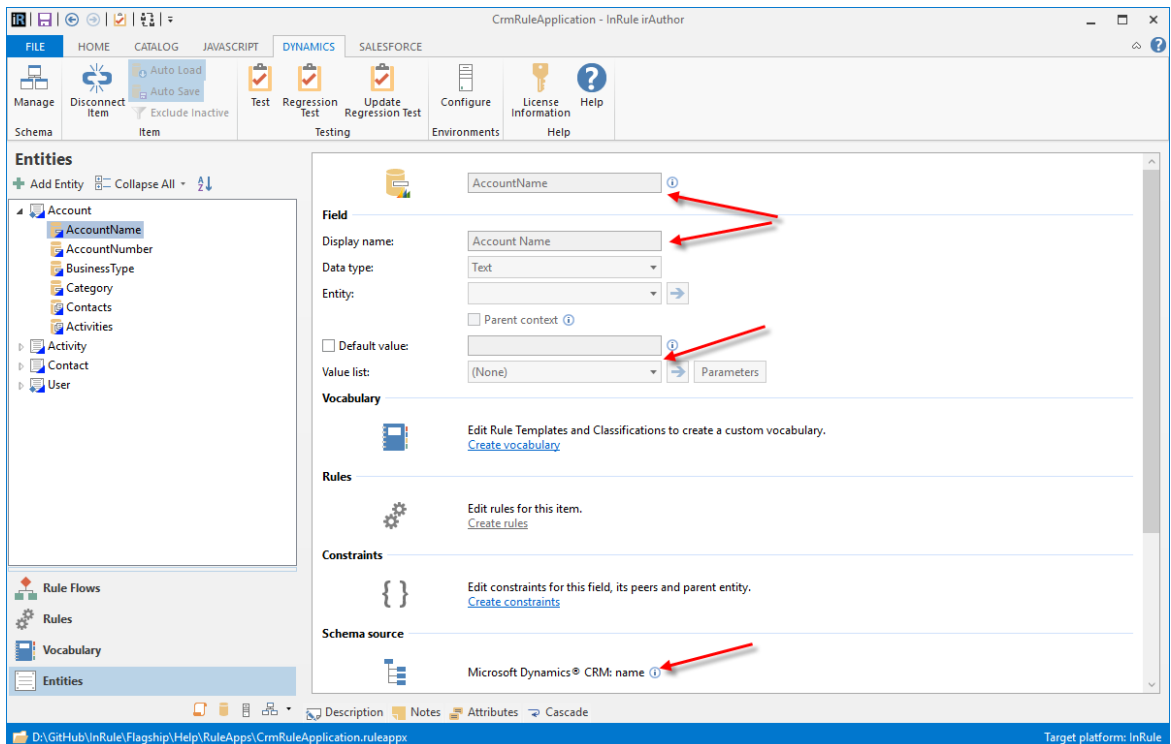
<b>Microsoft Dynamics 365 Relationship Type</b>	<b>Name Used in Configuration Screen</b>	<b>How it's handled in irAuthor</b>
		<p>Customer Type field that specifies whether Account or Contact is used. This allows you to write rules to say If Customer Type = Contact, then... or If Customer Type = Account, then...</p> <p>If you select a field of type Customer, the Account and Contact Entities will be automatically selected and pulled into irAuthor.</p>
Owner (field)	Owner	<p>The Owner type in Microsoft Dynamics 365 allows for an Entity to link to either a User or a Team. Unfortunately, you will not know which one until the rules are running against a specific record. Since irAuthor requires that only one target Entity can be specified, a linking Entity called Owner Lookup is created.</p> <p>The Owner Lookup Entity in irAuthor has three fields: a link to User, a link to Team and an Owner Type field that specifies whether User or Team is used. This allows you to write rules to say If Owner Type = User, then... or If Owner Type = Team, then...</p> <p>If you select a field of type Owner, the User and Team Entities will be automatically selected and pulled into irAuthor.</p>
Multiple Entity Lookup (field, e.g. Regarding)	Lookup	<p>There are certain types of Lookups in Microsoft Dynamics 365 that allow for an Entity to connect to any number of possible Entity types. The most common example is the Regarding field on an activity: An email could be linked to an Account, a Lead, a custom Entity, etc. Unfortunately, you will not know which Entity type it is until the rules are running against a specific record</p> <p>This type of Lookup is handled in irAuthor through an Entity Lookup Entity. The Entity Lookup contains the Name of the related Entity and it's ID.</p>

### irAuthor Entity and Field Display

When irAuthor displays an Entity that was imported from Microsoft Dynamics 365, its icon and the "Schema Source" section of the Entity display indicate that the Entity came from Microsoft Dynamics 365. You cannot change the name or description of an imported Entity.

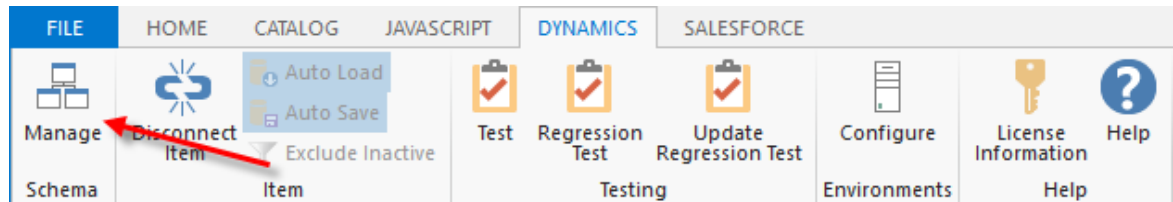


Similarly, when irAuthor displays a Field that was imported from Microsoft Dynamics 365, its icon and the "Schema Source" section indicate that the Field came from Microsoft Dynamics 365, and you cannot change the Field's name or description. In addition, you cannot specify a value list.



## 2.5 Add or Update Entities, Fields & Collections

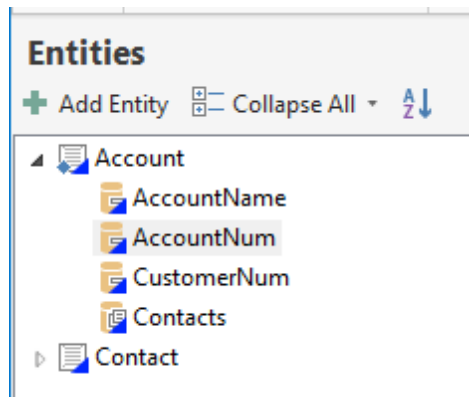
To add new Entities to your InRule Entity model or to add Fields or Collections to specific Entities, click the Manage button in the ribbon's Schema group. After you select an environment, if irAuthor has not already pulled the Entity information from the Microsoft Dynamics 365 environment, it will do so. The Configuration Wizard will then be displayed with any Entities, Fields and Collections from the Entity model pre-selected. See the [Select Entities to use in irAuthor](#) section for more information on using the Configuration Screen.



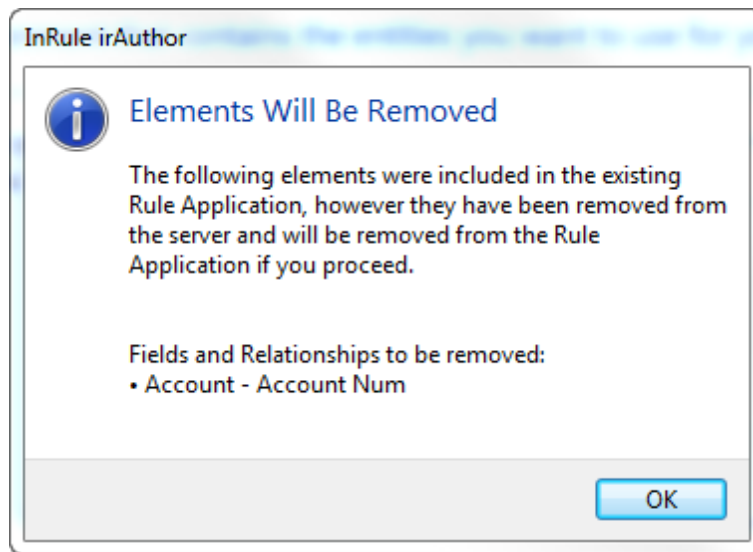
### How Items Deleted on the Microsoft Dynamics 365 Server are Handled

Prior to opening the Configuration Wizard screen, irAuthor will check if any of the Fields in the Entity model have been removed from Microsoft Dynamics 365. If so, a screen will display the Entities and Fields that will be removed from the irAuthor Entity model if you proceed with update.

For example, take the following simple Entity model:



On the Microsoft Dynamics 365 Server, Account Num has been removed. When the Manage button is clicked, the following confirmation screen appears:



If you do not want the items removed (e.g. you accidentally specified the wrong Microsoft Dynamics 365 instance on the prior screen) then click OK on the notification screen and Cancel on the Configuration Wizard.

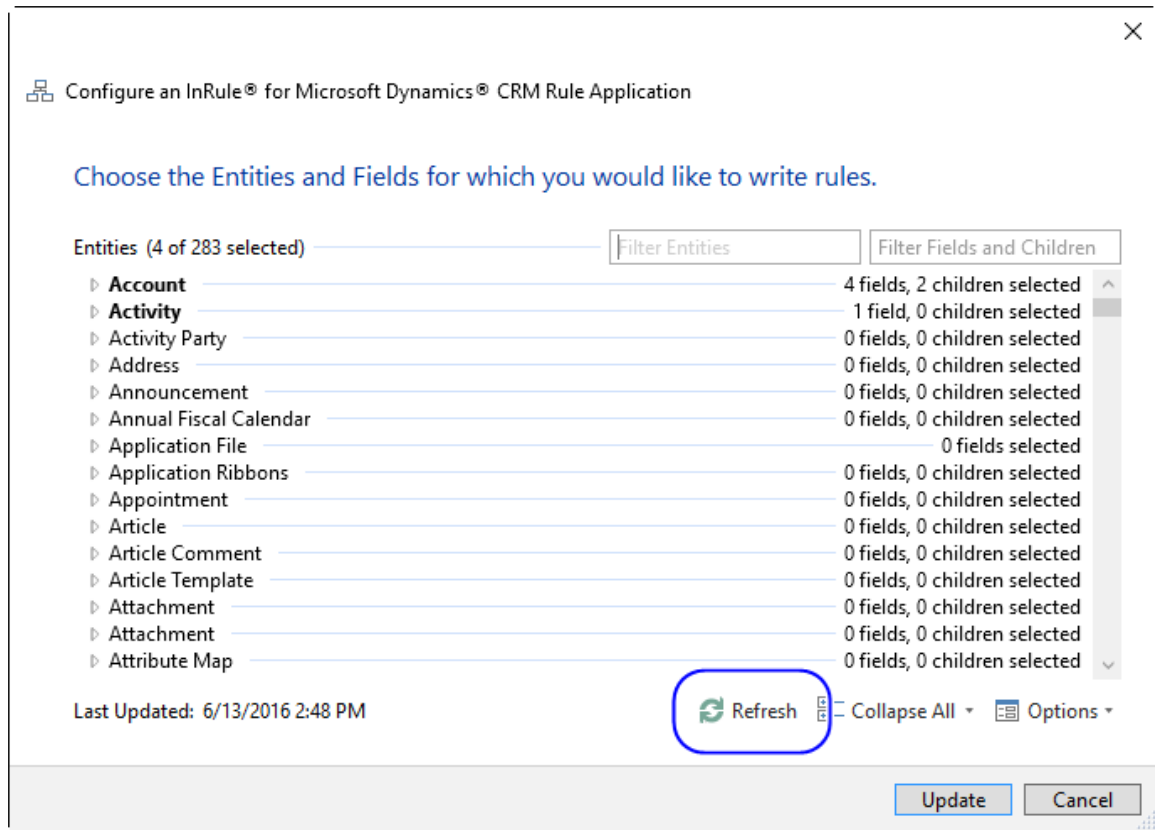
#### How Items Modified on the Microsoft Dynamics 365 Server are Handled

When the display name of Entities, Fields and Relationships are changed or Option Set items are added, removed or changed those changes will be made to the appropriate items in irAuthor.

**Note:** Changes made manually to the Names, Display Names or Value Lists of items sourced from Microsoft Dynamics 365 are not supported and will be blown away during an update. Any items such as Entities and Fields that were created manually and not sourced from Microsoft Dynamics 365 will be left unchanged by the update.

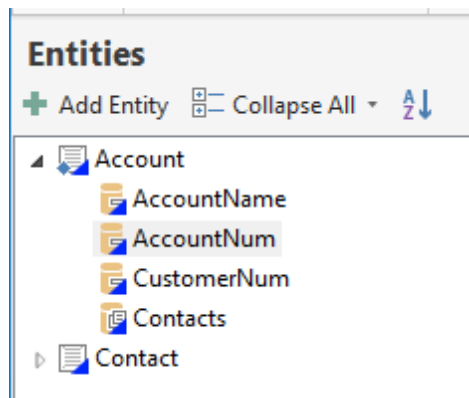
## 2.6 Refresh Microsoft Dynamics 365 Items

Since the [Add or Update Entities](#) capability does not force a refresh from the Microsoft Dynamics 365 server you can click the Refresh button to make sure the latest information is available in the Configuration Wizard. This will force a call to the Microsoft Dynamics 365 server and will update the imported irAuthor items accordingly. Any items such as Entities and Fields that were created manually and not sourced from Microsoft Dynamics 365 will be left unchanged by the refresh.

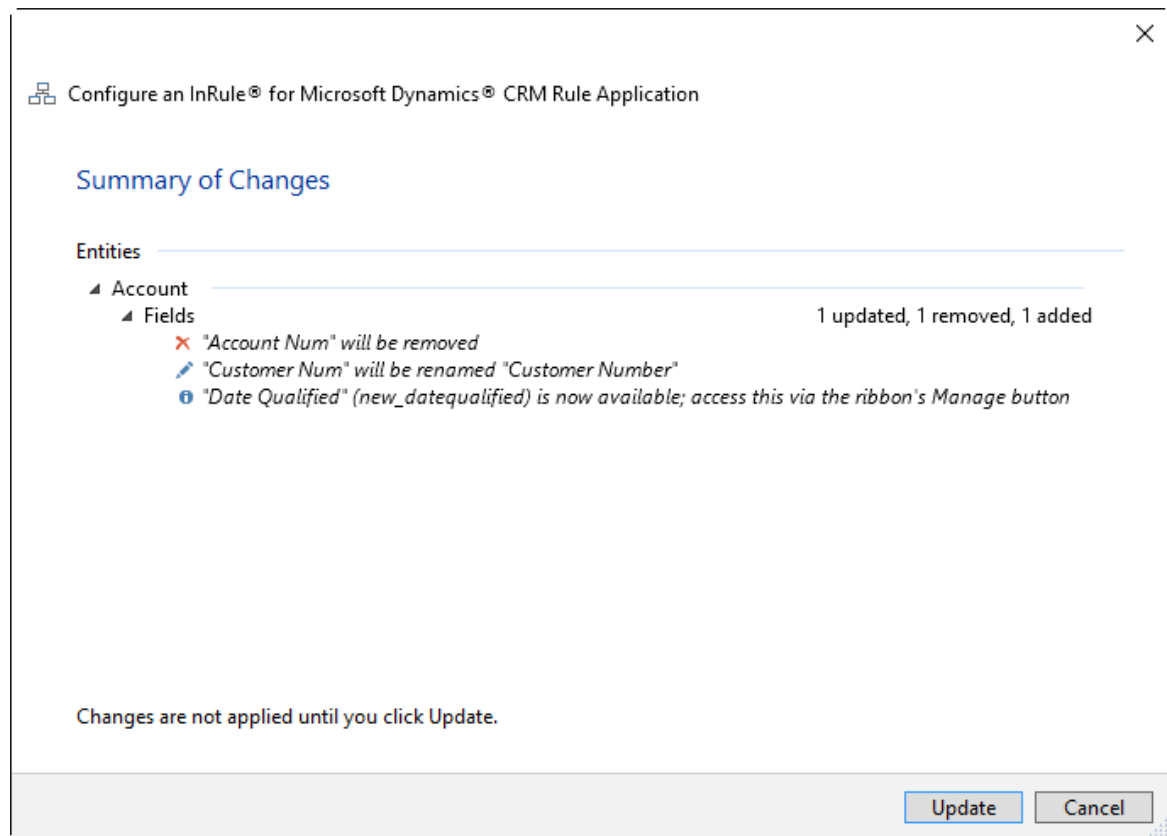


### Confirming the Refresh

The refresh will notify you of the changes it is about to make. For example, take the following simple Entity model:



On the server, Account Num has been removed and Customer Num has been renamed. When the Refresh button is clicked, the following confirmation screen appears:



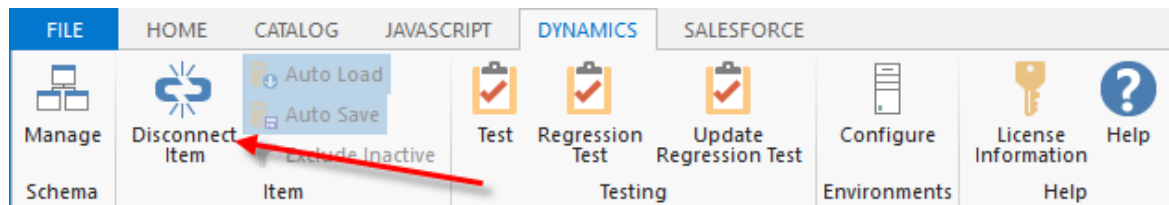
The confirmation screen provides an opportunity to opt out of the changes by clicking Cancel. Opting out of the changes can be especially important if you accidentally specified a refresh from the wrong Microsoft Dynamics 365 environment.

**Note:** Newly added Fields in your Entities, such as "Date Qualified" above, are not automatically added to your Rule Application. To add them, use the [Select Entities pane](#).

## 2.7 Disconnect Microsoft Dynamics 365 Items

Sometimes you may want to "disconnect" an Entity or Field from Microsoft Dynamics 365 so that changes to its value do not update the database. This is useful, for example, if you are using a Microsoft Dynamics 365 Field for an interim calculation but don't want that value to get written to the database.

To disconnect an item, right-click it in the Entities view and select Disconnect Item. Alternatively, with the item selected, click the Disconnect Item button on the DYNAMICS ribbon.



### Confirming the Disconnection

The Schema Source section of a Field definition indicates where the Entity or Field originated. For a Microsoft Dynamics 365 Field, this would look something like this.

#### Schema source



Microsoft Dynamics® CRM: name ⓘ

After you disconnect the Field, the Schema Source will simply say "internal," such as for any Field you added using irAuthor.

#### Schema source



Internal ⓘ

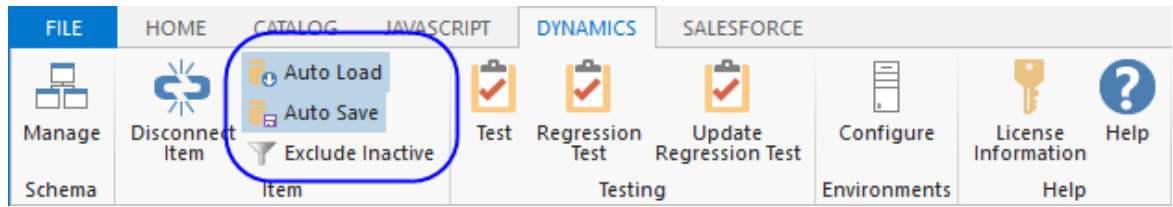
## 2.8 Auto Load and Save Microsoft Dynamics 365 Items

If you have a Collection or relationship that you do not want to populate automatically, you can disable "Auto Load" for the Field. This will add the "CRMAutoLoadRelationship" attribute to the Field. When loading data from Microsoft Dynamics 365, your runtime assembly can access that attribute and skip the Field. Auto Load can be toggled on or off by clicking the button in the DYNAMICS ribbon or through the context menu.

Similarly, if you have a Collection or relationship that you do not want to be saved back to Microsoft Dynamics 365, you can disable "Auto Save" for the Field. This will add the "CRMAutoSaveRelationship" attribute to the Field. When saving data to Microsoft Dynamics 365, your runtime assembly can access that attribute and skip the Field. Auto Save can be toggled on or off by clicking the button in the DYNAMICS ribbon or through the context menu.

Since Microsoft Dynamics 365 uses the "inactive" status to do a soft delete of records, it is possible to include both active and inactive records when loading a Collection or relationship. You can use the "Exclude Inactive" button to exclude inactive records, giving only active records.

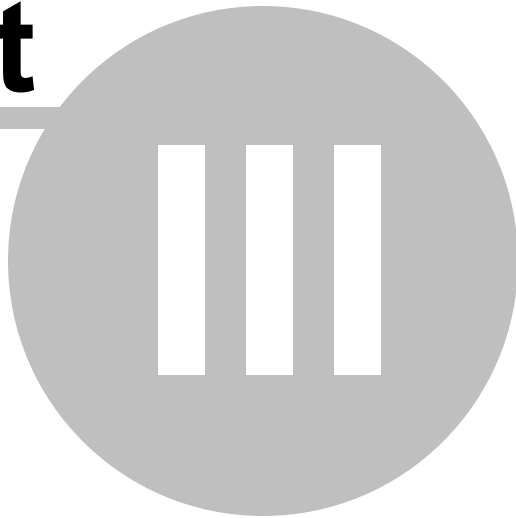




The Auto Load, Auto Save, and Exclude Inactive buttons are disabled for Fields that are not relationships.

# Part

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## Testing Your Rules

### 3 Testing Your Rules

InRule provides a full featured testing tool called irVerify® which you can use to test and verify your Rule Applications. irX for Microsoft Dynamics 365 allows you to obtain test data directly from a Microsoft Dynamics 365 instance so that you do not need to enter that test data manually.

irX for Microsoft Dynamics 365 provides the following functions for testing your Rule Application:

- [Test with a Microsoft Dynamics 365 record](#): Test the rules against a single record from Microsoft Dynamics 365
- [Regression Test with Microsoft Dynamics 365 Records](#): Run multiple Microsoft Dynamics 365 records through the rules and then compare the results to a set of assertions.
- [Update a Regression Test Suite](#): Update data stored locally in Test Suites with the latest values available in the Microsoft Dynamics 365 instance.

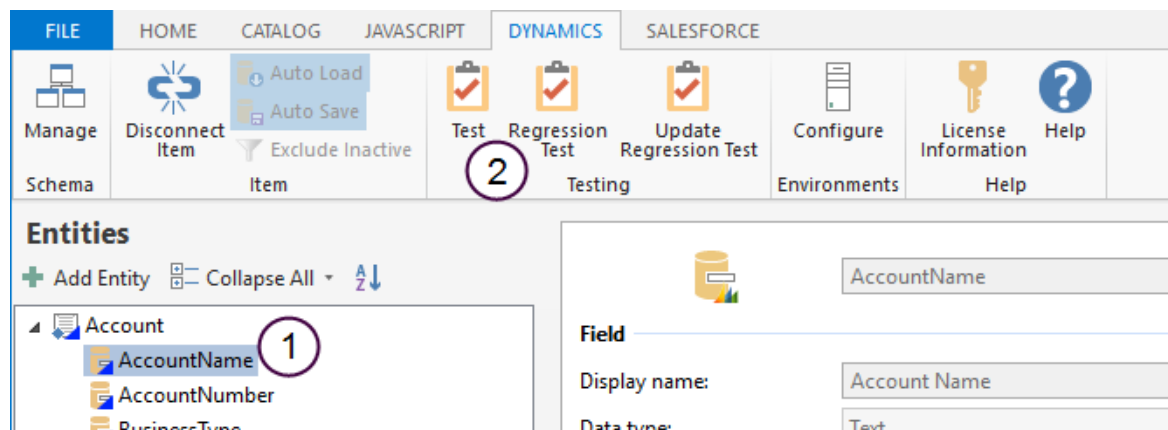
InRule provides a default Rule Application that can be useful for familiarizing yourself with testing Rule Applications

For detailed information on how to use irVerify, refer to the *InRule Help, Author Version*.


#### 3.1 Test with a Microsoft Dynamics 365 Record

This section describes how to create a Test Session using a Microsoft Dynamics 365 record. Note that all data will be tested locally and that no updates will be made to data in Microsoft Dynamics 365.

##### Select the Entity Type to Test



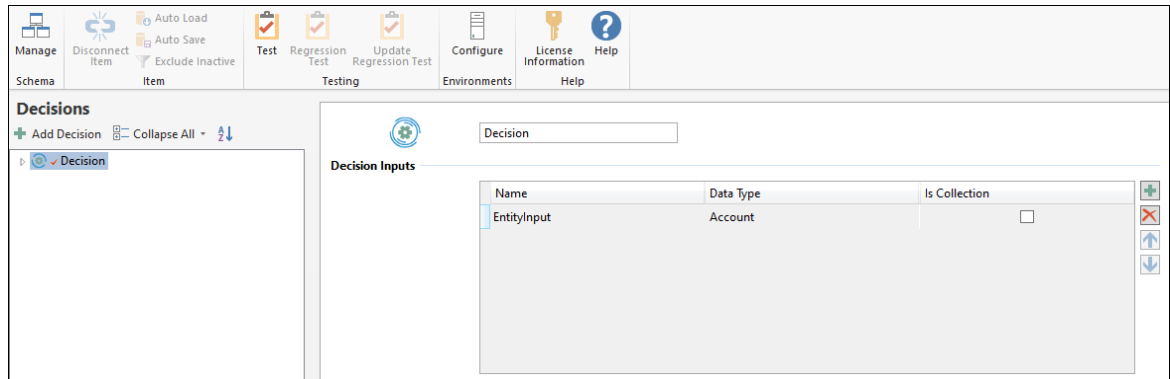
1. To create a Test Session using a Microsoft Dynamics 365 record, first select the Entity you wish to test. To do this, select the Entity or one of its children either in the irAuthor Entities view or the irAuthor Rules View. This screen shows the Entities View.

2. On the DYNAMICS ribbon tab, click the Test  button.

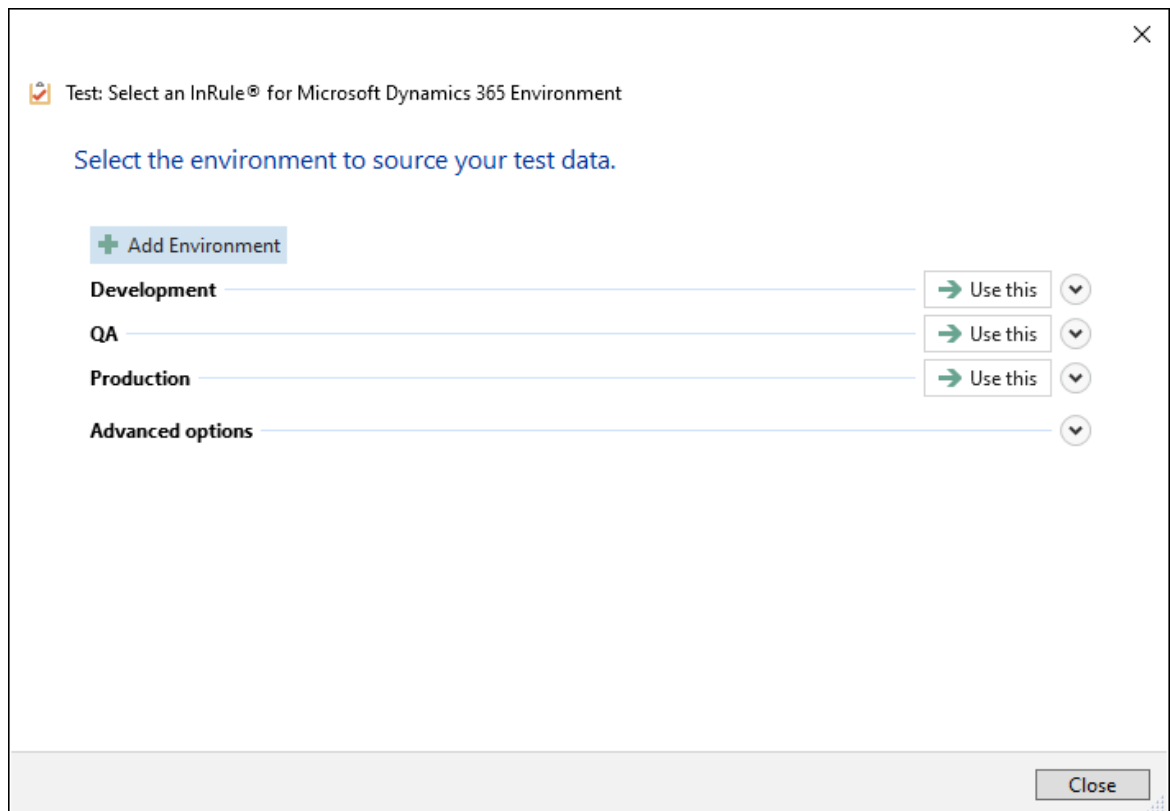
The Select Microsoft Dynamics 365 Environment window appears.


If testing a Decision, select the Decision and set the Entity Type as the Data Type of the first input.

Then click the Test  button for the Microsoft Dynamics 365 Environment window to appear.



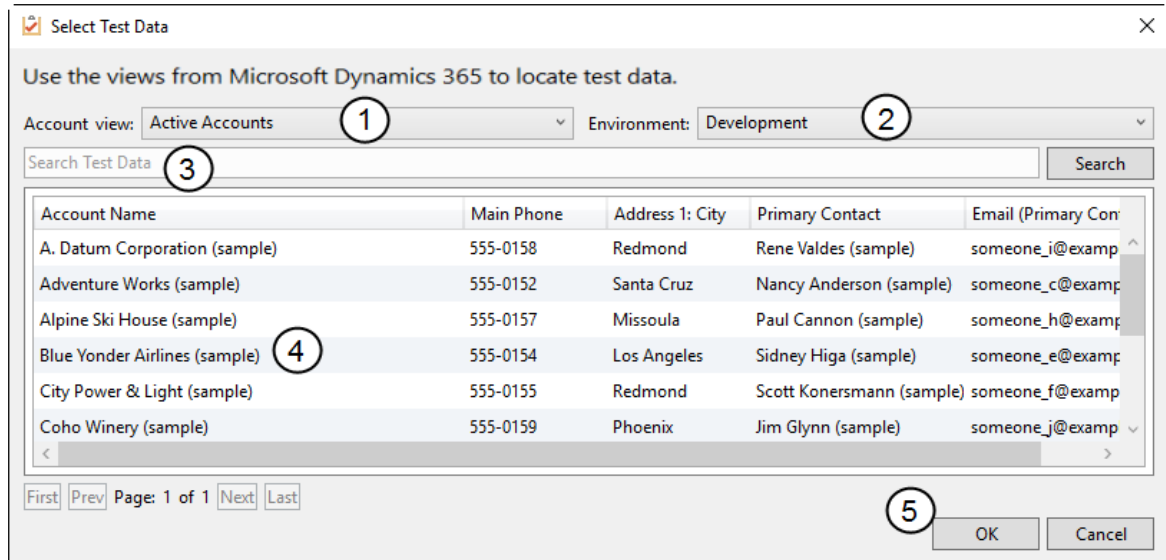
### Select the Microsoft Dynamics 365 Environment



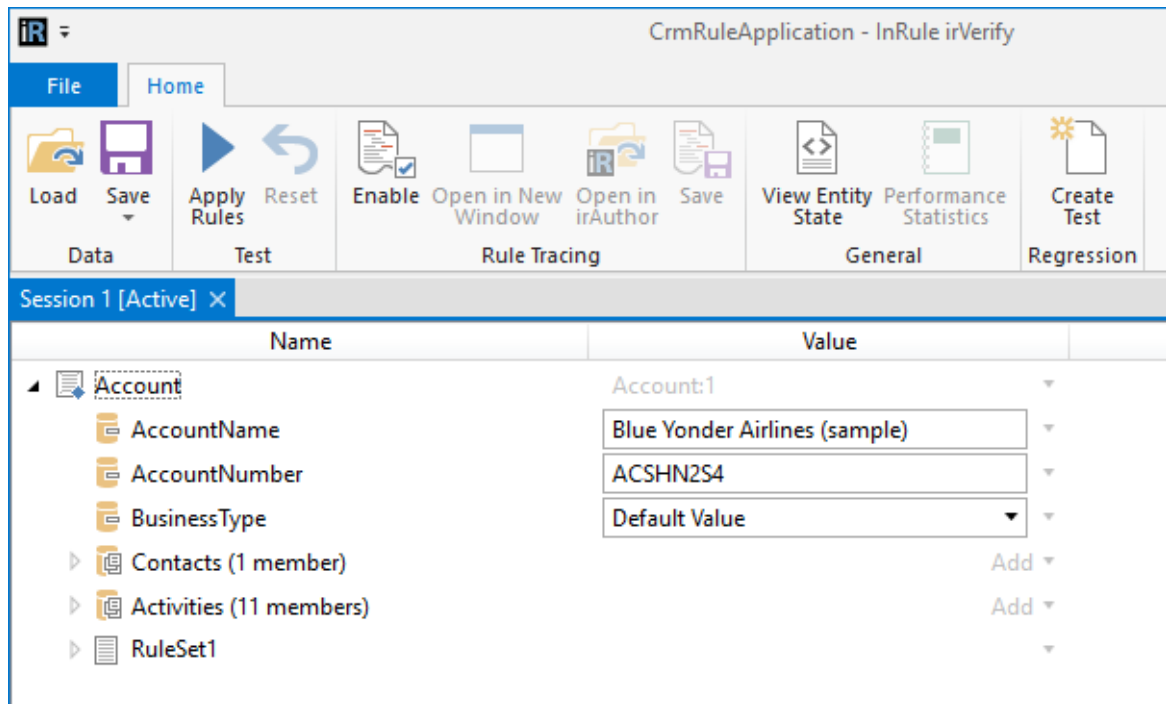
Select the environment you want to use to update the Test Suite by clicking the "Use this" button  .

### Select Record

Use the Select Test Data window to select the Microsoft Dynamics 365 record for your test data.



1. Use the view selection drop-down, here called "Account view," to select the view you want.
2. Select the appropriate Microsoft Dynamics 365 environment.
3. If needed, narrow the list by searching for the record(s) you want.
4. Select the row for the Microsoft Dynamics 365 record you want.
5. Click OK.



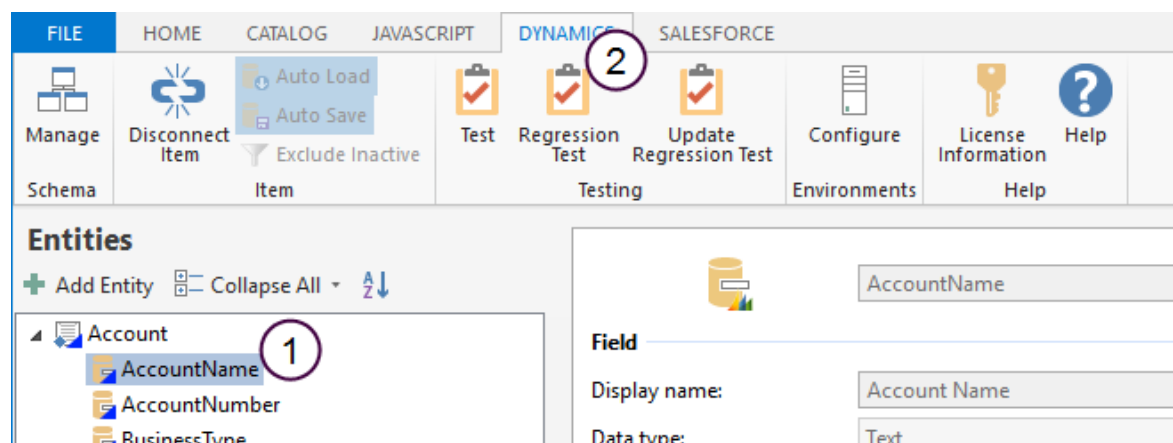
Proceed with your testing.

## 3.2 Regression Test with Microsoft Dynamics 365 Records

This section describes how to create a Test Suite using Microsoft Dynamics 365 records. Test Suites can be used to run the rules against records in Microsoft Dynamics 365 and then test the end results using a set of assertions. For example, if the final price on various quotes is calculated by a complex set of rules you might want to create a test suite to check the final price and some of the interim values on a set of quotes. Rerunning the test suite every time rules are changed can be a good way to make sure no inadvertent changes were made.

### Select the Test Entity

To create a Test Suite using a Microsoft Dynamics 365 record, first select the Entity you wish to test. To do this, select the Entity or one of its children either in the irAuthor Entities view or the irAuthor Rules View. This screen shows the Entities View.

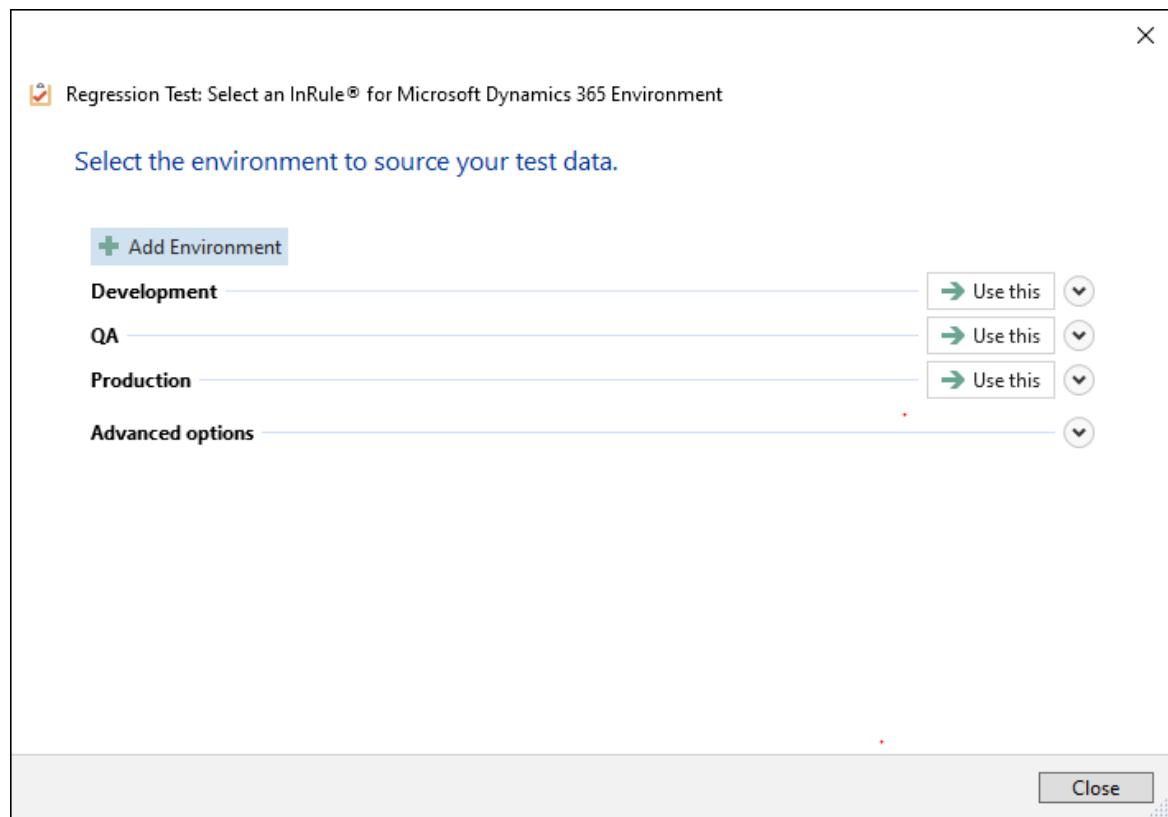


1. Select the Entity you wish to test. Here, the "Account" Entity is selected.

2. On the ribbon, click the Regression Test  button.

The Select Microsoft Dynamics 365 Environment window appears.

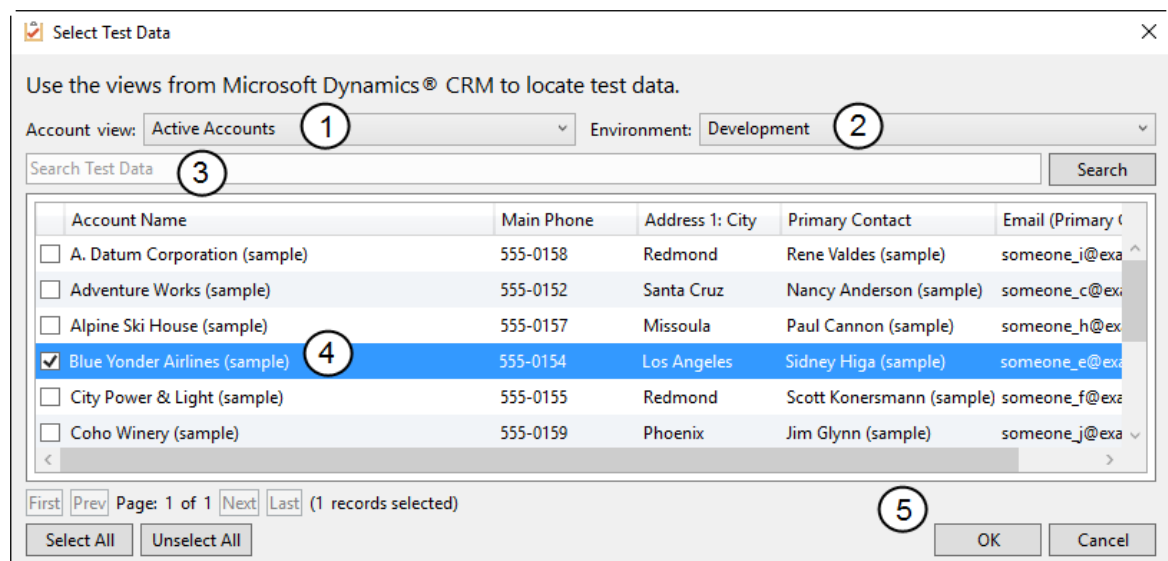
## Select the Microsoft Dynamics 365 Environment



Select the environment you want to use to update the Test Suite by clicking the "Use this" button → .

## Select Records

Use the Select Test Data window to select the Microsoft Dynamics 365 records for your test suite.



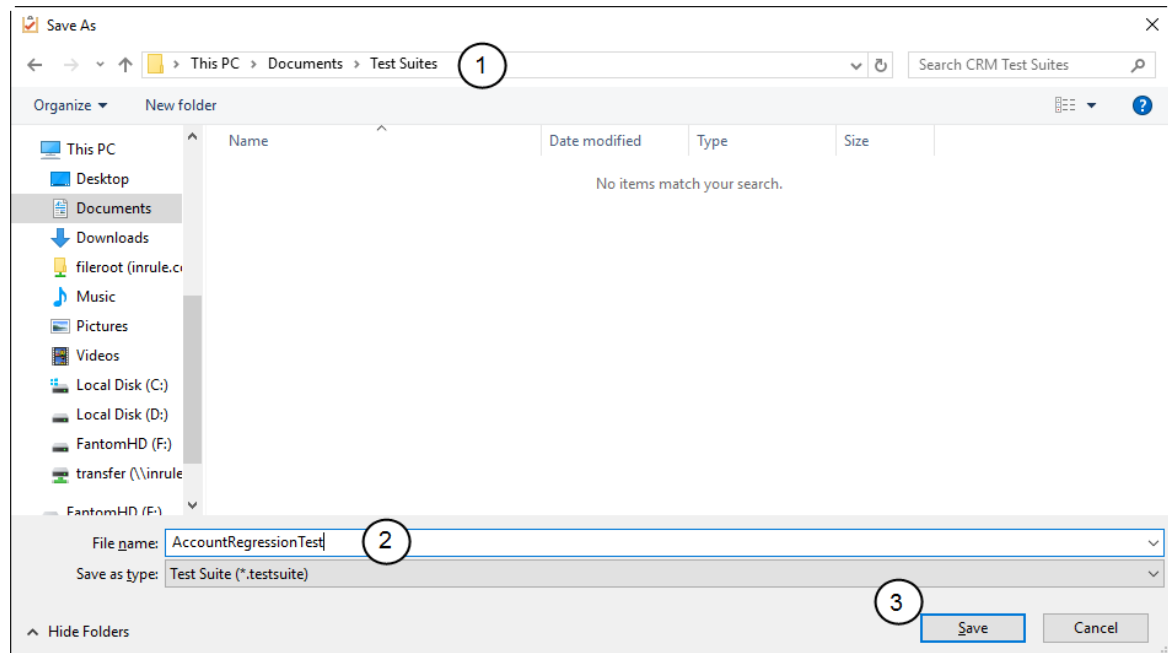
1. Use the view selection drop-down, here called "Account view," to select the view you want.

2. Select the appropriate Microsoft Dynamics 365 environment.
3. If needed, narrow the list by searching for the record(s) you want.
4. Use the check boxes to select the Microsoft Dynamics 365 records you want.
5. Click OK.

A dialog appears, prompting you to save the Test Suite.

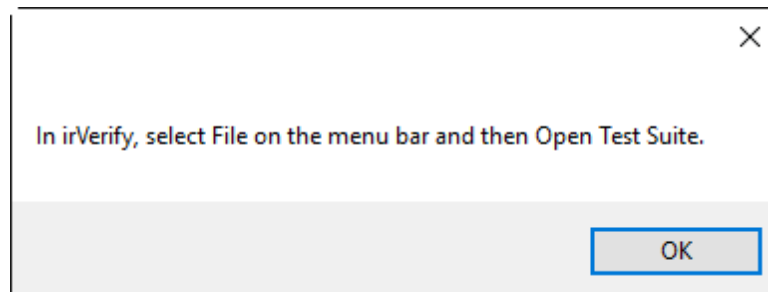
### Save the Test Suite

Use the Save As window to save your Test Suite.



1. Choose the disk location for the Test Suite.
2. Type in a file name for the saved Test Suite.
3. Click Save.

A message window appears with instructions for the next step.

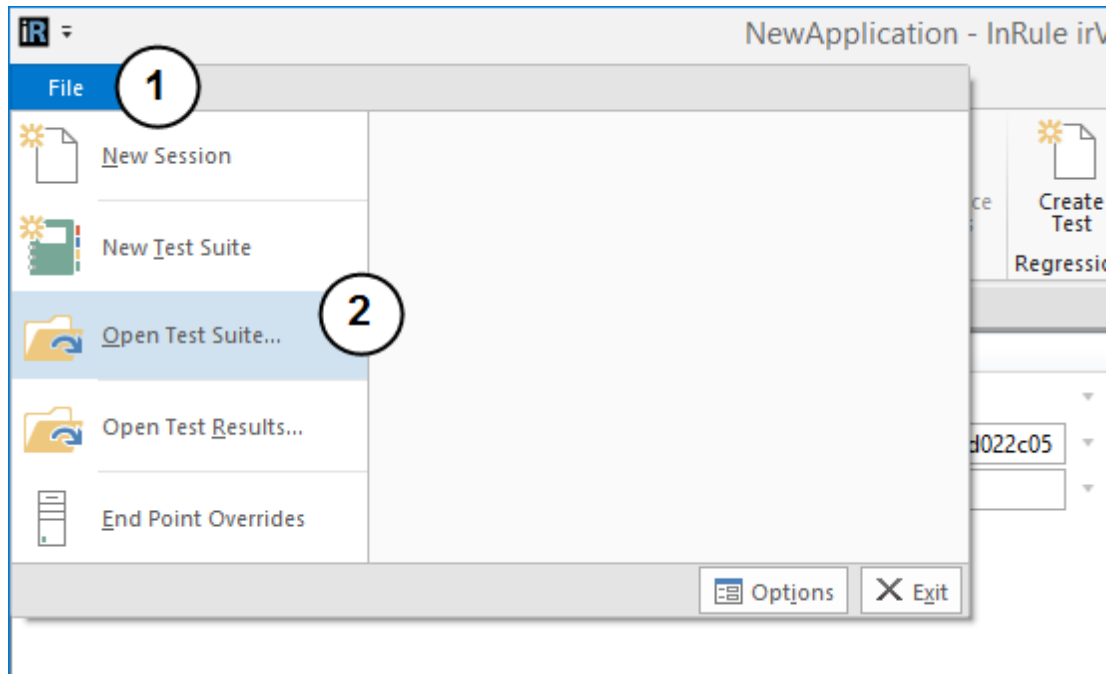


Click OK, and the irVerify window appears.

### Open the Test Suite



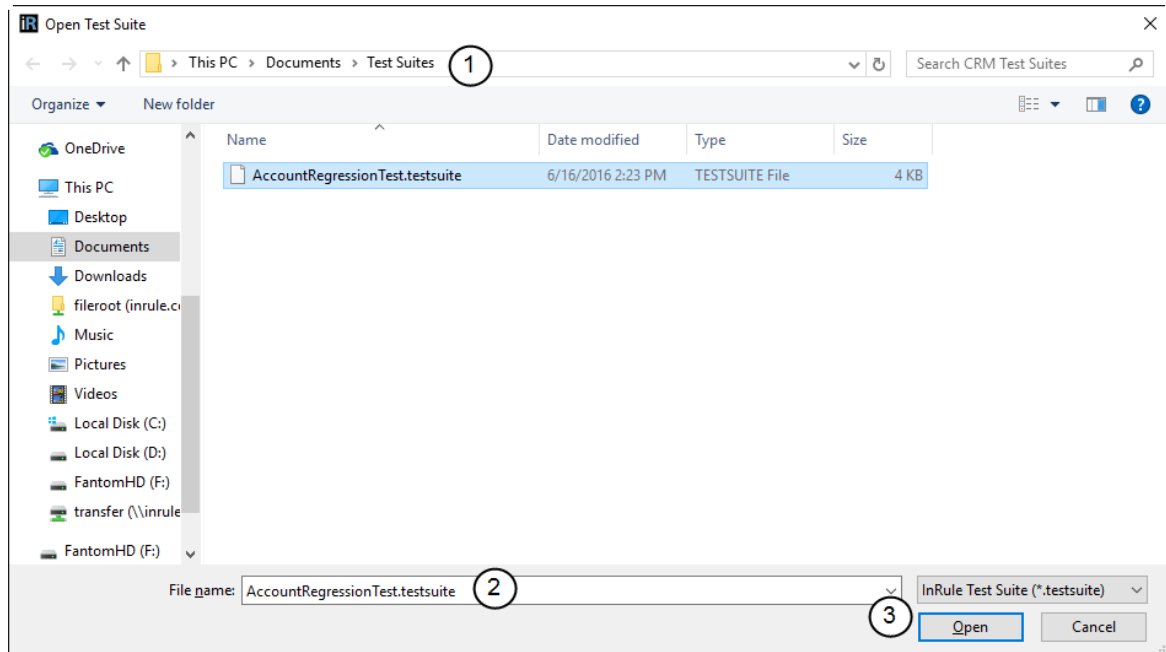
Once you are in irVerify, open the test suite.



1. Click File to expand the File menu.

2. Click Open Test Suite.

The Open Test Suite window appears.

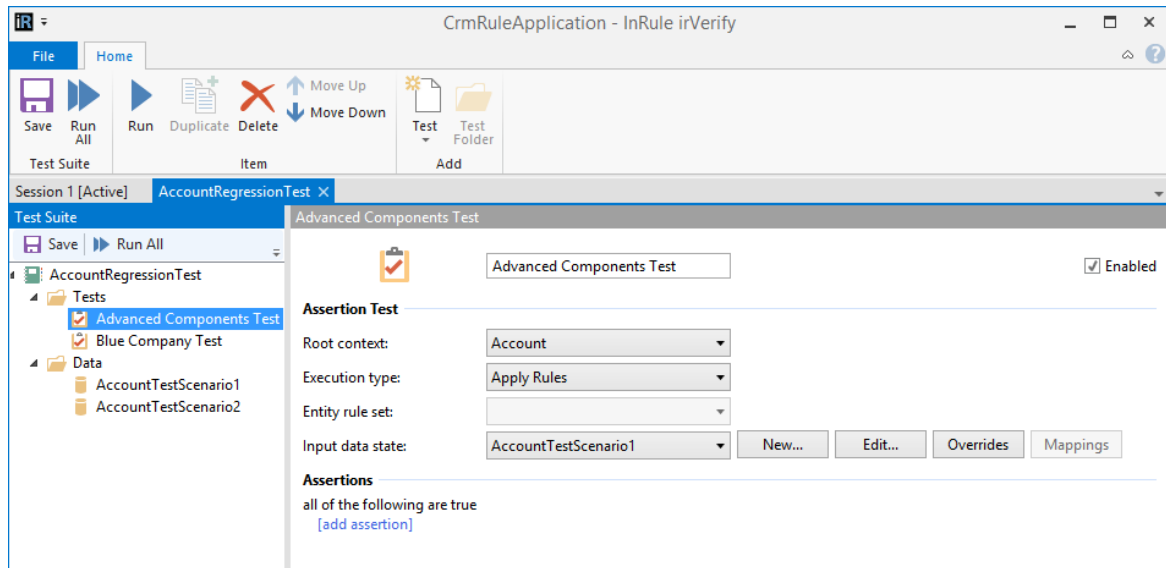


1. If necessary, navigate to the location where you saved the Test Suite earlier.

2. Select the Test Suite file.

3. Click Open.

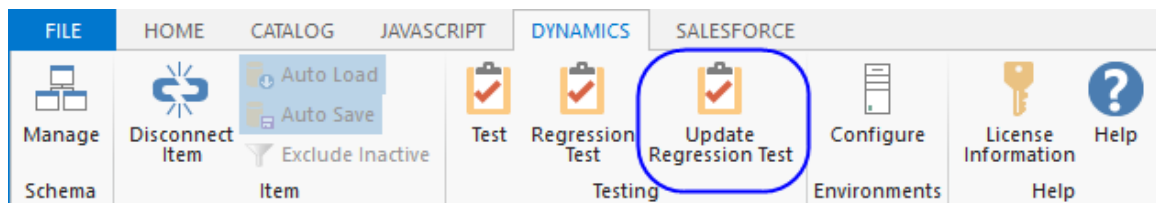
The Test Suite tab appears in irVerify.



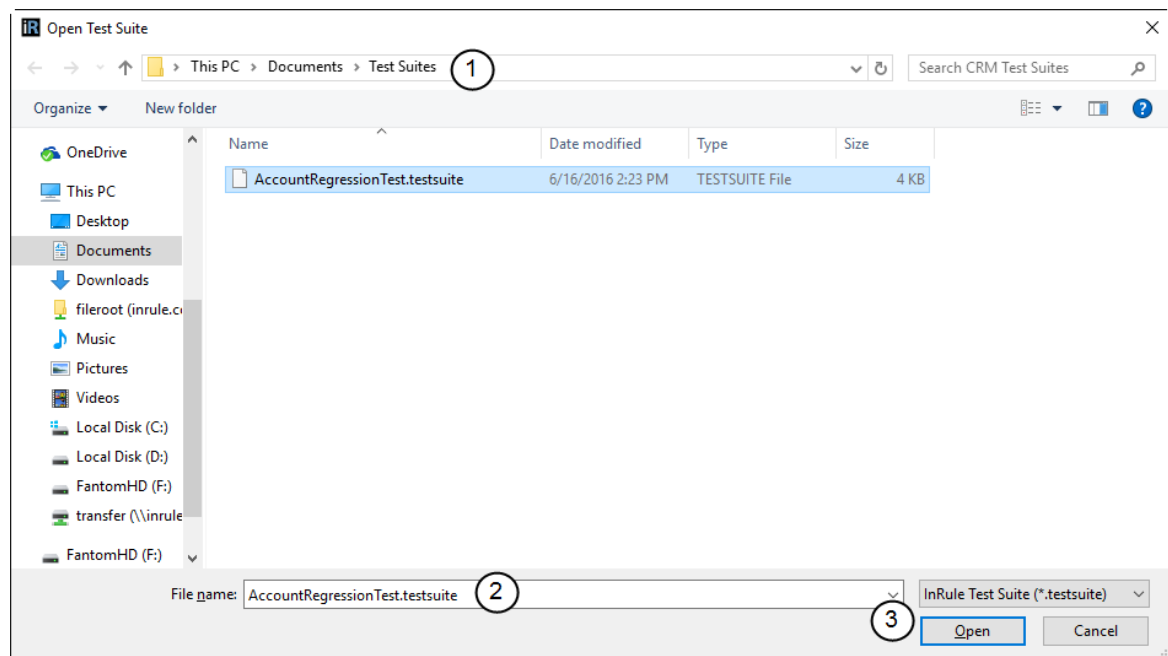
Proceed with your testing.

### 3.3 Update a Regression Test Suite

This section describes how to update a Test Suite with existing Microsoft Dynamics 365 records. Since the data used in test suites is saved locally on a machine, this functionality provides a way to easily update that data with the latest values available in the Microsoft Dynamics 365 instance.



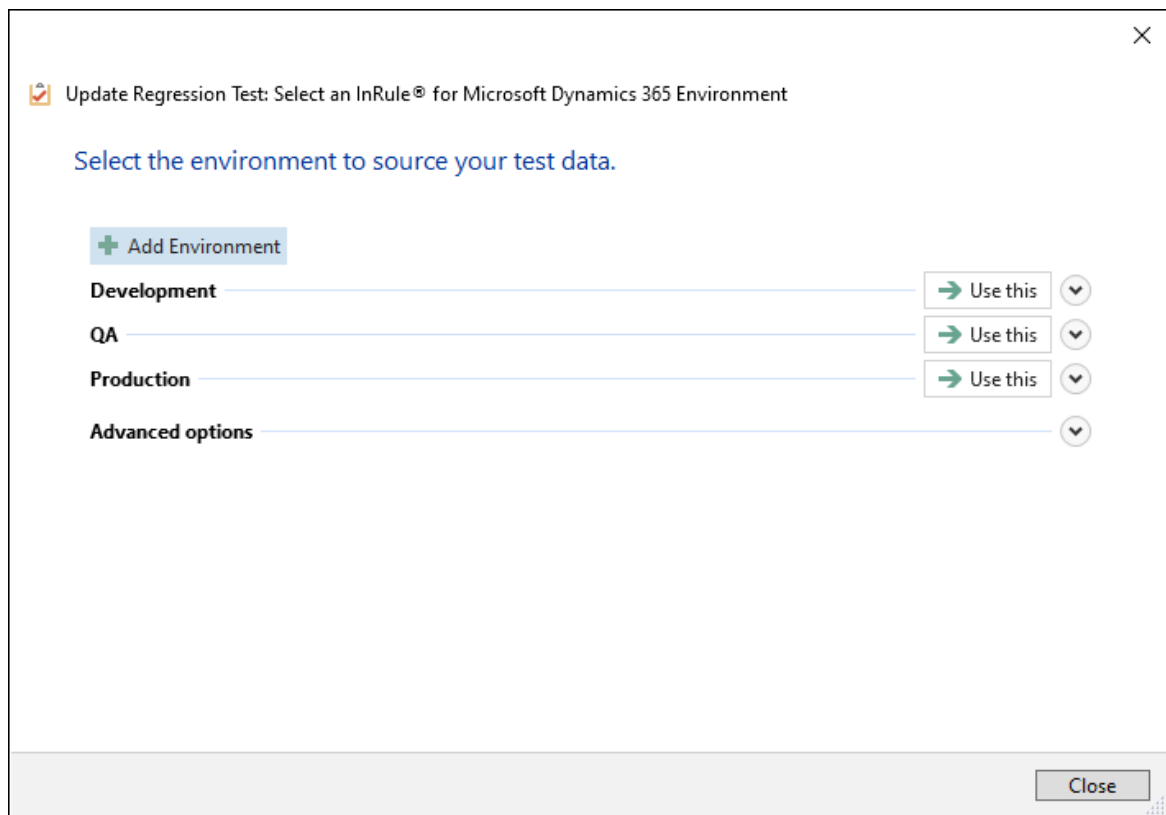
## Select the Test Suite File



1. If necessary, navigate to the location of the Test Suite file.
2. Select the Test Suite file.
3. Click Open.

The Select Microsoft Dynamics 365 Environment window appears.

### Select the Microsoft Dynamics 365 Environment

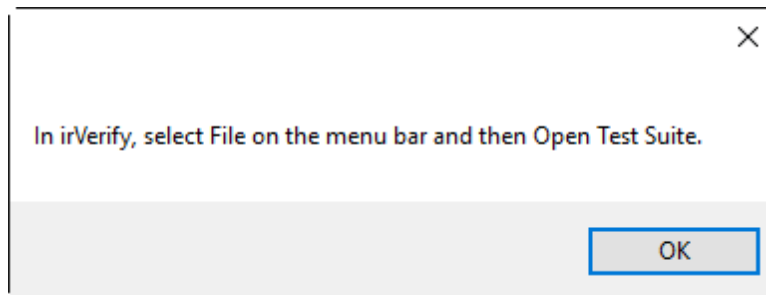


Select the environment you want to use to update the Test Suite by clicking the "Use this" button → .

### Log In to Microsoft Dynamics 365

You will be logged in to Microsoft Dynamics 365 if needed.

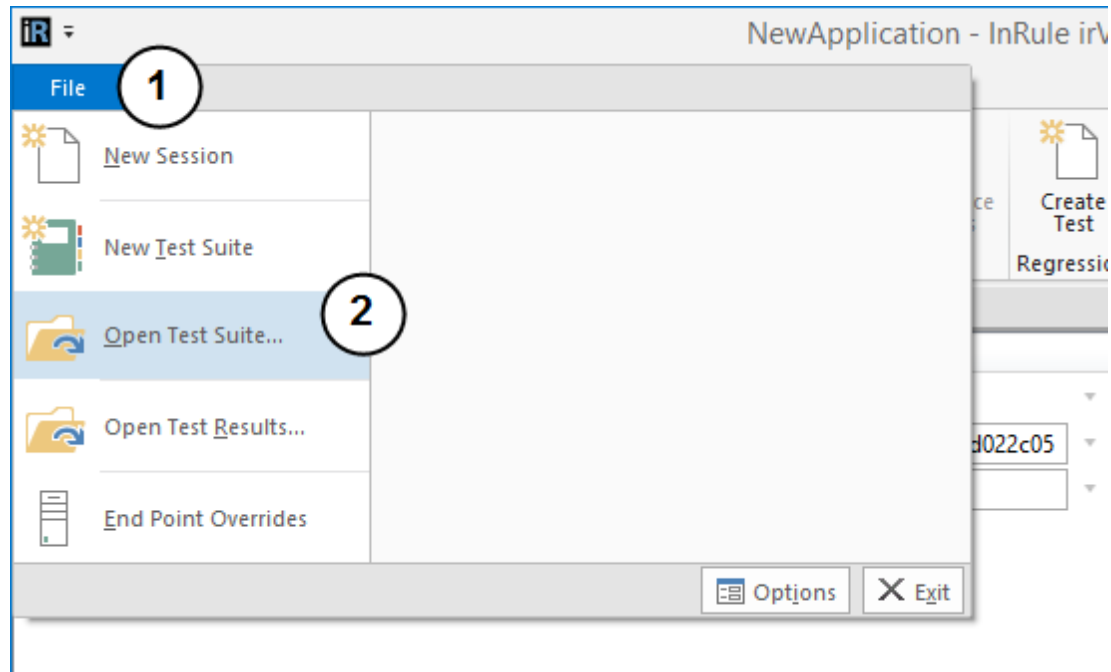
A message window appears with instructions for the next step.



Click OK, and the irVerify window appears.

### Open the Test Suite

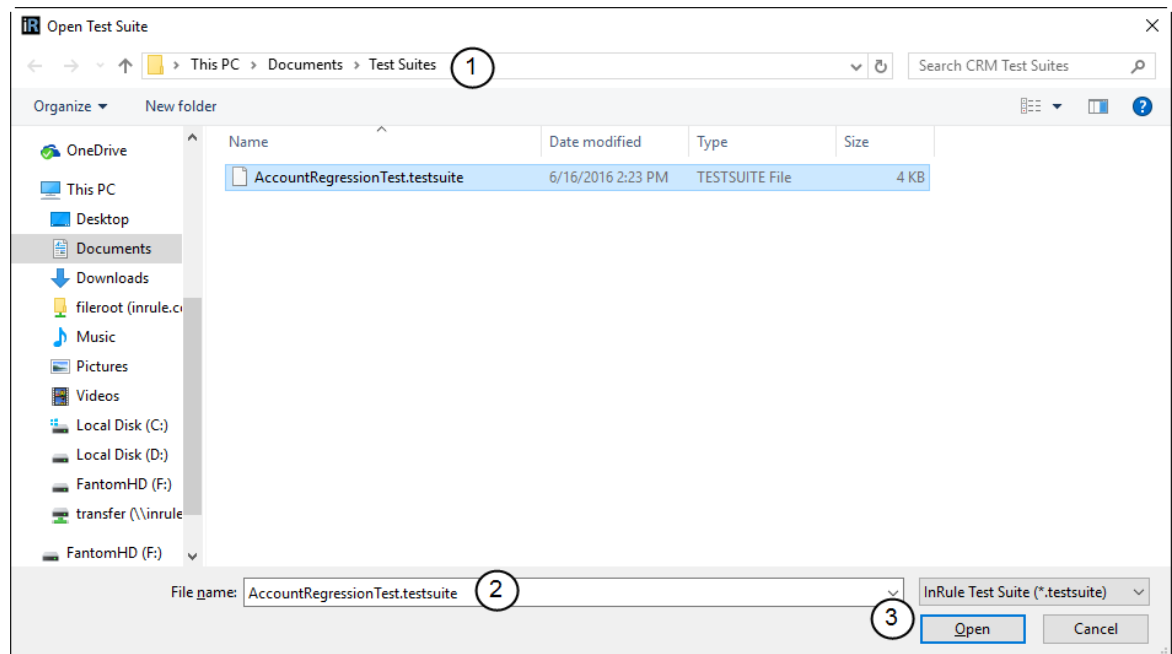
Once you are in irVerify, open the test suite.



1. Click File to expand the File menu.

2. Click Open Test Suite.

The Open Test Suite window appears.

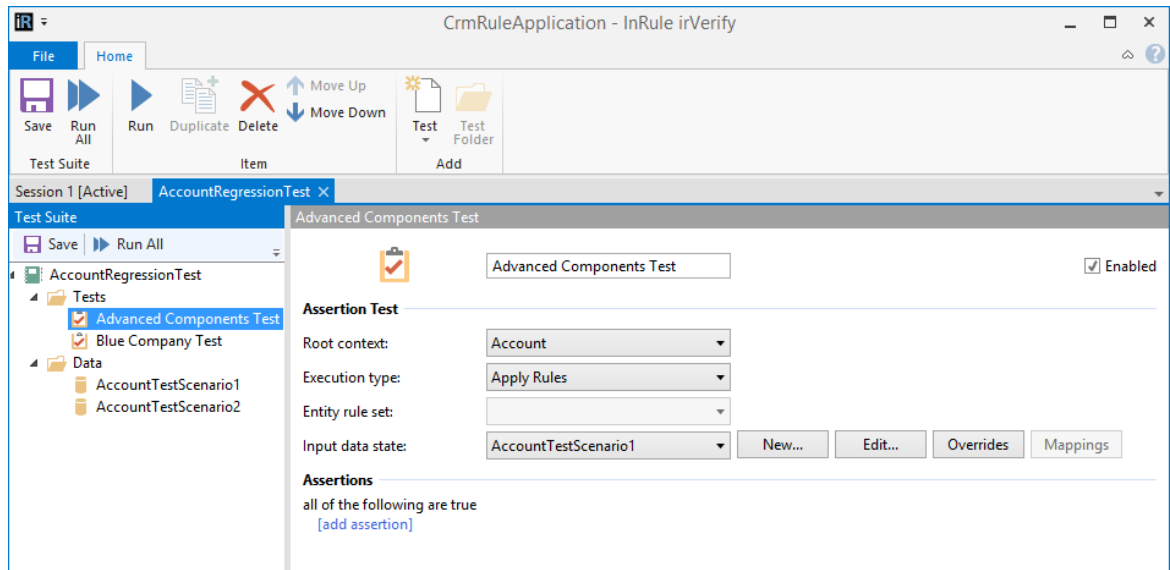


1. If necessary, navigate to the location of the Test Suite file.

2. Select the Test Suite file.

3. Click Open.

The Test Suite tab appears in irVerify.



Proceed with your testing.

# Part

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## Attribution

## 4 Attribution

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# inrule

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For support please visit <https://support.inrule.com>

If you would like to report an issue or request a feature enhancement, please email [support@inrule.com](mailto:support@inrule.com).