



PreCise MRM GeoEvent Connector to Feature Class

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Overview

The ArcGIS GeoEvent Extension for Server is an extension for ArcGIS for Server. The GeoEvent Extension can be used to incorporate real-time event data into the ArcGIS system. The GeoEvent Extension satisfies a growing demand across multiple industries to incorporate real-time streaming data into everyday GIS applications, workflows, and analyses.

This document illustrates the process of integrating data provided by the PreCise MRM GeoEvent Connector into an ArcGIS Feature Class which resides on an Enterprise DBMS (MS SQL Server is used in this example). The process may need to be altered to accommodate your specific environment.



Prerequisites

- ESRI ArcGIS Server 10.3 (or later)
 - More information available at <http://server.arcgis.com/en/server/>
- ESRI ArcGIS Server 10.3 (or later) GeoEvent Processor extension (this component is available from ESRI).
 - <http://server.arcgis.com/en/geoevent-extension/>
- ESRI ArcGIS Desktop 10.3 (or later), including the following:
 - ArcCatalog 10.3
 - ArcMap 10.3
- PreCise MRM GeoEvent Connector files:
 - PreCiseInboundTransport-10.3.0.jar
 - PreCiseInboundAdapter-10.3.0.jar
- Supported DBMS for ESRI ArcGIS Server 10.3 (MS SQL Server, PostgreSQL, Oracle, etc)
- PreCise MRM feature class definition
 - PreciseAssets_10_3_0.XML (XML Workspace Document Import)
- Refer to the ***PreCise ArcGIS GeoEvent Connector 10.3.pdf*** for specific instructions on installing the PreCise MRM GeoEvent Connector.



Creating the Feature Class

In order to download PreCise MRM AVL data into your local ArcGIS Server, a DBMS geodatabase must be added to the ArcGIS Server configuration. The feature class associated with the PreciseAsset schema can then be created on the geodatabase

1. Register the geodatabase
 - a. Open the ArcGIS Server Manager
 - i. <http://<ArcGIS Server IP>:6080/arcgis/manager>
 - b. Go to **Site** -> **GIS Server**-> **Data Store**
 - c. Register your geodatabase, if not already registered
 - d. More information regarding registering a database with ArcGIS Server is available at <http://server.arcgis.com/en/server/latest/publish-services/windows/registering-your-data-with-arcgis-server-using-manager.htm>

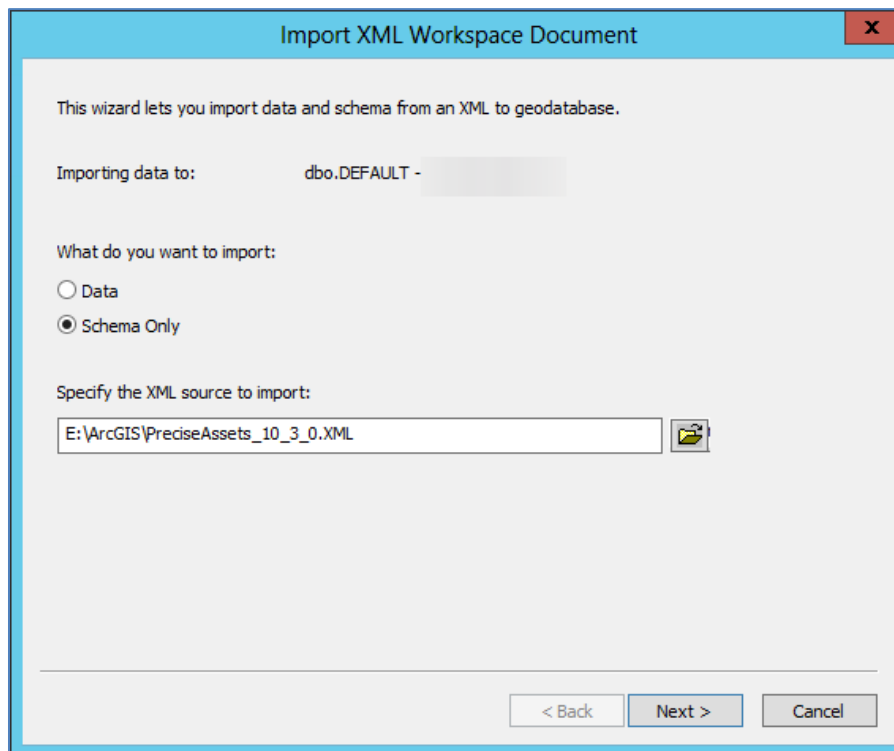
The screenshot shows the ArcGIS Server Manager interface. The top navigation bar includes "Services", "Site" (selected), "Security", and "Logs". Below this is a sub-navigation bar with "GIS Server", "Web Adaptor", and "Software Authorization". The left sidebar contains a menu with "Directories", "Configuration Store", "Clusters", "Machines", "Data Store" (selected), and "Extensions". The main content area is titled "Data Store" and includes a "Help" link. It contains a paragraph explaining data registration, "Validate All" and "Settings" buttons, a "Registered Databases" section with a "Register Database" dropdown, and a "Registered Folders" section with a "Register Folder" button. The "Registered Databases" table has two rows: "PreciseGeoData" and "PreciseManagedGeoData [Managed]".

Status	Name		
?	PreciseGeoData		
?	PreciseManagedGeoData [Managed]		

2. Create the feature class via Import
 - a. Open ArcMap



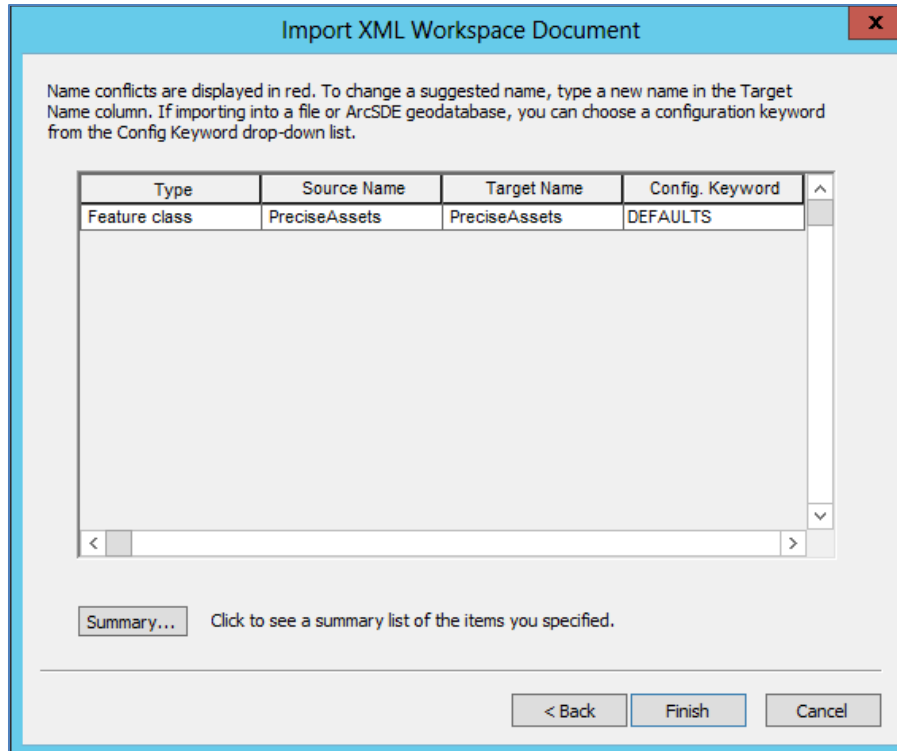
- b. Expand the **Catalog** window
- c. Expand **Database Connections** in the Catalog Tree
- d. If your geodatabase is not already listed, double-click **Add Database Connection**
 - i. Enter the geodatabase details for you environment.
 - ii. More information regarding database connections is available at <http://desktop.arcgis.com/en/desktop/latest/manage-data/gdbs-in-sql-server/connect-sqlserver.htm>
- e. Right-click the geodatabase in the Catalog Tree. Select **Import -> XML Workspace Document...**
- f. In the Import XML Workspace Document window
 - i. Select **Schema Only**
 - ii. Specify the XML source document by browsing to the location of the *PreciseAssets_10_3_0.XML* file



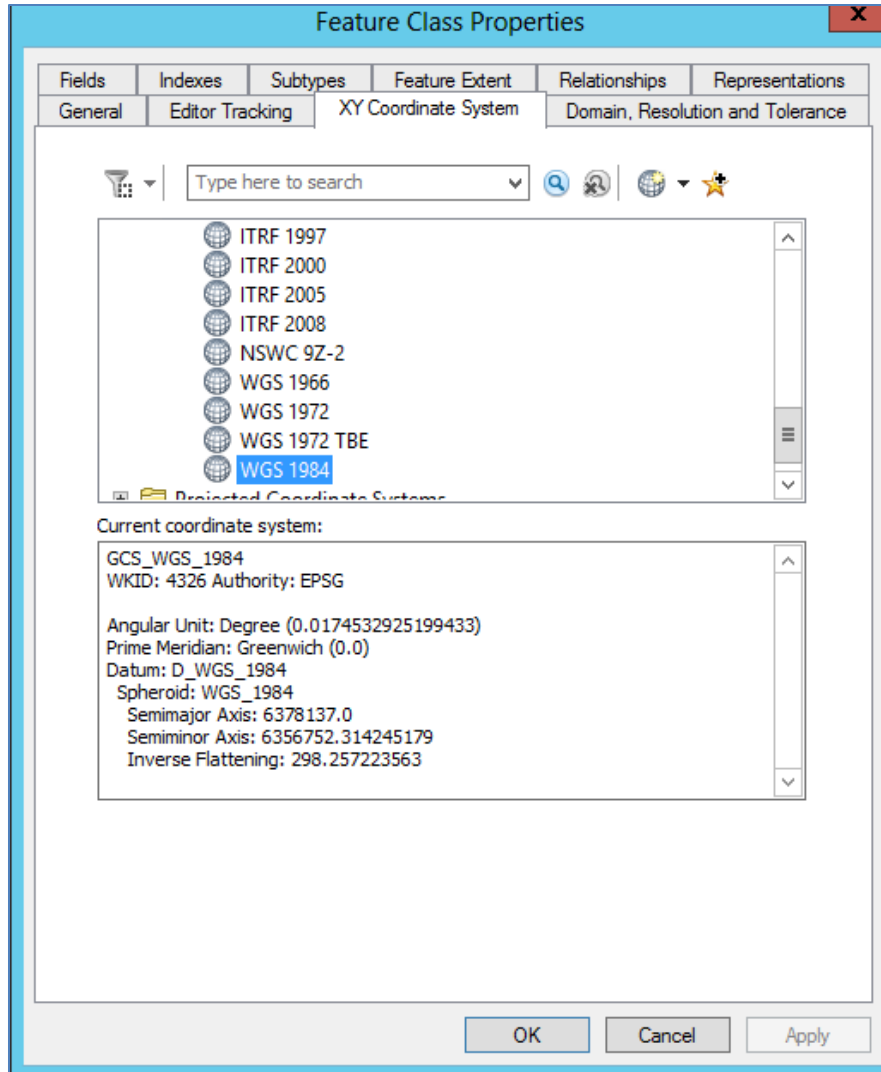
- iii. Click **Next >**



- iv. Review the import summary and click **Finish** when ready to complete the import.



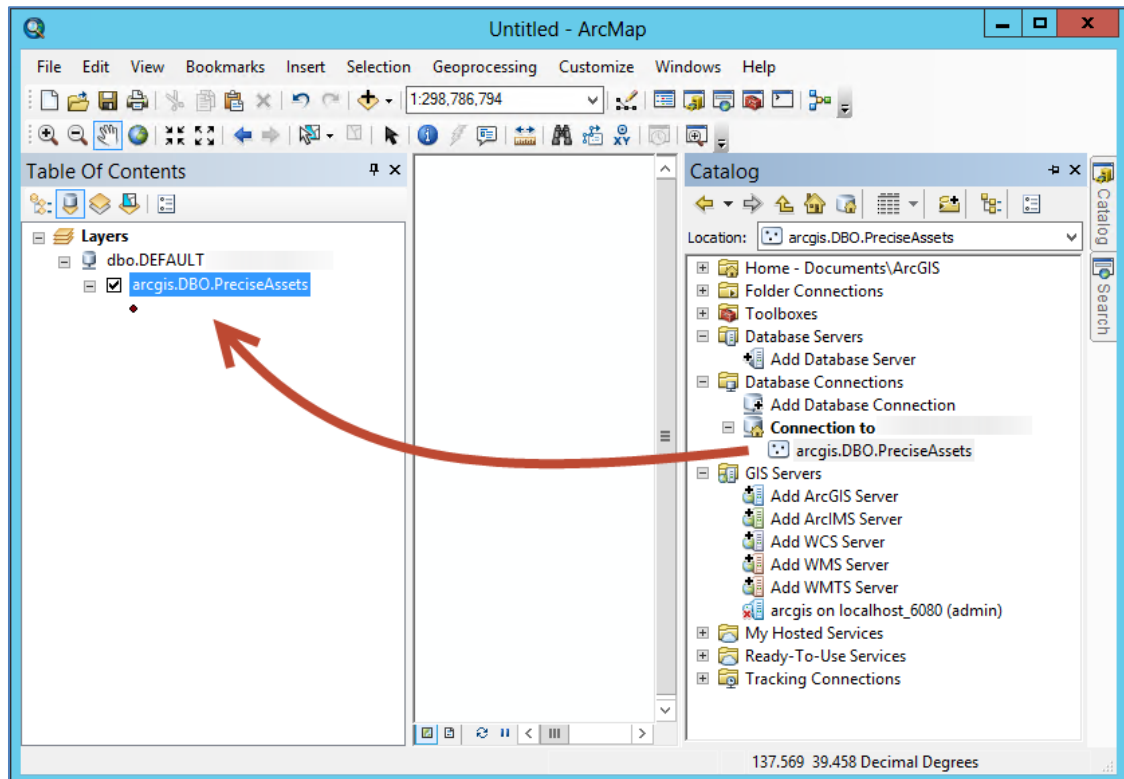
- g. The **PreciseAssets** feature class can be moved into a Feature Dataset if desired. However, ensure that the **PreciseAssets** feature class and associated feature dataset utilize the WGS 1984 (GCS_WGS_1984, WKID: 4326) Geographic Coordinate System.



Sharing the Feature Class

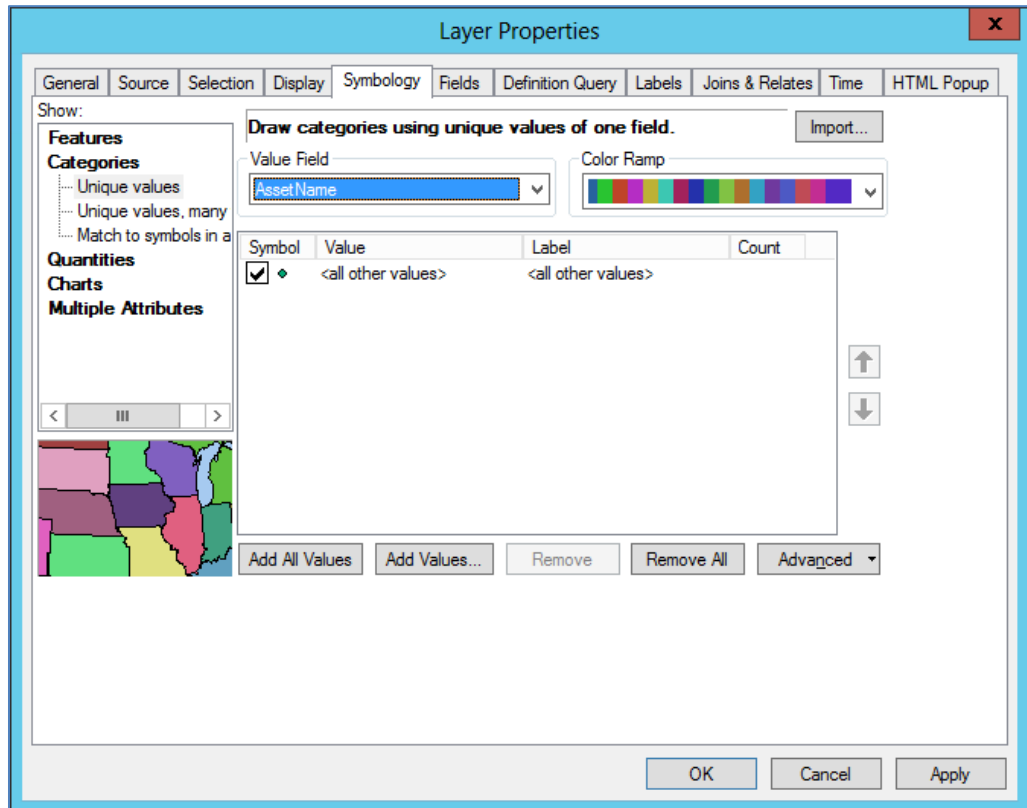
The feature class must be shared as a service in order for the GeoEvent Extension to interact with the feature class.

1. Share the **PreciseAssets** feature class as a Service
 - a. Open ArcMap
 - b. In the ArcMap – Getting Started window, choose the **Blank Map** template.
 - c. Expand the **Catalog** window
 - i. The **PreciseAssets** feature class should be visible under **Database Connections**
 - d. Drag and drop the **PreciseAssets** feature class from the Catalog window over to the Table Of Contents window (where the empty **Layers** is displayed)



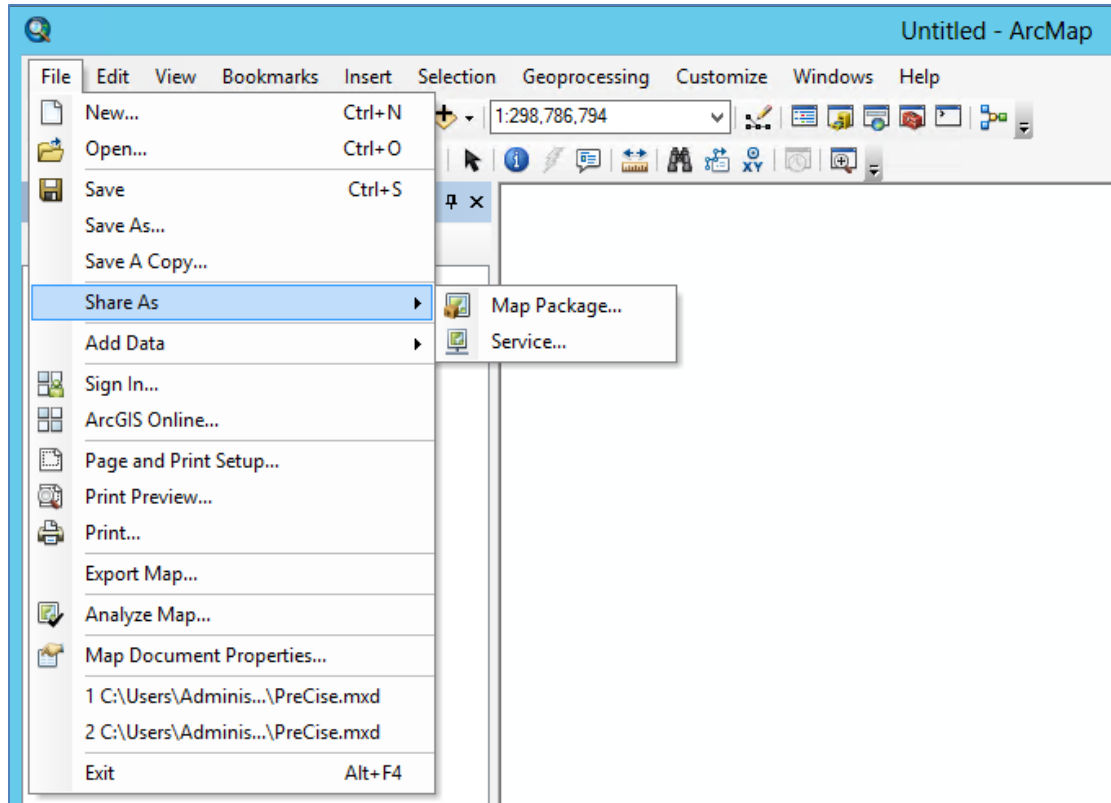
- e. Right-click the **PreciseAssets** layer, select **Properties**
- f. On the **Symbology** tab
 - i. Select **Categories** -> **Unique Values**

- ii. Set the **Value Field** = **AssetName** (groups asset entries based on the Asset Name when viewed)

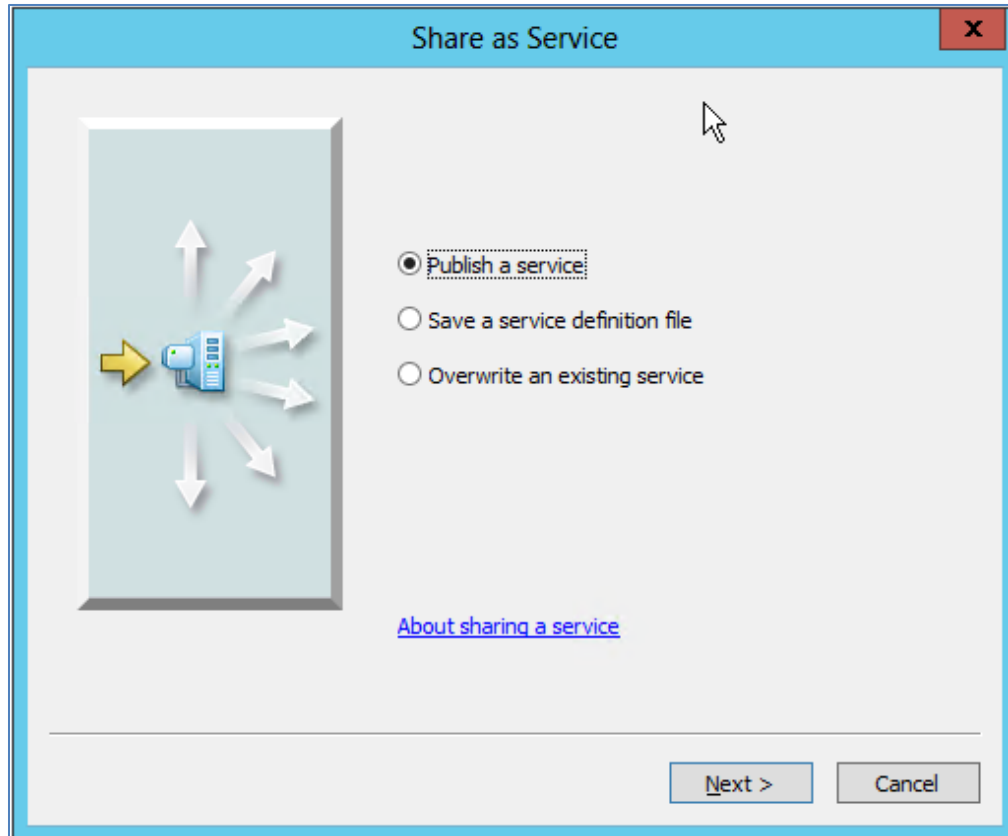


- iii. Click **Apply**
- g. Select **File** -> **Save As**
 - i. Save the file as **PreCiseAssets.mxd**

h. Select **File** -> **Share As** -> **Service**



- i. Select **Publish a Service**



- ii. click **Next >**
iii. For **Choose a connection**, select your ArcGIS server



- iv. For **Service name**, enter a service name such as "PreCiseAssets "

A screenshot of a software dialog box titled "Publish a Service". The dialog has a light blue header bar with a red close button (X) in the top right corner. The main area is white and contains the following elements:

- A label "Choose a connection" above a dropdown menu showing "arcgis on localhost_6080 (admin)".
- A label "Server type:" followed by the text "ArcGIS Server".
- A label "Service name" above a text input field containing "PreCiseAssets".
- At the bottom, three buttons: "< Back", "Next >", and "Cancel".

- v. Click **Next >**



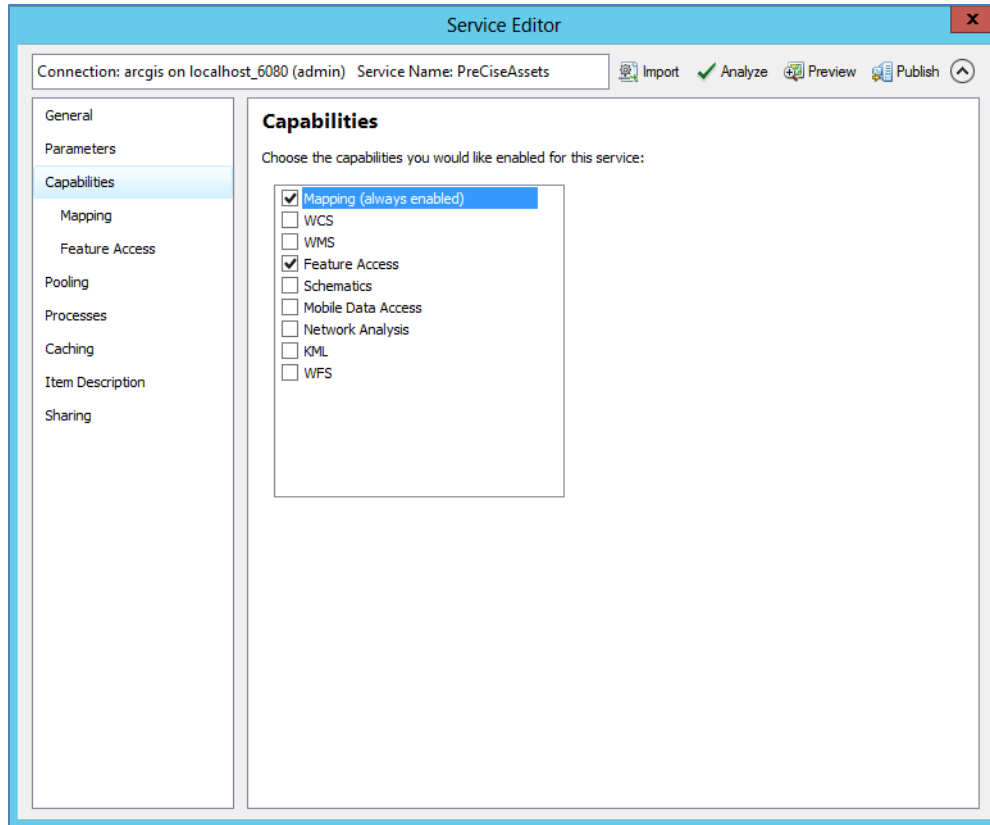
- vi. For **Publish service to folder**, select an existing folder or make a new folder

A screenshot of a software dialog box titled "Publish a Service". The dialog has a light blue header bar with a red close button (X) in the top right corner. The main content area is light gray and contains the text "Publish service to folder" above a group box. Inside the group box, there are two radio button options: "Use existing folder" (which is selected) and "Create new folder". To the right of these options is a dropdown menu currently showing "[root]" and a text input field below it. At the bottom of the dialog, there are three buttons: "< Back", "Continue", and "Cancel".

- vii. Click **Continue**
- i. The Service Editor window will then launch

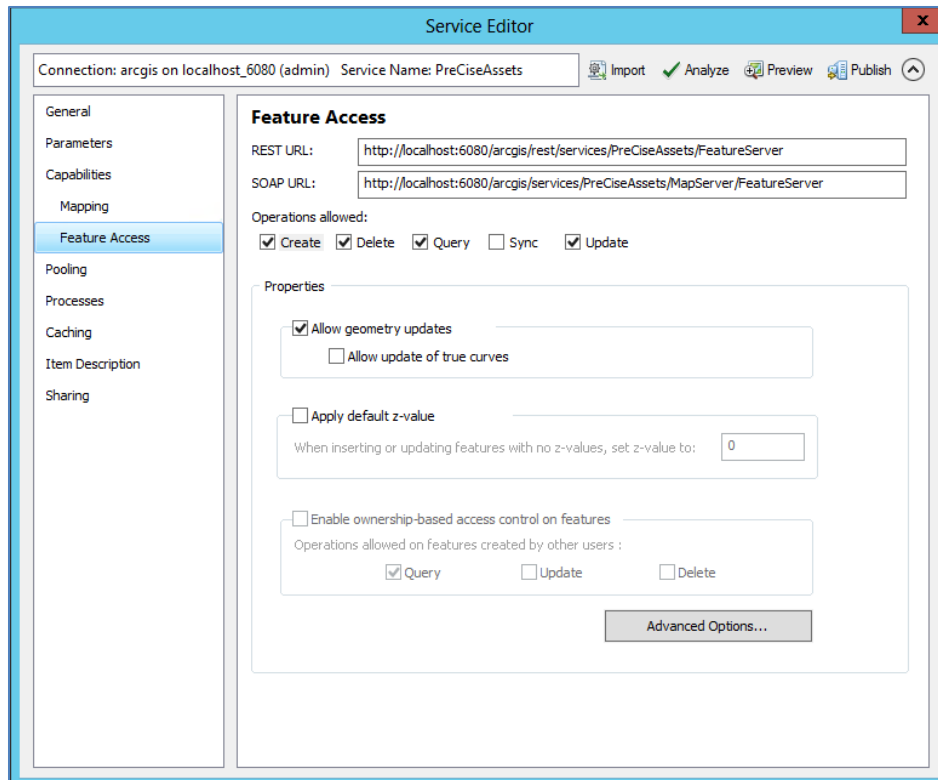


i. In **Capabilities**, check **Mapping** and **Feature Access**



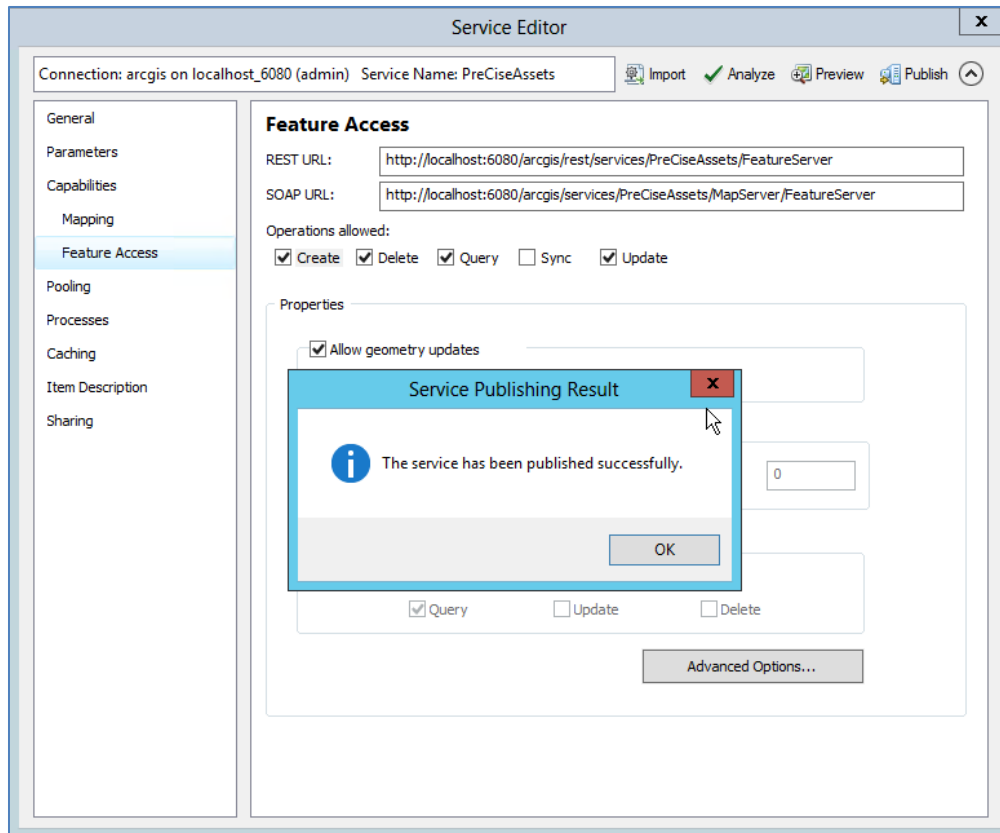


ii. In **Capabilities** -> **Feature Access**, the default configuration will work



iii. Select **Analyze**. Check for any errors in ArcMap under the **Prepare** window

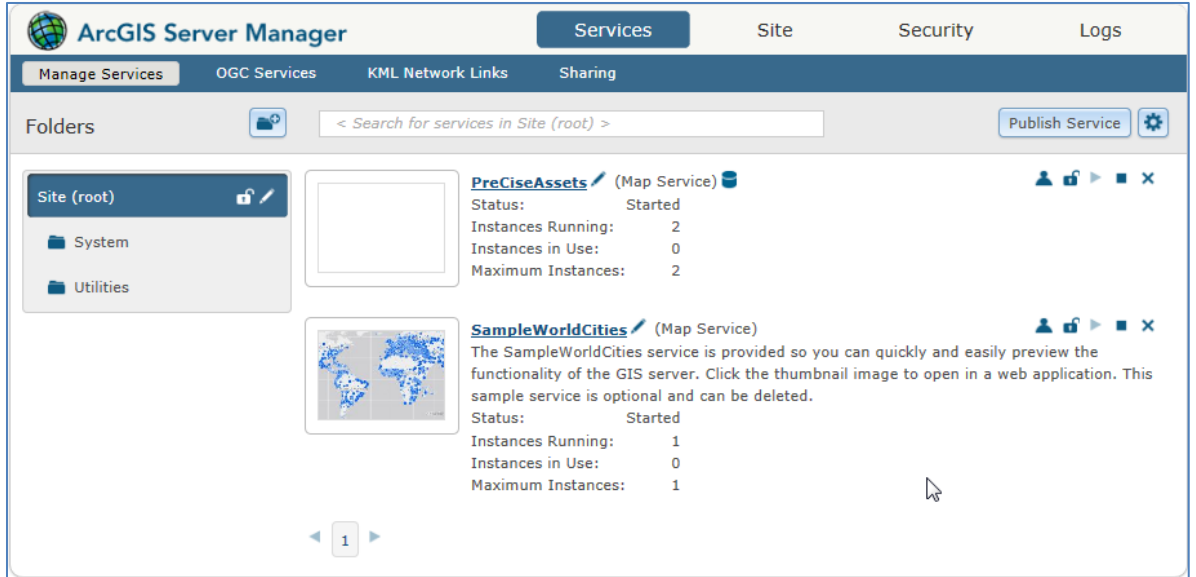
- iv. If there are no errors, select **Publish**



2. Confirm the Service is shared
 - a. Open the ArcGIS Server Manager
 - i. <http://<ArcGIS Server IP>:6080/arcgis/manager>
 - b. Go to **Services** -> **Manage Services**



c. The **PreCiseAssets** service should now be visible in the site applicable site folder





Creating the PreCiseAssets Feature GeoEvent Definition

A GeoEvent definition must be created for the **PreCiseAssets** feature class created in the last step. This GeoEvent definition will allow for field mapping variations when converting incoming PreCise GeoEvent data (using a hierarchical structure) to the **PreCiseAssets** feature class which exists on your geodatabase (using a flat structure).

1. Open ArcGIS GeoEvent Manager
 - a. <https://<ArcGIS Server IP>:6143/geoevent/manager>
2. Import the GeoEvent Definition
 - a. Go to **Site** -> **GeoEvent** -> **GeoEvent Definitions**
 - b. Click **Import GeoEvent Definitions**
 - c. Create the GeoEvent Definition with the following settings:
 - i. **Registered ArcGIS Server:** Select the registered ArcGIS connection created earlier
 - ii. **Folder:** Select the folder containing the shared PreCiseAssets service on your ArcGIS Server
 - iii. **Service:** Select the **PreCiseAssets** feature service created earlier
 - iv. **Layer:** Select the **PreCiseAssets** feature layer shared via the PreCiseAssets service
 - v. **Unique Identifier Field:** AssetID

A screenshot of the "Import GeoEvent Definitions" dialog box. The dialog has a title bar with the text "Import GeoEvent Definitions" and a close button. Below the title bar, there is a subtitle "Import GeoEvent Definitions from a registered ArcGIS Server." followed by five dropdown menus and one checkbox. The dropdown menus are labeled "Registered ArcGIS Server:", "Folder:", "Service:", "Layer:", and "Unique Identifier Field:". The values selected in these dropdowns are "PreciseData", "Root", "PreCiseAssets (FeatureServer)", "arcgis.DBO.PreciseAssets", and "AssetID" respectively. The "AssetID" dropdown is highlighted with a dashed border. Below the dropdowns is a checkbox labeled "Replace existing GeoEvent Definitions" which is currently unchecked. At the bottom right of the dialog are two buttons: "Import" and "Cancel".

-
-
-
- d. Click **Import**



- e. The PreciseAssets GeoEvent definition associated with your geodatabase feature class should now exist. The name may differ based on the location and type of DBMS used.

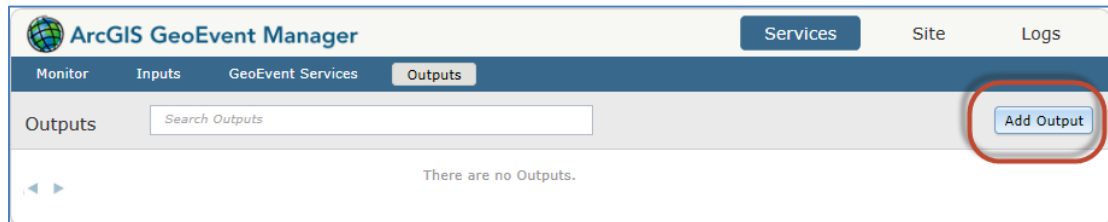
A screenshot of the ArcGIS GeoEvent Manager web interface. The page title is "ArcGIS GeoEvent Manager" with sub-titles "Services", "Site", and "Logs". The main navigation bar includes "GeoEvent", "Components", and "Settings". On the left, a sidebar lists "GeoEvent Definitions", "Tags", "GeoFences", "Connectors", "Configuration Store", and "Data Stores". The main content area is titled "GeoEvent Definitions" and contains a search box, a "New GeoEvent Definition" button, and an "Import GeoEvent Definitions" button. Below these is a table with two columns: "Name" and "Fields". The table lists four definitions: "arcgis_DBO_PreciseAssets" (highlighted with a red circle), "incident", "PreCiseAssetRecord", and "TrackGap". Each row includes a set of icons for editing, deleting, and copying.

Name	Fields	
arcgis_DBO_PreciseAssets	AssetID, AssetName, AssetDesc, FleetName, MAC_ID, ICC_ID, Reco...	✎ ✕ 📄
incident	id, name, type, status, alertType, openCondition, closeCondition, de...	👁 ✕ 📄
PreCiseAssetRecord	AssetID, AssetName, AssetDesc, FleetName, MAC_ID, ICC_ID, Reco...	✎ ✕ 📄
TrackGap	trackId, gap, lastReceived, geometry	👁 ✕ 📄

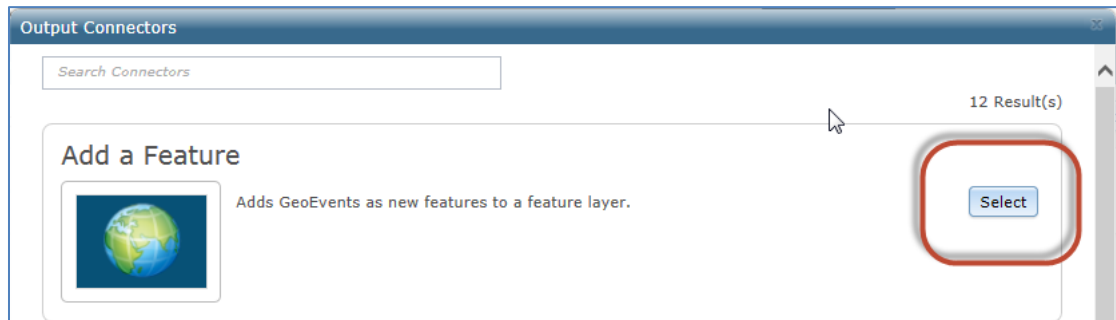
Creating the GeoEvent Service

The GeoEvent Service creates the association between the PreCise-AVL-Connector (as an input) and the PreCiseAssets feature class / service (as an output). The GeoEvent Service allows for custom field mapping and record processing between the input and output. This example will show the full field mapping available from the PreCiseAssetRecord GeoEvent definition.

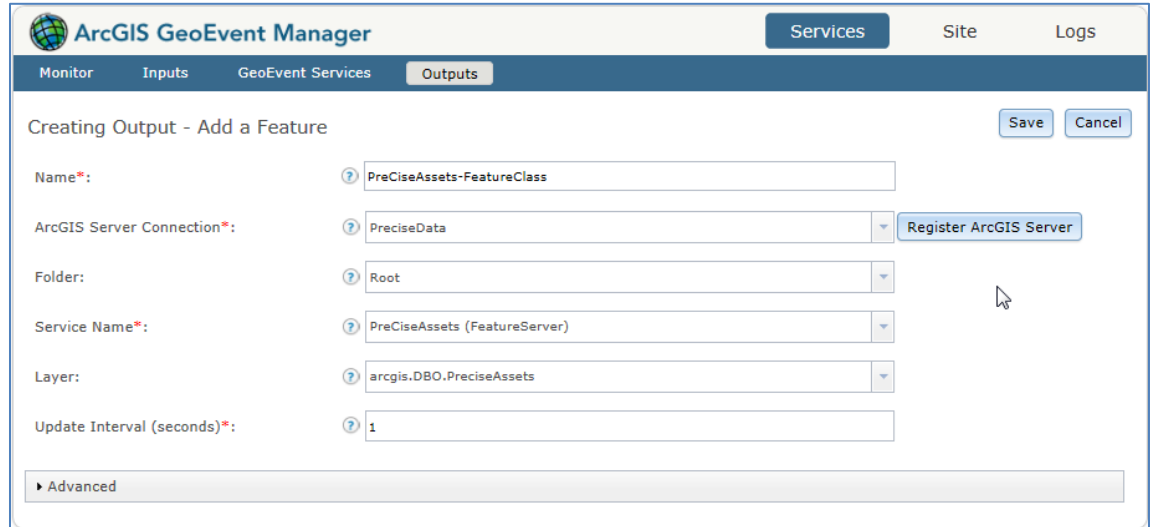
1. Open ArcGIS GeoEvent Manager
 - a. <https://<ArcGIS Server IP>:6143/geoevent/manager>
2. You should already have the PreCise-AVL-Connector created
 - a. Refer to *PreCise ArcGIS GeoEvent Connector 10.3.pdf*
3. Creating an Output
 - a. Go to **Services** -> **Outputs**
 - b. Click the **Add Output** button



- c. In the Output Connectors window, click the **Select** button for **Add a Feature**



- i. Add a Feature is used in this example to add all incoming records to the feature class.
- d. Create the output with the following settings:
 - i. **Name:** PreCiseAssets-FeatureClass
 - ii. **ArcGIS Server Connection:** Select the registered ArcGIS connection created earlier
 - iii. **Folder:** Select the folder containing the shared PreCiseAssets service on your ArcGIS Server
 - iv. **Service Name:** Select the PreCiseAssets feature service created earlier
 - v. **Layer:** Select the PreciseAssets feature layer shared via the PreCiseAssets service
 - vi. **Update Interval:** 1 second



ArcGIS GeoEvent Manager | Services | Site | Logs

Monitor | Inputs | GeoEvent Services | **Outputs**

Creating Output - Add a Feature Save Cancel

Name*:

ArcGIS Server Connection*: Register ArcGIS Server

Folder:

Service Name*:

Layer:

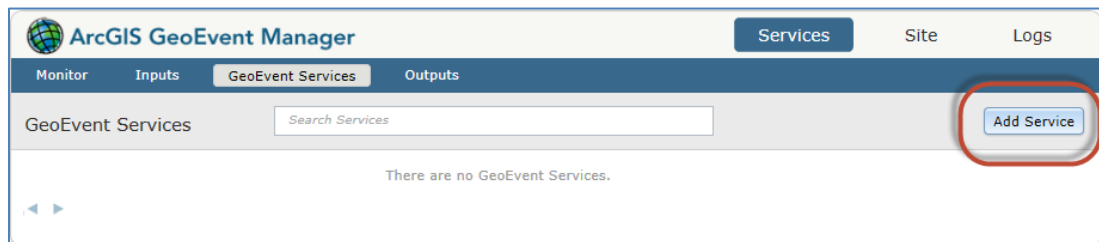
Update Interval (seconds)*:

▶ Advanced

vii. Click the **Save** button

4. Creating a GeoEvent Service

- a. Go to **Services** -> **GeoEvent Services**
- b. Click the **Add Service** button



ArcGIS GeoEvent Manager | **Services** | Site | Logs

Monitor | Inputs | **GeoEvent Services** | Outputs

GeoEvent Services Add Service

There are no GeoEvent Services.

- c. Create the service with the following:
 - i. Service Name: PreCiseConnector-PreCiseAssetsFeature



- ii. Service Description: Connects PreCise MRM AVL data to the PreCiseAssets feature class.

A screenshot of a software dialog box titled "Add New Service". The dialog has a blue header bar with the title and a close button. Below the header, there are two input fields. The first is labeled "Service Name:" with a red asterisk and a help icon; it contains the text "PreCiseConnector-PreCiseAssetsFeature". The second is labeled "Service Description:" with a help icon; it contains the text "Connects PreCise MRM AVL data to the PreCiseAssets feature class." Below these fields are two buttons: "Create" and "Cancel".

- iii. Click **Create**
- d. The GeoEvent Service design screen will appear allowing input, output and filters/processors to be drag and dropped in the service design.
- e. Drag and drop the **PreCise-AVL-Connector** into the design from **Inputs**
- f. Drag and drop the **PreCiseAssets-FeatureClass** into the design from **Outputs**
- g. Drag and drop the Processor into the design from **New Elements**
- h. Create the Processor with the following properties:
 - i. **Name:** PreCiseAssetRecord-PreCiseAssets-FieldMapping
 - ii. **Processor:** Field Mapper
 - iii. **Source GeoEvent Definition:** PreCiseAssetRecord
 - iv. **Target GeoEvent Definition:** PreciseAssets GeoEvent definition associated with your geodatabase feature class. **arcgis_DBO_PreciseAssets** in this example.
 - v. A mapping of Source Fields to Target Fields will display. Core Source Field types will automatically map to like-named fields in the Target Fields. Special/Hierarchical field



types such as Input data and Force America Spreader data require manual mapping.

The screenshot shows the 'Processor Properties' dialog box with the following configuration:

- Name: * PreCiseAssetRecord-PreCiseAssets-FieldMapping
- Processor: Field Mapper
- Source GeoEvent Definition*: PreCiseAssetRecord
- Target GeoEvent Definition*: arcgis_DBO_PreciseAssets

Source Fields	Target Fields
AssetID	AssetID Integer
AssetName	AssetName String
AssetDesc	AssetDesc String
FleetName	FleetName String
MAC_ID	MAC_ID String
ICC_ID	ICC_ID String
RecordID	RecordID String
RecordType	RecordType String
TripData	TripData String
Latitude	Latitude Double
Longitude	Longitude Double
Heading	Heading Double
Speed	Speed Double
RecordDateTime	RecordDateTime Date
Misc	Misc String
	Input1 String

- vi. When mapping Input data, the data is accessed via a zero-based array. To access the data for the AVL physical Input #1, use `Input[0].<fieldname>`. To access the data for



the AVL physical Input #2, use `Input[1].<fieldname>`, and so on.

<input type="text" value="Input[0].InputName"/>	<input type="text" value="Input1 String"/>
<input type="text" value="Input[0].InputStatus"/>	<input type="text" value="Input1Status String"/>
<input type="text" value="Input[1].InputName"/>	<input type="text" value="Input2 String"/>
<input type="text" value="Input[1].InputStatus"/>	<input type="text" value="Input2Status String"/>
<input type="text" value="Input[2].InputName"/>	<input type="text" value="Input3 String"/>
<input type="text" value="Input[2].InputStatus"/>	<input type="text" value="Input3Status String"/>
<input type="text" value="Input[3].InputName"/>	<input type="text" value="Input4 String"/>
<input type="text" value="Input[3].InputStatus"/>	<input type="text" value="Input4Status String"/>
<input type="text" value="Input[4].InputName"/>	<input type="text" value="Input5 String"/>
<input type="text" value="Input[4].InputStatus"/>	<input type="text" value="Input5Status String"/>
<input type="text" value="Input[5].InputName"/>	<input type="text" value="Input6 String"/>
<input type="text" value="Input[5].InputStatus"/>	<input type="text" value="Input6Status String"/>



vii. When mapping Force America Spreader data, the data is accessed via the `FASpreaderStatus.<fieldname>` structure.

FASpreaderStatus.SpreaderStatus	▼	SpreaderStatus <i>String</i>
FASpreaderStatus.Units	▼	Units <i>String</i>
FASpreaderStatus.GranularMatName	▼	GranularMatName <i>String</i>
FASpreaderStatus.GranularSetting	▼	GranularSetting <i>Integer</i>
FASpreaderStatus.GranularSpreadIndex	▼	GranularSpreadIndex <i>String</i>
FASpreaderStatus.GranularTotal	▼	GranularTotal <i>Double</i>
FASpreaderStatus.GranularMode	▼	GranularMode <i>String</i>
FASpreaderStatus.PrewetMatName	▼	PrewetMatName <i>String</i>
FASpreaderStatus.PrewetSetting	▼	PrewetSetting <i>Integer</i>
FASpreaderStatus.PrewetSpreadIndex	▼	PrewetSpreadIndex <i>String</i>
FASpreaderStatus.PrewetTotal	▼	PrewetTotal <i>Double</i>
FASpreaderStatus.PrewetMode	▼	PrewetMode <i>String</i>

viii. Lastly, the geometry field must be defined in the field mapping.

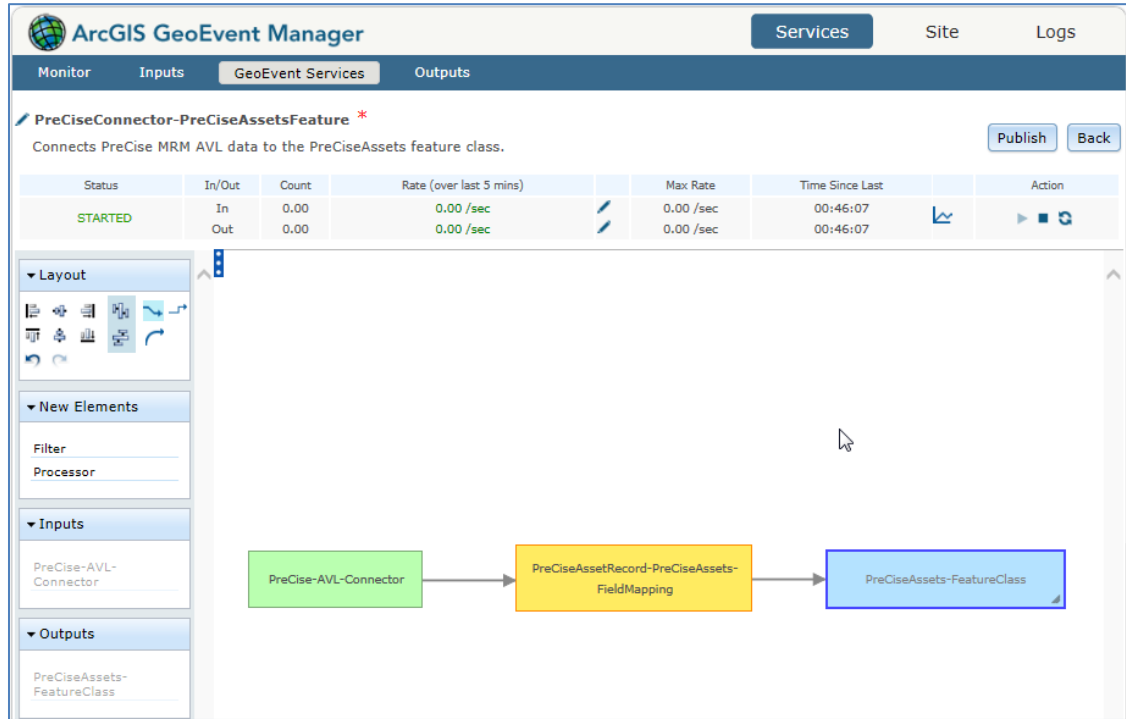
Source Field: [Location](#)

Target Field: [geometry](#)

Location	▼	geometry <i>Geometry</i>
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ix. Click **OK**

- i. With the Input, Processor and Output components added to the design, connect each component as shown in the screen shot



The screenshot shows the ArcGIS GeoEvent Manager interface. At the top, there are tabs for 'Services', 'Site', and 'Logs'. Below this, there are tabs for 'Monitor', 'Inputs', 'GeoEvent Services', and 'Outputs'. The main area displays a service named 'PreCiseConnector-PreCiseAssetsFeature' with a description: 'Connects PreCise MRM AVL data to the PreCiseAssets feature class.' There are 'Publish' and 'Back' buttons. Below the description is a table with the following data:

Status	In/Out	Count	Rate (over last 5 mins)	Max Rate	Time Since Last	Action
STARTED	In	0.00	0.00 /sec	0.00 /sec	00:46:07	
	Out	0.00	0.00 /sec	0.00 /sec	00:46:07	

Below the table is a workflow diagram with three components connected by arrows:

```

graph LR
    A[PreCise-AVL-Connector] --> B[PreCiseAssetRecord-PreCiseAssets-FieldMapping]
    B --> C[PreCiseAssets-FeatureClass]
  
```

On the left side, there is a 'Layout' panel with various icons. Below it are sections for 'New Elements', 'Inputs', and 'Outputs'. The 'Inputs' section contains 'PreCise-AVL-Connector' and the 'Outputs' section contains 'PreCiseAssets-FeatureClass'.

- j. Click **Publish**
5. Starting the GeoEvent Service
- a. Go to **Services** -> **Monitor**
 - b. Click the **Start** ▶ button next to each service. The services should be started in the following order:
 - i. GeoEvent Service: PreCiseConnector-PreCiseAssetsFeature
 - ii. Output: PreCiseAsset-FeatureClass
 - iii. Input: PreCise-AVL-Connector



- c. The Monitor screen will show the status and number of records processed by each component

ArcGIS GeoEvent Manager Services Site Logs

Monitor Inputs GeoEvent Services Outputs

Monitor Reset Statistics

▼ GeoEvent Services

Name	In/Out	Count	Rate	Max Rate	Time Since Last	Action
PreCiseConnector-PreCiseAssetsFeature	In Out	5,671.00 5,671.00	20.00 /sec 20.00 /sec	21.00 /sec 21.00 /sec	00:00:05 00:00:05	

▼ Inputs

Name	Count	Rate	Max Rate	Time Since Last	Action
PreCise-AVL-Connector [Running On: Prec-GisTest]	5,671.00	19.00 /sec	20.00 /sec	00:00:07	

▼ Outputs

Name	Count	Rate	Max Rate	Time Since Last	Action
PreCiseAssets-FeatureClass	5,671.00	19.00 /sec	19.00 /sec	00:00:05	

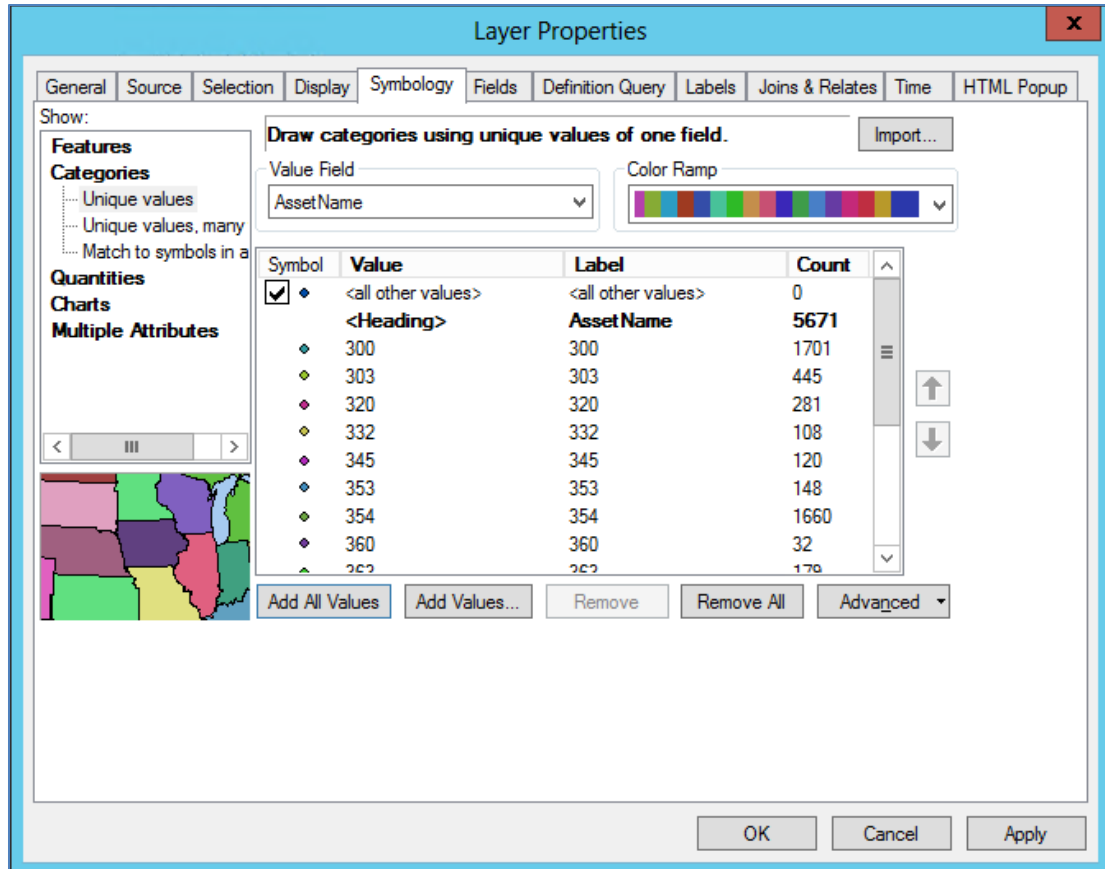


Verifying the Data

The GeoEvent Service is now enabled for downloading PreCise MRM AVL data into a geodatabase feature class. At this point the data can be verified using several methods. For this example, ArcMap will be used to display the AVL data over an appropriate basemap layer.

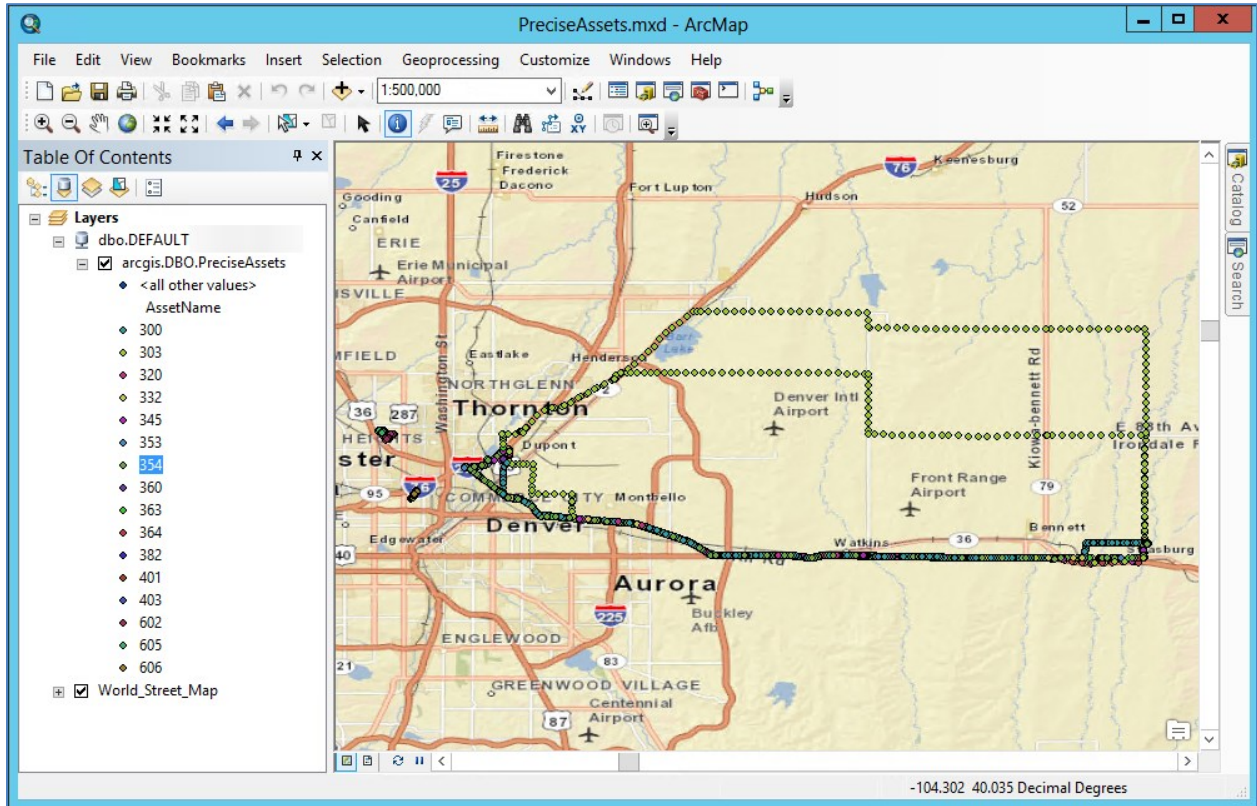
1. Open ArcMap
2. In the ArcMap – Getting Started window, choose the **PreciseAssets.mxd** file saved earlier in this document.
3. Select File -> Add Data -> Add Basemap
 - a. Select an appropriate basemap, such as **Streets**
 - b. Click **Add**
4. Right-click the **PreciseAssets** layer, select **Properties**
5. On the **Symbology** tab
 - a. Select **Categories** -> **Unique Values**
 - b. Set the **Value Field** = **AssetName** (groups asset entries based on the Asset Name when viewed)

c. Click **Add All Values**



d. Click **OK**

- With the PreCise MRM AVL data displayed over the basemap you can check point information and visually verify that point data appears in the proper location.





GeoEvent Definition Structure

The PreCise MRM GeoEvent Connector creates GeoEvent records based on the [PreCiseAssetRecord](#) GeoEvent definition that is included with the Connector installation. The GeoEvent definition uses a hierarchical structure that can be mapped to flat and/or reduced schemas via the GeoEvent Extensions built-in processor utilities.

When mapping PreCiseAssetRecord fields to other GeoEvent services, at a minimum the following fields are required for location tracking. Each of these fields are associated with tags used by ArcGIS Server.

- AssetID
- Location
- RecordDateTime

Each of the fields defined in the GeoEvent definition can be accessed directly via the field name, with the exception of the [FASpreaderStatus](#) field group and the [Input](#) field group.

[FASpreaderStatus](#) fields can be accessed via [FASpreaderStatus.<fieldname>](#) when mapping the GeoEvent definition to an output service.



Example: `FASpreaderStatus.SpreaderStatus`

<input type="checkbox"/> FASpreaderStatus	Group	1	
SpreaderStatus	String	1	
Units	String	1	
GranularMatName	String	1	
GranularSetting	Integer	1	
GranularSpreadIndex	String	1	
GranularTotal	Double	1	
GranularMode	String	1	
PrewetMatName	String	1	
PrewetSetting	Integer	1	
PrewetSpreadIndex	String	1	
PrewetTotal	Double	1	
PrewetMode	String	1	
DirectSetting	Integer	1	
DirectApplicationIndex	String	1	
DirectTotal	Double	1	
DirectLaneSwitch	String	1	
DirectMode	String	1	
DustControlSetting	Double	1	
DustSprayWidth	Integer	1	
DustSpreadRateIndex	String	1	
DustTotal	Double	1	
DustMode	String	1	
RoadTemp	Double	1	
AirTemp	Double	1	
DriverID	String	1	
VehicleID	String	1	
ErrorStatus	Integer	1	
UnloadFunction	String	1	

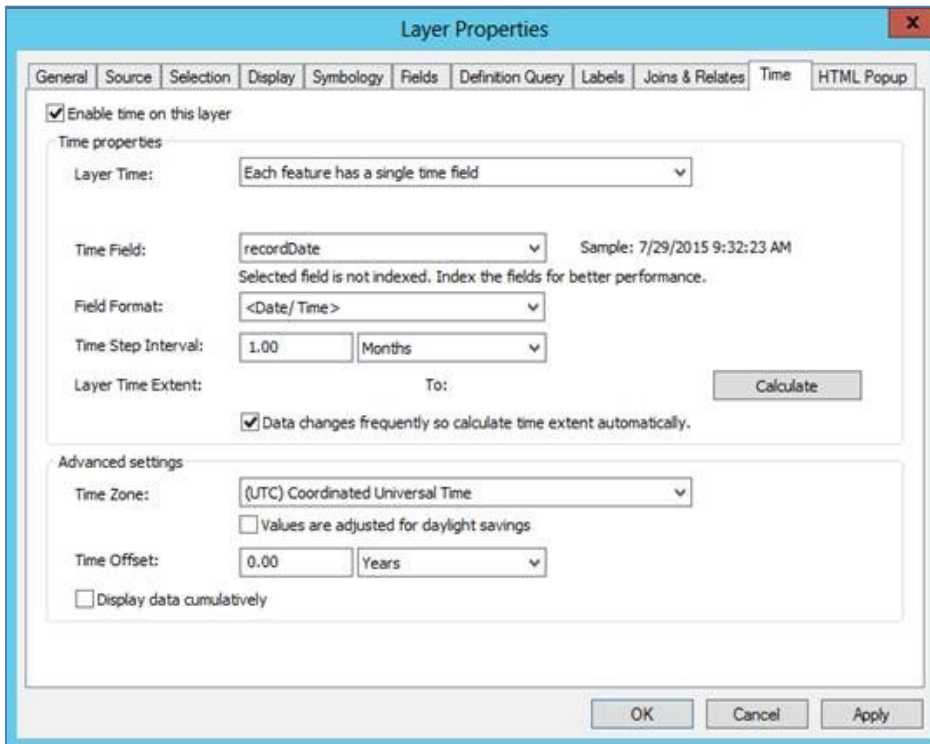
Input fields can be accessed as if accessing an array, by using an index number for the specific input being mapped via `Input[index].<fieldname>`. The **Input** field is zero-based, so the AVL device physical Input #1 would be accessed via the index number 0 (zero), Input #2 via index number 1 (one) and so forth.

Example: `Input[0].InputStatus`

<input type="checkbox"/> Input	Group	∞	
InputNumber	Integer	1	
InputName	String	1	
InputStatus	String	1	
InputOn	Boolean	1	

Known Issues

- Feature inserts are batched, if a record insert fails (record already exists in DB) then all record inserts in that batch will fail.
- If time is enabled on an output feature layer, it will effect record times on insert into the feature class. [Enable time on this layer](#) should be disabled for any output feature class.



The screenshot shows the 'Layer Properties' dialog box with the 'Time' tab selected. The 'Enable time on this layer' checkbox is checked. The 'Time properties' section includes a dropdown for 'Layer Time' set to 'Each feature has a single time field', a 'Time Field' dropdown set to 'recordDate' with a sample value of '7/29/2015 9:32:23 AM', a 'Field Format' dropdown set to '<Date/ Time>', and a 'Time Step Interval' of '1.00 Months'. There is a 'Calculate' button next to the 'Time Step Interval' dropdown. The 'Advanced settings' section includes a 'Time Zone' dropdown set to '(UTC) Coordinated Universal Time', an unchecked checkbox for 'Values are adjusted for daylight savings', a 'Time Offset' of '0.00 Years', and an unchecked checkbox for 'Display data cumulatively'. The dialog has 'OK', 'Cancel', and 'Apply' buttons at the bottom.

- Some point data may appear at location 0, 0. These are data points where the GPS sensor on the AVL device was unable to obtain a valid GPS satellite signal, resulting in no known location (and potentially date/time) for the data.
 - o Such points can be filtered out via the addition of a GeoEvent Filter to the GeoEvent Service placed prior to the Feature output.



- Filtering Latitude != 0 AND Longitude != 0

Filter Properties

Name*

Latitude != 0

AND

Longitude != 0

+()

Ok Cancel

ArcGIS GeoEvent Manager

Services Site Logs

Monitor Inputs **GeoEvent Services** Outputs

PreCiseConnector-PreCiseAssetsFeature *

Connects PreCise MRM AVL data to the PreCiseAssets feature class. Publish Back

Status	In/Out	Count	Rate (over last 5 mins)	Max Rate	Time Since Last	Action
STARTED	In	5,671.00	0.00 /sec	21.00 /sec	02:46:03	
	Out	5,671.00	0.00 /sec	21.00 /sec	02:46:03	

Layout

New Elements

- Filter
- Processor

Inputs

- PreCise-AVL-Connector

Outputs

- PreCiseAssets-FeatureClass

```

graph TD
    A[PreCise-AVL-Connector] --> B{ValidGPS-Filter}
    B --> C[PreCiseAssetRecord-PreCiseAssets-FieldMapping]
    C --> D[PreCiseAssets-FeatureClass]
  
```