

Configure NetworkFleet to Esri Connector

Preconditions:

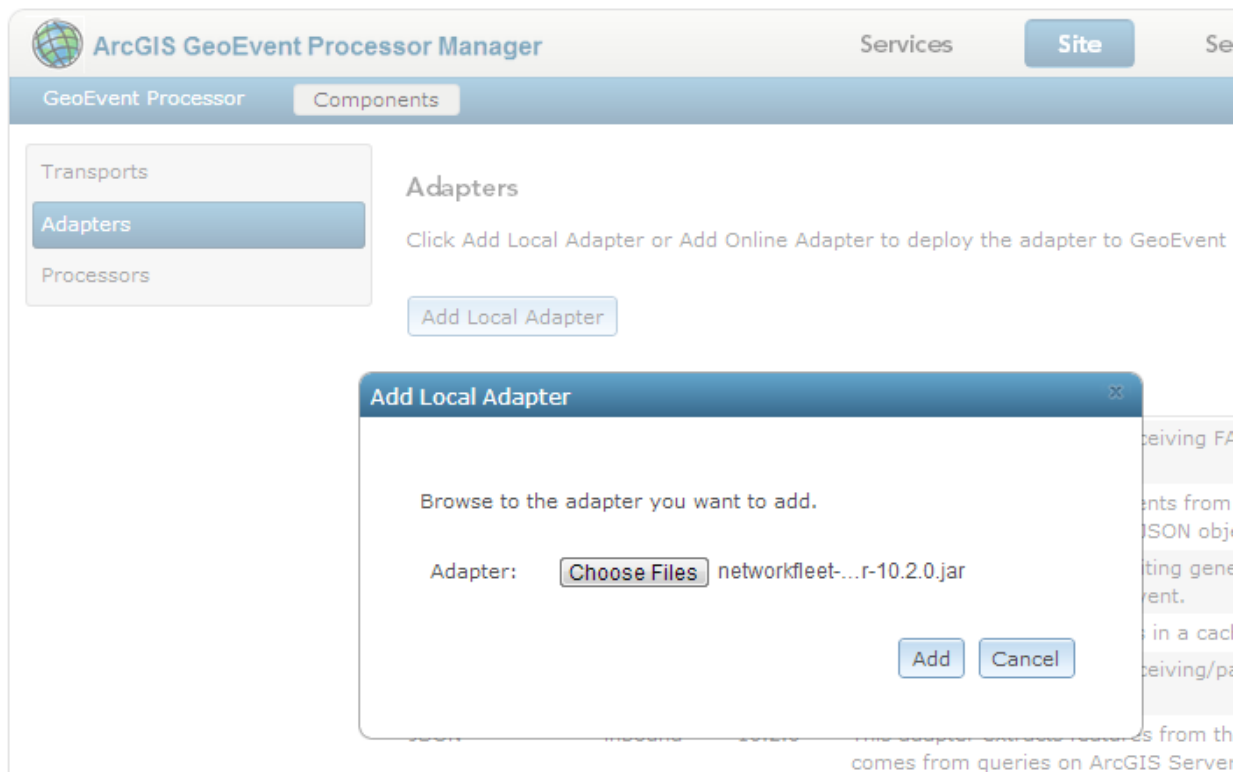
- ArcGIS for Server 10.2
- ArcGIS GeoEvent Processor Extension for Server 10.2
- ArcGIS Desktop Advanced (for publishing map services)

Process:

- 1) Add the NetworkFleet Adapter
- 2) Configure NetworkFleet Connector
- 3) Add NetworkFleet Input
- 4) Configure GeoEvent Service
- 5) Publish Networkfleet Map Services

Add NetworkFleet Adapter

- 1) Open the GeoEvent Processor Manager (e.g. <https://localhost:6143/geoevent/manager>)
- 2) Navigate to 'Site' > 'Components' > 'Adapters'.
- 3) Click on the 'Add Local Adapter' button.
- 4) Browse to the networkfleet-adapter-10.2.0.jar file and click "Add"



Once you have the NetworkFleet adapter installed you should see a lot of new message definitions for Networkfleet.

The screenshot shows the ArcGIS GeoEvent Processor Manager interface. The top navigation bar includes 'Services', 'Site' (selected), 'Security', and 'Logs'. Below this, there are tabs for 'GeoEvent Processor' and 'Components'. A left sidebar contains a menu with 'GeoEvent Definitions' (selected), 'Tags', 'GeoFences', 'Connectors', 'Configuration Store', and 'Data Stores'. The main area is titled 'GeoEvent Definitions' and contains two buttons: 'New GeoEvent Definition' and 'Import GeoEvent Definitions'. Below these buttons is a table listing various GeoEvent Definitions.

Name	Fields	
Asset	LastUpdated, shape, AssetName, AssetGroupName, Speed, Panic	
GeoFences	GeoFenceId, Category, Name, Active, shape	
incident	id, name, type, status, alertType, openCondition, closeCondition, de...	
IndoorAsset	LastUpdated, shape, AssetName, AssetGroupName, Speed, Panic, F...	
NetworkfleetDiagnostic	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetGPS	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetHealthBuffer	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetHistogram	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetLastBuffer	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetSeatBelt	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetSensor	VIN, FleetId, MsgId, MessageTime, MessageTimeUTF, DeliveryStatu...	
NetworkfleetStatus	BeginTime, EndTime, CurrentQueueSize, Current Delayed, Retrans...	

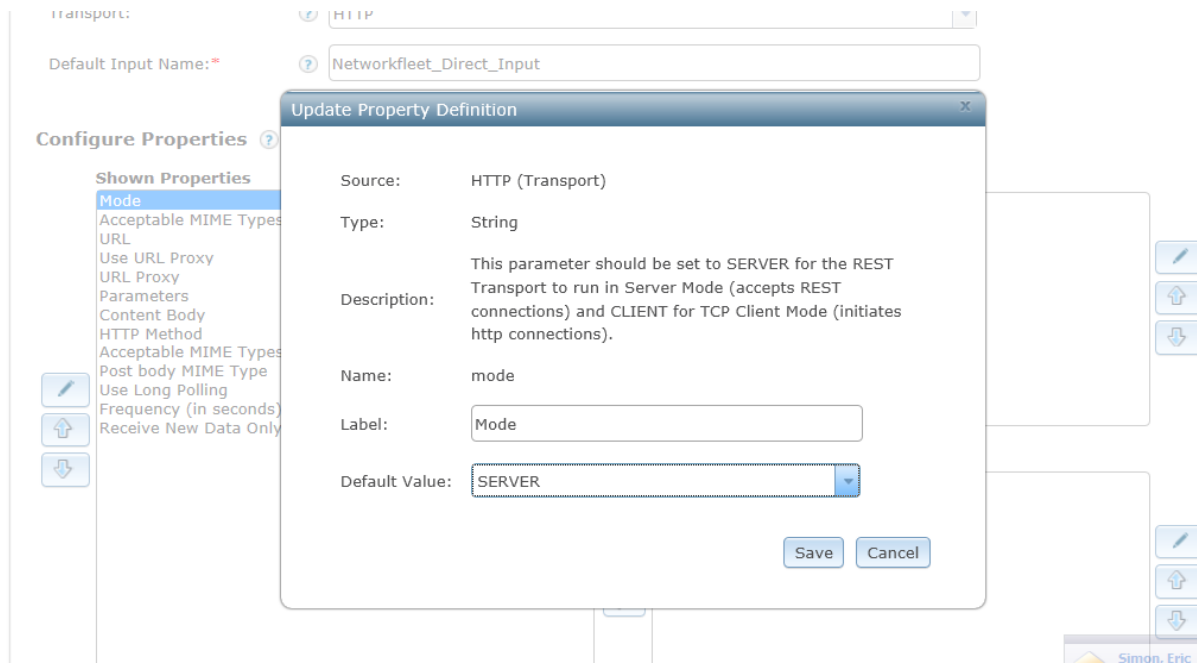
Add NetworkFleet Connector

- 1) Navigate to 'Site' > 'Connectors'
- 2) Click on 'Create Connector'.
- 3) Use the settings below. You may choose different names..

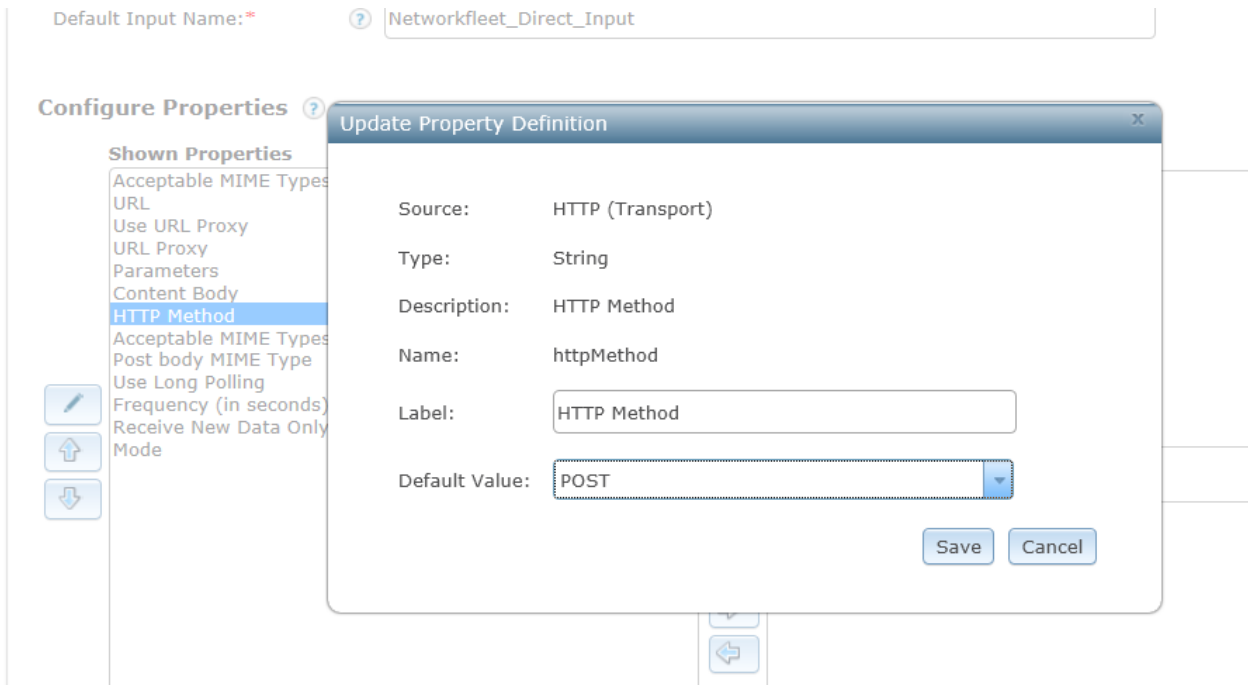
The screenshot shows the 'Creating New Connector' form in the ArcGIS GeoEvent Processor Manager. The top navigation bar is the same as in the previous screenshot. The main area is titled 'Creating New Connector' and has 'Create' and 'Cancel' buttons in the top right. The form contains the following fields:

- Name:** Networkfleet_Direct_Connector
- Label:** Networkfleet_Direct_Connector
- Description:** Networkfleet_Direct_Connector
- Type:** Input (selected), Output
- Adapter:** Networkfleet
- Transport:** HTTP
- Default Input Name:** Networkfleet_Direct_Input

- 4) In the configure Properties section, double-click on Mode and change the default value to “Server” – save the property definition

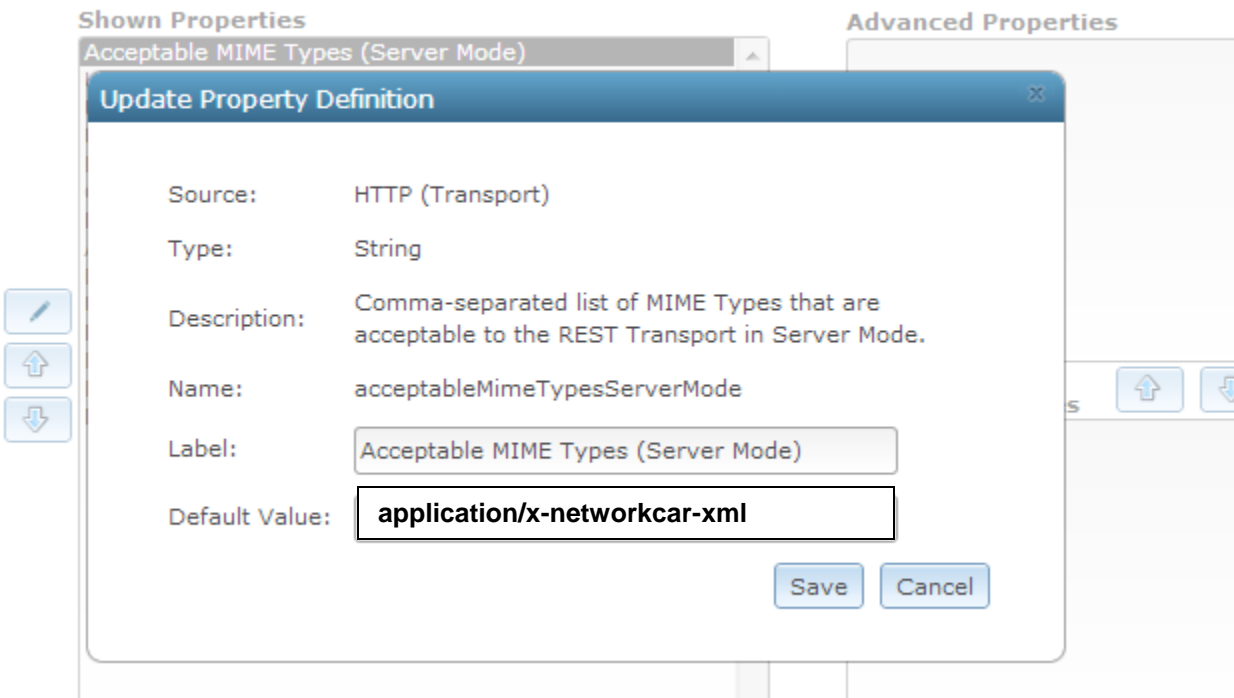


- 5) In the configure Properties section, double-click on HTTP Method and change the default value to “POST” – save the property definition



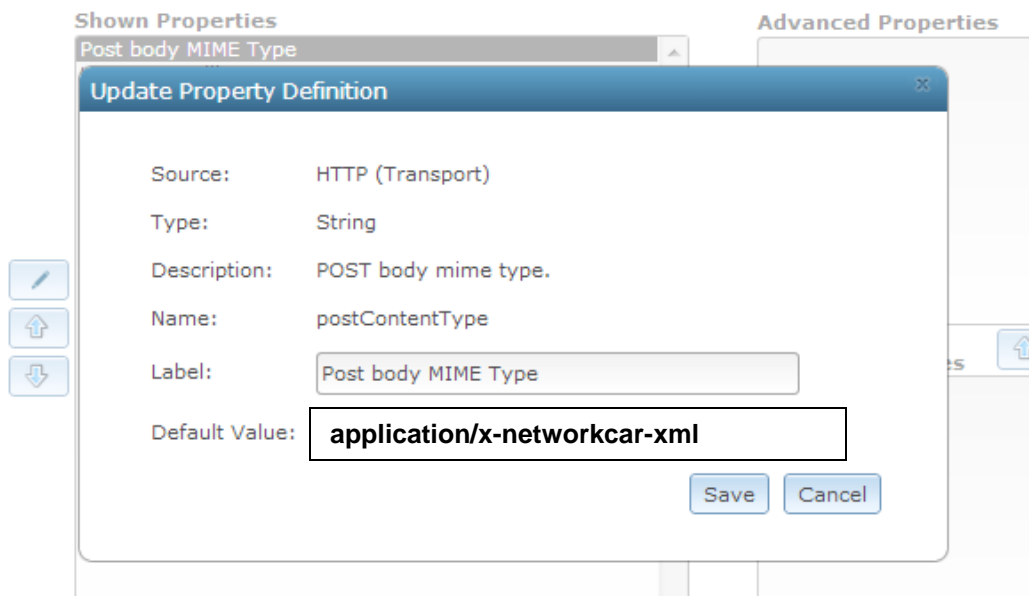
- 6) In the configure Properties section, double-click on Acceptable Mime types and change the default value to **“application/x-networkcar-xml”** – save the property definition.

Configure Properties ?



- 7) In the configure Properties section, double-click on Post body Mime types and change the default value to **“application/x-networkcar-xml”** – save the property definition.

Configure Properties ?



- 8) In the configure Properties section use the arrows to move properties to the advanced and hidden panels as shown below.



- 9) Click create connector and verify that the connector was created:

Label	Type	Description	
Add a feature	outbound	Adds GeoEvents to a Feature Layer as new features.	
Networkfleet_Direct_Connector	inbound	Networkfleet_Direct_Connector	
Poll an ArcGIS Server for Features	inbound	Poll a Feature Service for Features that are translated to Events.	
Poll an external website for	inbound	Poll a URL for JSON that can be converted to	

Add NetworkFleet Input

- 1) Navigate to 'Services' > 'Inputs' .

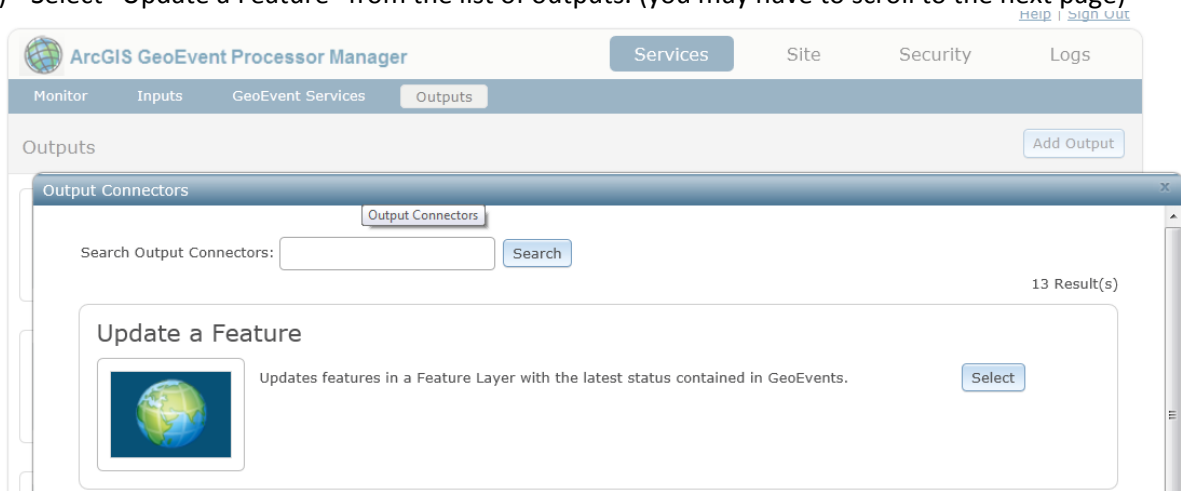
- 2) Verify that your new input is there:

- 3) The new input is ready for use. The URL to receive data is in the form:
http://<hostname_or_IP>:6180/geoevent/rest/receiver/<input_name>
 e.g. [http://123.222.231.111.:6180/geoevent/rest/receiver/Networkfleet Direct Connector](http://123.222.231.111.:6180/geoevent/rest/receiver/Networkfleet_Direct_Connector)

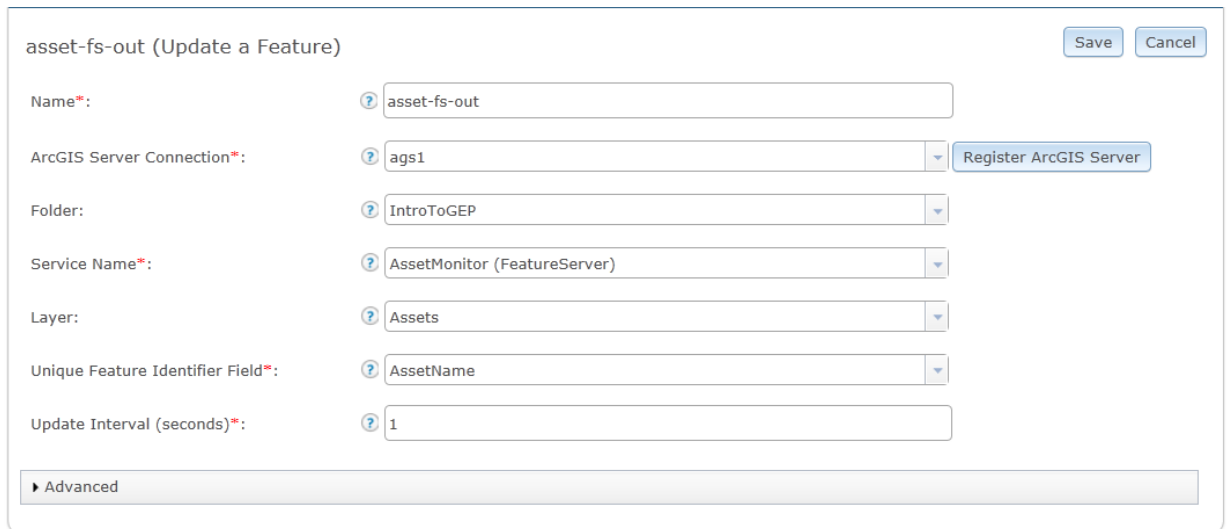
This URL should be provided to your Networkfleet technical contact so they can start transmitting AVL data to your server. HTTPS can be used by replacing port to 6143 and Networkfleet needs to install the Certificate provided by the web server.

Add Output

- 1) Navigate to 'Services' > 'Outputs' .
- 2) Click on "Add Output".
- 3) Select "Update a Feature" from the list of outputs. (you may have to scroll to the next page)



- 4) Update your output settings as shown below. You will have to configure your ArcGIS Server connection if you haven't done so before.

The screenshot shows the configuration form for the 'Update a Feature' output. The form is titled 'asset-fs-out (Update a Feature)' and has 'Save' and 'Cancel' buttons at the top right. The form contains several fields with dropdown menus and a text input field. The fields are: 'Name*' with the value 'asset-fs-out'; 'ArcGIS Server Connection*' with the value 'ags1' and a 'Register ArcGIS Server' button; 'Folder*' with the value 'IntroToGEP'; 'Service Name*' with the value 'AssetMonitor (FeatureServer)'; 'Layer*' with the value 'Assets'; 'Unique Feature Identifier Field*' with the value 'AssetName'; and 'Update Interval (seconds)*' with the value '1'. There is also an 'Advanced' section at the bottom.

- 5) Save your output settings

(Optional) Add a Output for Testing

- 1) Navigate to 'Services' > 'Outputs' .
- 2) Click on "Add Output".
- 3) Search for file-out and set it up similar to shown below:

The screenshot shows the ArcGIS GeoEvent Processor Manager interface. At the top, there are tabs for 'Services', 'Site', 'Security', and 'Logs'. Below these are sub-tabs for 'Monitor', 'Inputs', 'GeoEvent Services', and 'Outputs'. The 'Outputs' tab is active, showing a configuration for an output named 'file-out (Write to a .csv file)'. The configuration includes three fields: 'Name*' with the value 'file-out', 'Folder*' with a dropdown menu showing 'File_Out' and a 'Register Folder' button, and 'Filename Prefix' with the value 'output'. There are 'Save' and 'Cancel' buttons in the top right corner. An 'Advanced' section is visible at the bottom.

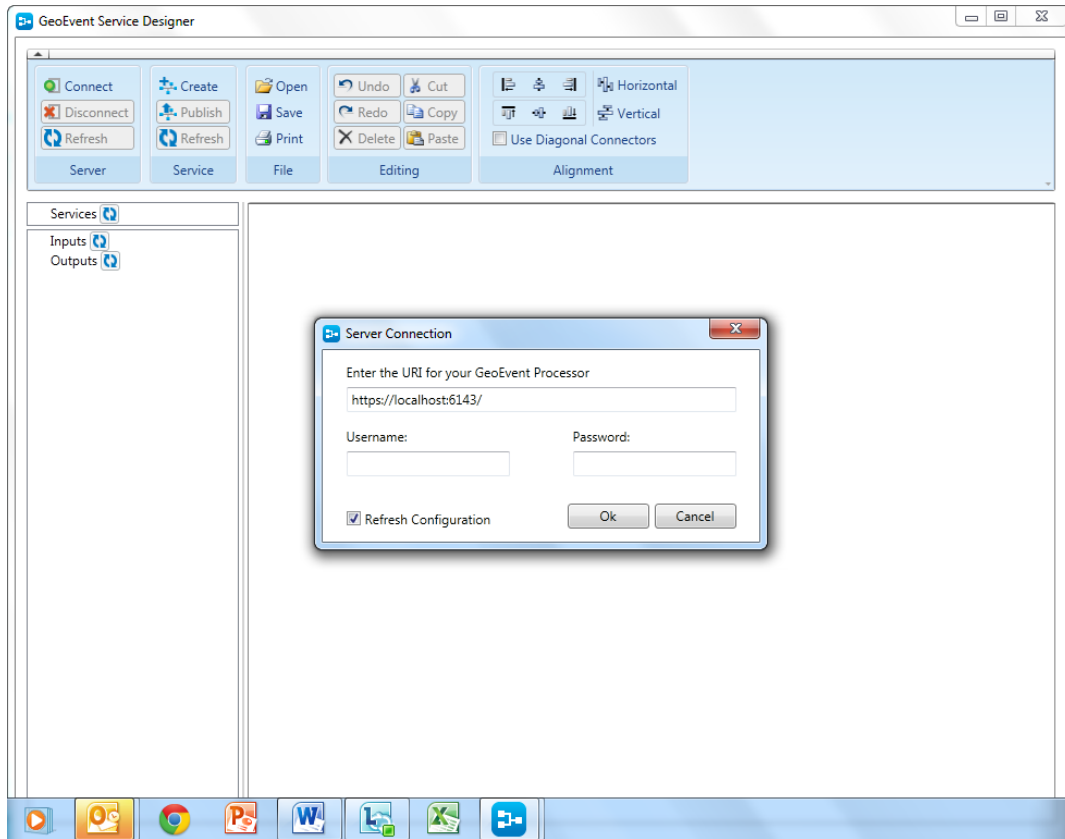
- 4) Under “register folder, make sure it points to a valid folder on your machine.

The screenshot shows a 'Register Folder' dialog box. The dialog has a title bar with a close button. The main text reads 'Register a folder on your GeoEvent Processor.' Below this are two input fields: 'Name:' with the value 'FileOutput' and 'Path:' with the value 'C:\temp'. There are 'Save' and 'Cancel' buttons at the bottom. A 'Register Folder' button is visible in the background of the dialog.

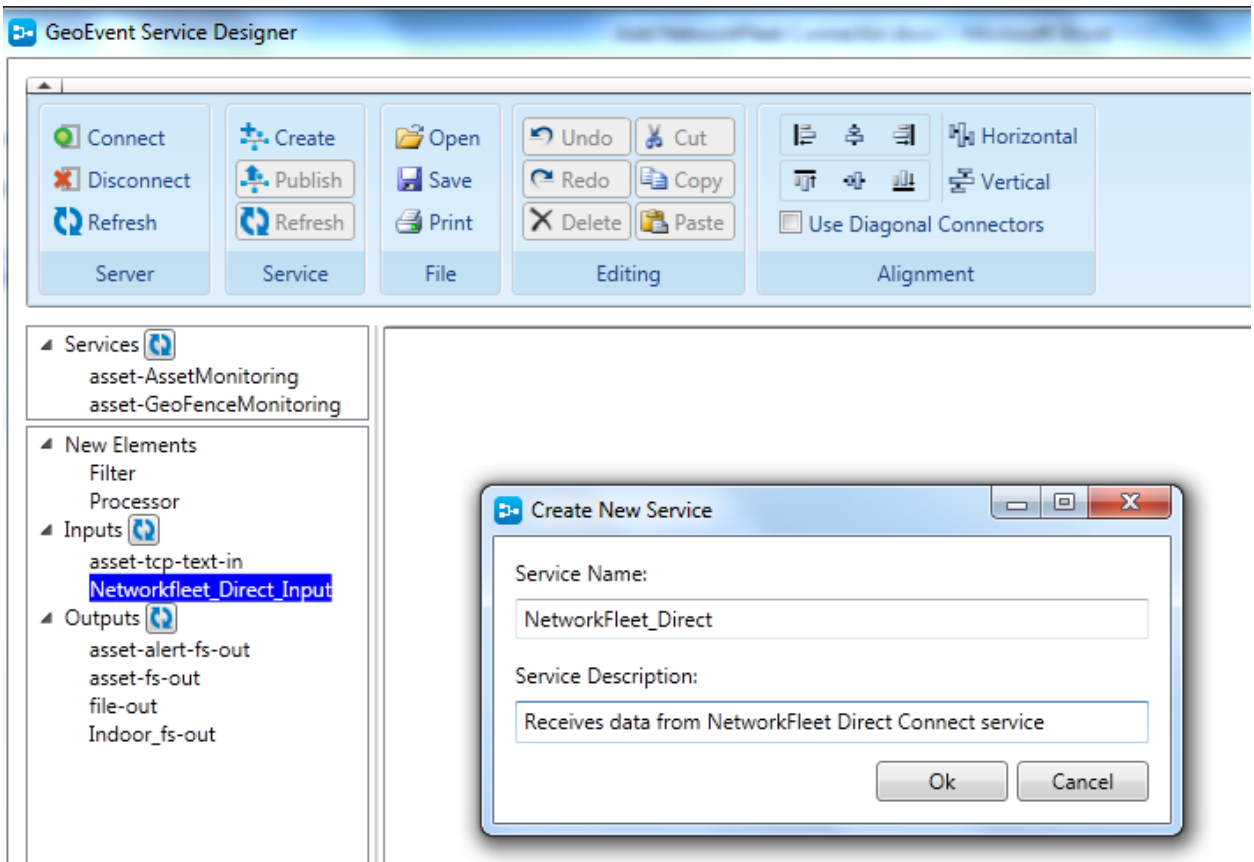
- 5) Save your output settings

Configure GeoEvent Service

- 1) Open the Service Designer application
- 2) Login with your GEP credentials

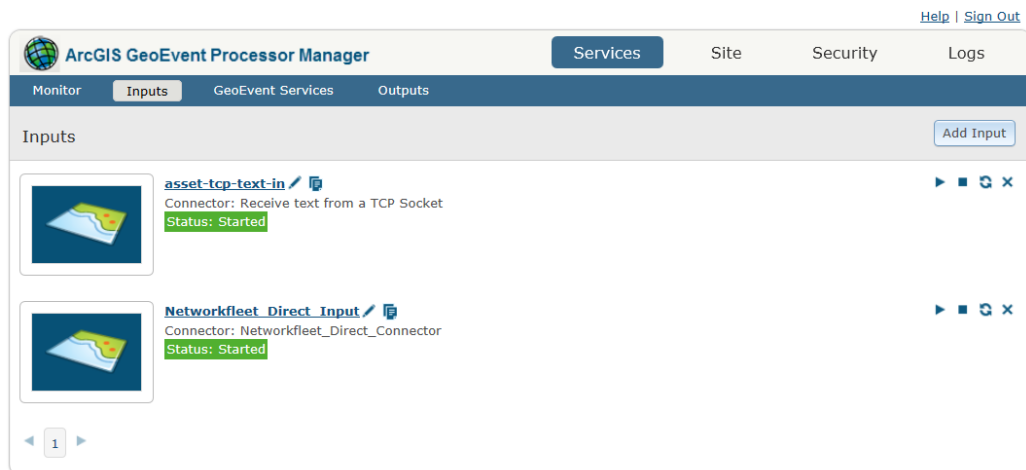


3) Drag the Networkfleet Input from the input section onto your canvas

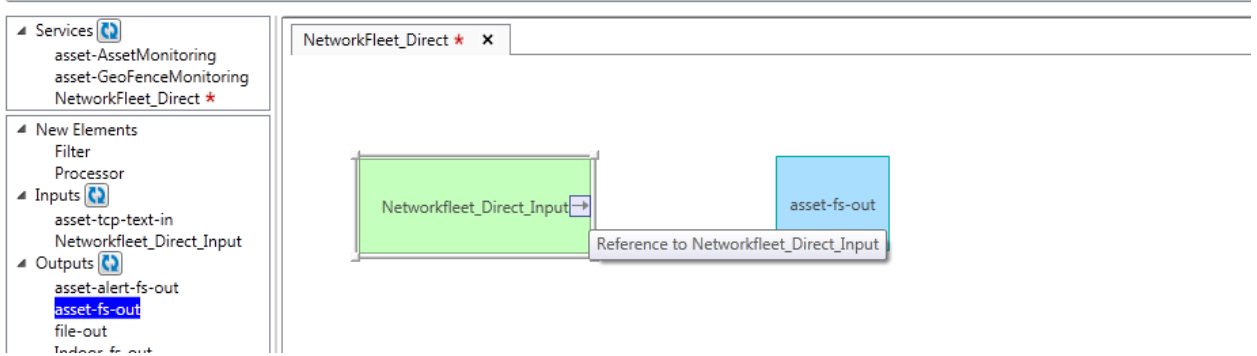


4) Enter a new Service Name and description

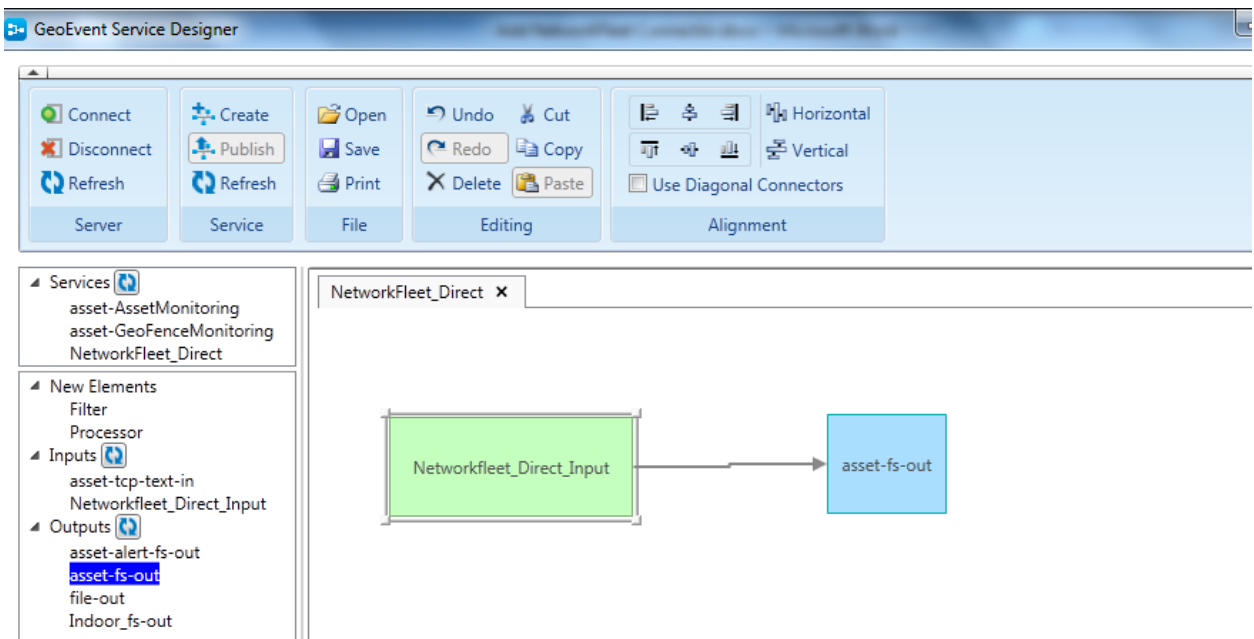
5) Add the new input to your service.



6) Add the feature output to your service (drag and drop)



7) Connect the input to the output by dragging a link from the input box to the output box.



8) (optional: recommended for testing) Repeat steps 6 and 7 with the file-out output.

9) Click on "Publish" to publish the service to the server



















10) Verify the service is active on the server (screenshot has additional services, please ignore).

ArcGIS GeoEvent Processor Manager

Services Site Security Logs

Monitor Inputs **GeoEvent Services** Outputs

GeoEvent Services

	<p>asset-AssetMonitoring </p> <p>Inputs: asset-tcp-text-in Outputs: Indoor_fs-out, asset-alert-fs-out Description: Monitors vehicles by updating a Vehicle feature service layer with latest information, alerts when speeding violations are detected, and alerts when panic buttons are engaged. Status: Started</p>	   
	<p>asset-GeoFenceMonitoring </p> <p>Inputs: asset-tcp-text-in Outputs: asset-alert-fs-out Description: Monitors Dangerous Areas and alerts while vehicles are inside, monitors Territories and alerts when a vehicle exits a Territory. Status: Started</p>	   
	<p>NetworkFleet_Direct </p> <p>Inputs: Networkfleet_Direct_Input Outputs: asset-fs-out Description: Receives data from NetworkFleet Direct Connect service Status: Started</p>	   

Verify the endpoint to send data to on the GeoEvent Server machine:

<http://<hostname>:6180/geoevent/rest/receiver/<Networkfleet Input Name>>

Now the Server is ready to receive data.

Mapping Hierarchical Field Structure to Relational Structure

The Networkfleet message structures are hierarchical. They need to be mapped to a flat structure to be used with Feature Services or for storing in relational database. For example, the NetworkfleetGPS message structure looks like this:

ArcGIS GeoEvent Processor Manager

Services Site Security Logs

GeoEvent Processor Components

Save Cancel

GeoEvent Definition Name:

*
Owner Name: com.esri.ges.adapter.inbound/Networkfleet/10.2.1

Fields for NetworkfleetGPS

New Field Reorder Fields

Name	Type	Cardinality	Tags	
VIN	String	1	TRACK_ID	/ x
FleetId	Integer	1		/ x
MsgId	String	1		/ x
MessageTime	Date	1	TIME_START	/ x
MessageTimeUTF	Long	1		/ x
DeliveryStatus	String	1		/ x
GPSFixes	Integer	1		/ x
<input type="checkbox"/> GPSFix	Group	1		⌵ / x
FixTime	Date	1		/ x
FixTimeUTF	Long	1		/ x
Latitude	Double	1		/ x
Longitude	Double	1		/ x
Ignition	String	1		/ x
<input type="checkbox"/> Speed	Group	∞		⌵ / x
Type	String	1		/ x
Units	String	1		/ x
Value	Integer	1		/ x
Heading	Integer	1		/ x
Odometer	Double	1		/ x
AgeInMiles	Double	1		/ x
coordinates	Geometry	1	GEOMETRY	/ x

The Speed field is a field group with multi-cardinality (denoted by the ∞ symbol), i.e. it is an array of elements.

Figure below shows an example of field mapping using the Field Mapper Processor in GeoEvent.

Processor Properties

Name*

Processor

<input type="text" value="MessageTime"/>	MESSAGETIME <i>Date</i>
<input type="text" value="MessageTimeUTF"/>	MESSAGETIMEUTF <i>Integer</i>
<input type="text" value="DeliveryStatus"/>	DELIVERYSTATUS <i>String</i>
<input type="text" value="GPSFix.FixTime"/>	GPSFIXTIME <i>Date</i>
<input type="text" value="GPSFix.FixTimeUTF"/>	GPSFIXTIMEUTF <i>Integer</i>
<input type="text" value="GPSFix.Latitude"/>	LATITUDE <i>Double</i>
<input type="text" value="GPSFix.Longitude"/>	LONGITUDE <i>Double</i>
<input type="text" value="GPSFix.Ignition"/>	IGNITION <i>String</i>
<input type="text" value="GPSFix.Speed[0].Value"/>	AVGSPEEDMPH <i>Short</i>
<input type="text" value="GPSFix.Speed[1].Value"/>	INSTSPEEDMPH <i>Short</i>
<input type="text" value="GPSFix.Speed[2].Value"/>	MAXSPEEDMPH <i>Short</i>
<input type="text" value="GPSFix.Heading"/>	HEADING <i>Short</i>
<input type="text" value="GPSFix.Odometer"/>	ODOMETER <i>Double</i>
<input type="text" value="GPSFix.AgeInMiles"/>	AGEINMILES <i>Double</i>
<input type="text" value="GPSFix.Altitude"/>	ALTITUDE <i>Double</i>

Ok Cancel

Notice the field `GPSFix.Speed[0].Value` is mapped to `AVGSPEEDMPH`. Each array element has to be mapped using an array index. The "dot" notation is used to reference the child field of the element.