Here are some steps you should be able to follow to demonstrate the related features capability of stream services:

1) Unpack the attached ZIP archive.
   You should have a RelatedFeatures.mpk map package and a SampleData.csv data file.

2) Open the MPK in ArcMap and publish it as a map service to your local ArcGIS Server.
   I'd prefer, initially, to keep Portal out of the equation and work with just ArcGIS Server and the GEx.

   I elected to *not* enable the 'Feature Access' capability which means that the data from the map
   package will be copied to Server, into a file geodatabase associated specifically with the Map Service.

3) Using my system's hostname as an example, you should now have a map service with a single layer:
   https://majere.esri.com:6443/arcgis/rest/services/RelatedFeatures/MapServer/0

   The data in the map service's layer should look something like this:

SensorStations

OBJECTID *	Shape *	serial_num	pressure	temperature	message
1	Point	ABF-062	-1	-1	(none)
2	Point	AXJ-057	-1	-1	(none)
3	Point	DTK-523	-1	-1	(none)
4	Point	EMS-265	-1	-1	(none)
5	Point	EUV-739	-1	-1	(none)
6	Point	HQS-965	-1	-1	(none)
7	Point	KCV-511	-1	-1	(none)
8	Point	KJT-706	-1	-1	(none)
9	Point	QIB-381	-1	-1	(none)
10	Point	TWW-341	-1	-1	(none)

4) In GeoEvent Manager, create a GeoEvent Definition for the simulation data in the SampleData.csv

GeoEvent Definition Name: * SampleData-TcpTextIn

Owner Name: admin

Fields for SampleData-TcpTextIn

New Field   Reorder Fields

Name	Type	Cardinality	Tags		
serial_num	String	1	TRACK_ID	✏	✕
date_reported	Date	1	TIME_START	✏	✕
pressure	Short	1		✏	✕
temperature	Short	1		✏	✕

5) Incorporate a tcp-text-in and tcp-text-out into a GeoEvent Service to verify you can receive simulated events from the SampleData

```
Listening for connections on port 5575 . . .
New client connected from /127.0.0.1:57576 at 7/10/15 6:12 PM.
7/10/15 6:12 PM : SampleData-TcpTextIn,DTK-523,2015-03-25T14:00:01.000-07:00,30,97
7/10/15 6:12 PM : SampleData-TcpTextIn,HQS-965,2015-03-25T14:00:01.000-07:00,27,88
7/10/15 6:12 PM : SampleData-TcpTextIn,EUV-739,2015-03-25T14:00:25.000-07:00,28,77
7/10/15 6:12 PM : SampleData-TcpTextIn,KCV-511,2015-03-25T14:00:29.000-07:00,29,95
7/10/15 6:12 PM : SampleData-TcpTextIn,KJT-706,2015-03-25T14:00:29.000-07:00,35,99
```

6) Copy the SampleData-TcpTextIn event definition and remove the date_reported event field.
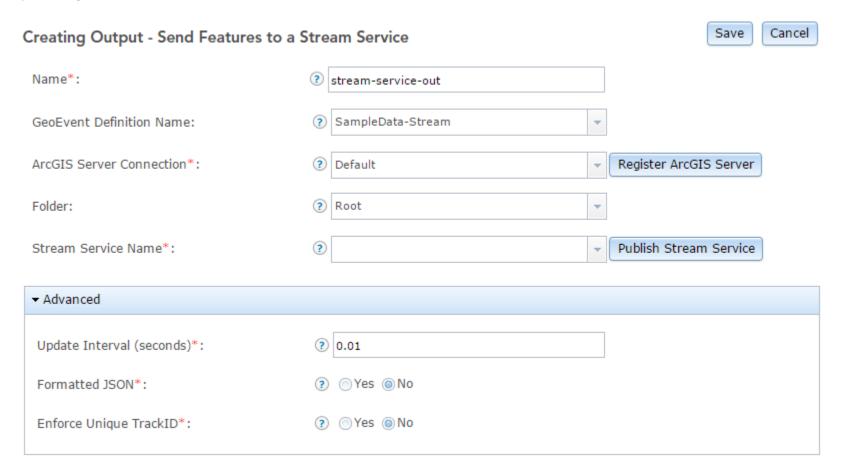Save the new event definition as SampleData-Stream.
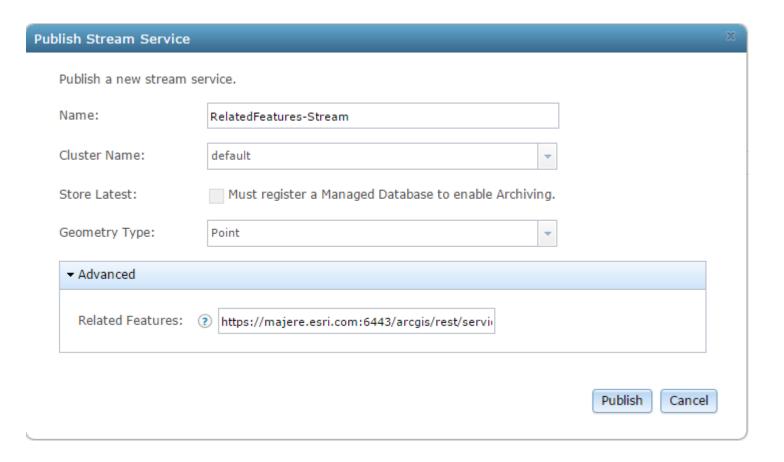
Fields for SampleData-Stream

New Field   Reorder Fields

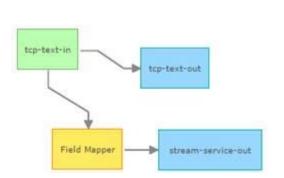| Name	Type	Cardinality	Tags		
serial_num	String	1	TRACK_ID	✏	✕
pressure	Short	1		✏	✕
temperature	Short	1		✏	✕

7) Configure a stream service output, publishing a new stream service.

Make sure you copy the URL of the map service published above into the 'Related Features' property when publishing the stream service.

Creating Output - Send Features to a Stream Service

[Save] [Cancel]

Name*: (?) | stream-service-out |

GeoEvent Definition Name: (?) | SampleData-Stream | ▼ |

ArcGIS Server Connection*: (?) | Default | ▼ | [Register ArcGIS Server]

Folder: (?) | Root | ▼ |

Stream Service Name*: (?) | | ▼ | [Publish Stream Service]

▼ Advanced

Update Interval (seconds)*: (?) | 0.01 |

Formatted JSON*: (?) ○ Yes ◉ No

Enforce Unique TrackID*: (?) ○ Yes ◉ No

Publish Stream Service

Publish a new stream service.

Name: RelatedFeatures-Stream

Cluster Name: default

Store Latest: ☐ Must register a Managed Database to enable Archiving.

Geometry Type: Point

▾ Advanced

Related Features: ⑦ https://majere.esri.com:6443/arcgis/rest/servi

Publish Cancel

8) The stream service expects the SampleData-Stream event definition, so use a Field Mapper to reduce the events received.

Field Mapper processor properties

Fields	Source	Target
	serial_num	serial_num
	pressure	pressure
	temperature	temperature

Source GeoEvent Definition	SampleData-TcpTextIn
Target GeoEvent Definition	SampleData-Stream

9) Verify that you can 'Subscribe' to receive data broadcast by the stream service

Home > services > RelatedFeatures-Stream (StreamServer) > subscribe

JSON

RelatedFeatures-Stream (StreamServer)

{"attributes":{"serial_num":"QIB-381","pressure":30,"temperature":86}}
{"attributes":{"serial_num":"EMS-265","pressure":34,"temperature":64}}
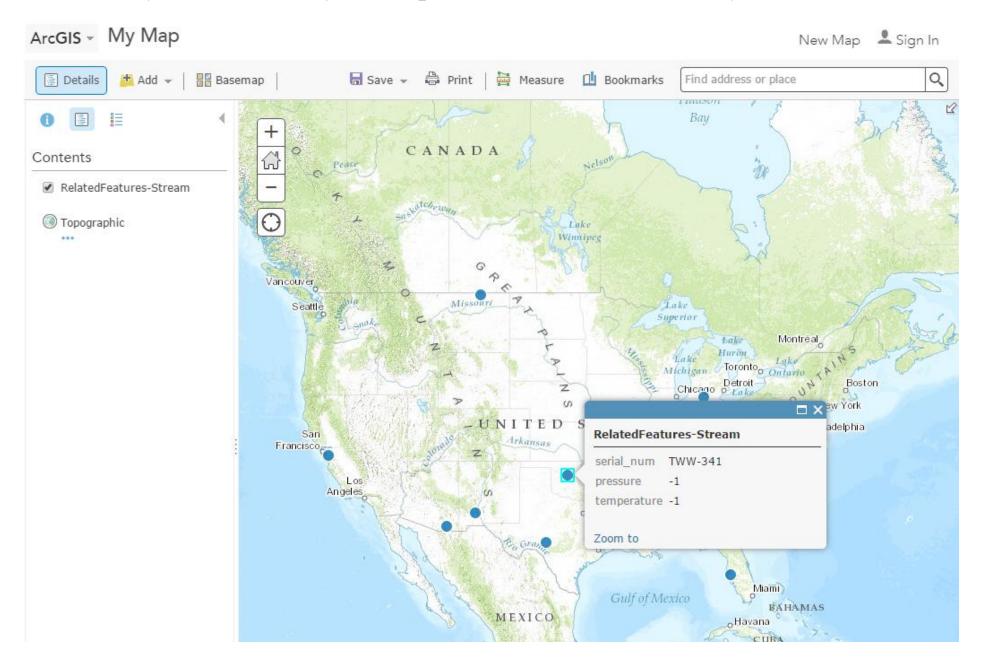{"attributes":{"serial_num":"AXJ-057","pressure":27,"temperature":67}}

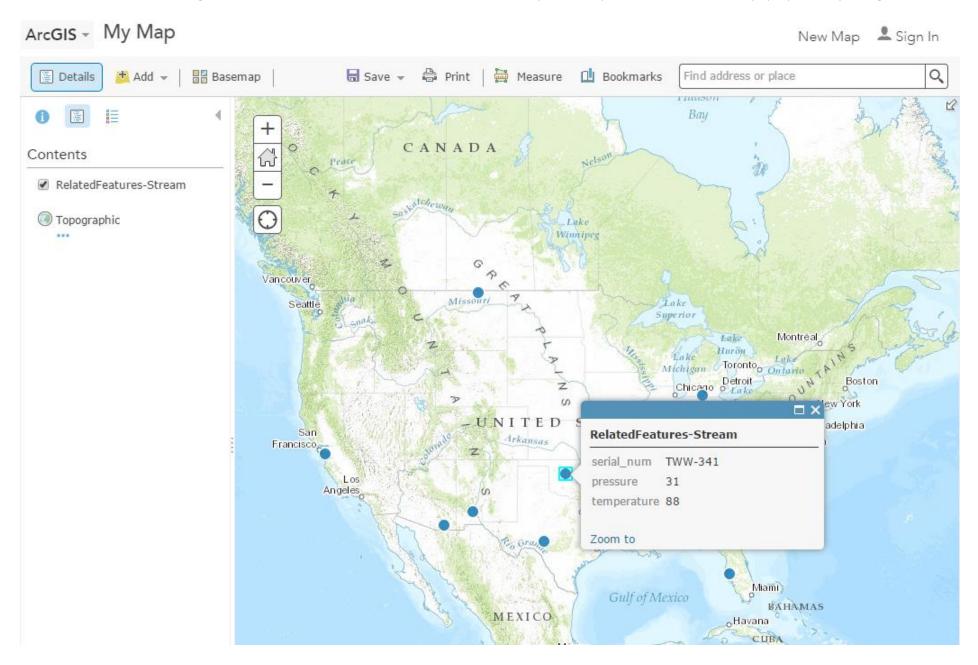Subscribe   Unsubscribe

You have subscribed

10) Add the stream service to a web map as a new stream layer.
https://majere.esri.com:6443/arcgis/rest/services/RelatedFeatures-Stream/StreamServer

What you should see is that the features displayed initially show no reported temperature or pressure. Remember that the map service's layer has no data to contribute to the map. But it does have a Geometry for each serial_num element … which the stream service does not provide.

As simulated data is processed by the GeoEvent Service and broadcast out the stream service, you should see the attributes in the map's layer update to reflect the real-time data values being broadcast. You'll have to click on the different features periodically to see the values in the pop-up actually change.

ArcGIS ▾ My Map

New Map   👤 Sign In

Details   ➕ Add ▾   ⬛ Basemap   💾 Save ▾   🖨 Print   Measure   📖 Bookmarks   Find address or place

Contents

☑ RelatedFeatures-Stream

⦿ Topographic
...

RelatedFeatures-Stream

serial_num   TWW-341
pressure   31
temperature 88

Zoom to

You can experiment to find out how far the enrichment for 'Related Features' extends by including additional fields in the event stream which are not represented in the table being joined. For example, I elected to remove date_reported from my event stream. I think if I were to have left it in it would be included in the pop-up. I appears as if the "extra" field in the related table ("message") is not enriched into the data stream. At least it is not appearing in the pop-up in my tests.