

# ArcGIS GeoEvent Extension for Server: Working with Community Connectors and Processors

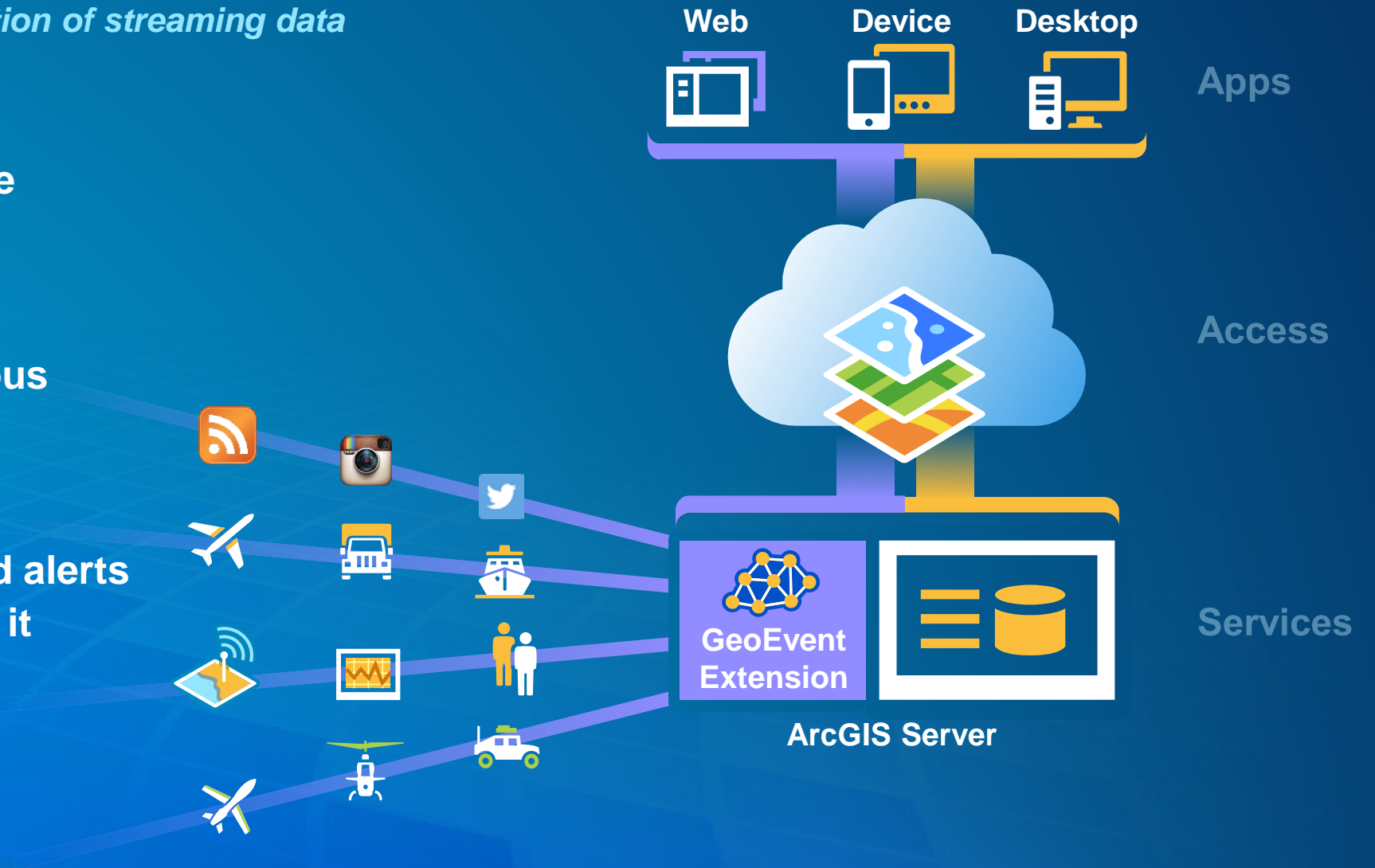
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[patrick\\_hill@esri.com](mailto:patrick_hill@esri.com)

# Real-Time GIS

*Integration and exploitation of streaming data*

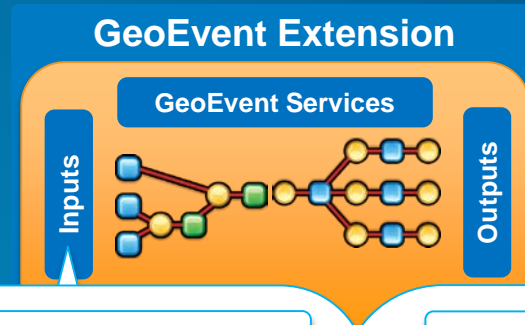
- Integrates real-time streaming data into ArcGIS
- Performs continuous processing and real-time analytics
- Sends updates and alerts to those who need it where they need it



# Community Connectors









# Receiving Real-Time Data

Easily integrate real-time streaming data into ArcGIS using an Input Connector
















You can create your own connectors.

## Out of the Box







-  Poll an ArcGIS Server for Features
-  Poll an external website for GeoJSON, JSON, or XML
-  Receive Features, GeoJSON, JSON, or XML on a REST endpoint
-  Receive GeoJSON or JSON on a WebSocket
-  Receive RSS
-  Receive Text from a TCP or UDP Socket
-  Subscribe to an external WebSocket for GeoJSON or JSON
-  Watch a Folder for new CSV, GeoJSON, or JSON Files

## Esri Gallery



-  ActiveMQ
-  CAP
-  CoT Cursor-on-Target
-  esd Exploitation Support Data
-  Instagram
-  KML
-  Kafka \*
-  MQTT
-  NMEA 0183
-  RabbitMQ
-  Sierra Wireless (RAP)
-  Trimble (TAIP)
-  Twitter

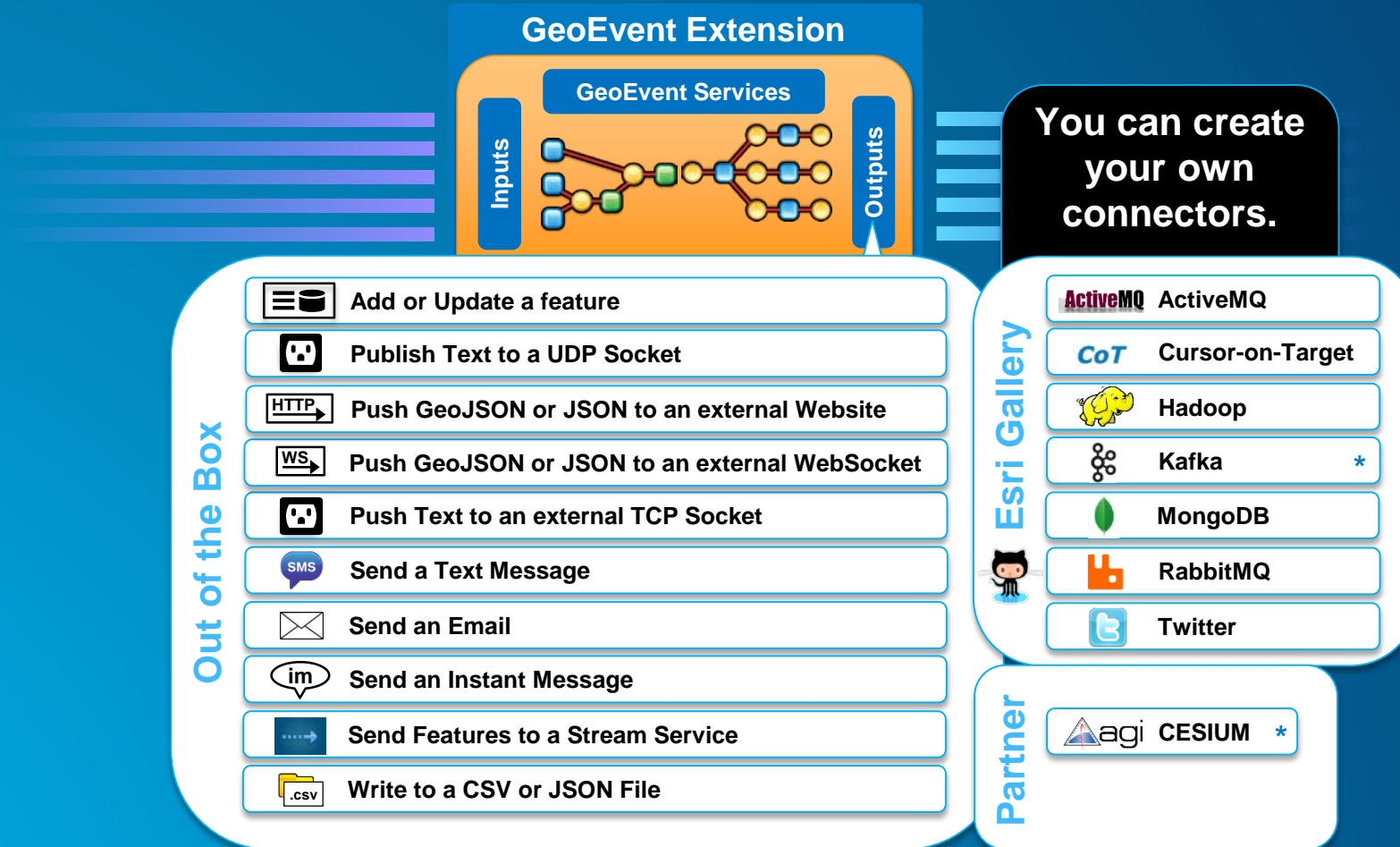
## Partner Gallery

-  CompassCom CompassLDE
-  enviroCar enviroCar
-  exactEarth exactEarth AIS
-  FAA (ASDI) \*
-  GNIP \*
-  Verizon Networkfleet \*
-  OSIsoft OSisoft \*
-  Valarm
-  ZONAR Zonar \*



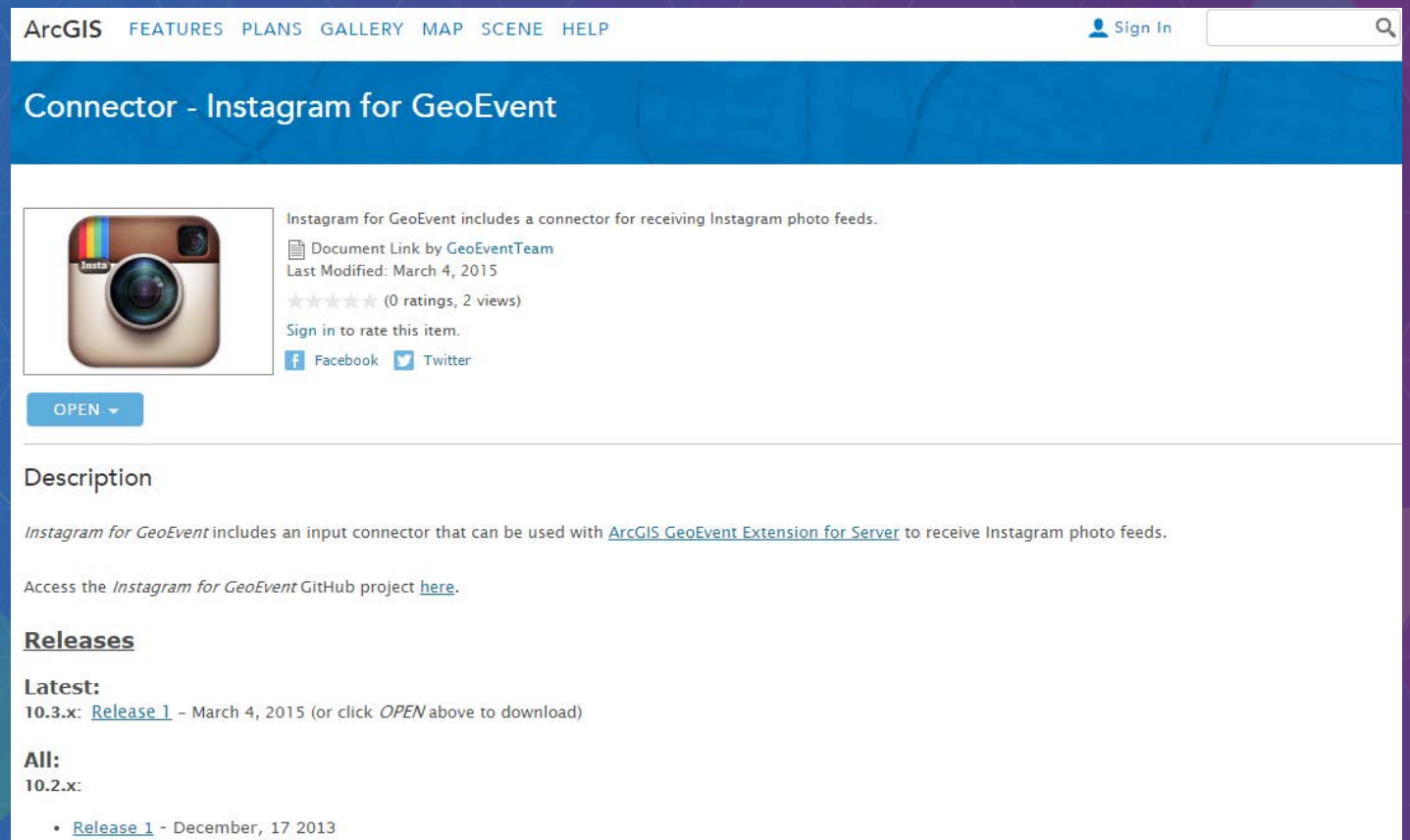
# Sending Real-Time Data

*Easily disseminate notifications, alerts, and updates using an Output Connector*



# Using a Community Connector


## Instagram Connector



The screenshot shows the ArcGIS Connectors page for the Instagram connector. The page has a blue header with the title "Connector - Instagram for GeoEvent". Below the header, there is a card for the connector. The card features an Instagram logo icon on the left. To the right of the icon, the text reads: "Instagram for GeoEvent includes a connector for receiving Instagram photo feeds." Below this, it says "Document Link by GeoEventTeam" and "Last Modified: March 4, 2015". There are five stars for ratings, with the text "(0 ratings, 2 views)" below them. A link to "Sign in to rate this item." is provided. At the bottom of the card, there are social media icons for Facebook and Twitter. Below the card is a blue button labeled "OPEN" with a dropdown arrow. The main content area has a "Description" section with the text: "Instagram for GeoEvent includes an input connector that can be used with [ArcGIS GeoEvent Extension for Server](#) to receive Instagram photo feeds." Below this, it says "Access the *Instagram for GeoEvent* GitHub project [here](#)." There is a "Releases" section with "Latest:" and "10.3.x: [Release 1](#) - March 4, 2015 (or click *OPEN* above to download)". Under "All:", it lists "10.2.x:" with a bullet point: "• [Release 1](#) - December, 17 2013".

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### Connector - Instagram for GeoEvent



Instagram for GeoEvent includes a connector for receiving Instagram photo feeds.

Document Link by GeoEventTeam  
Last Modified: March 4, 2015

☆☆☆☆☆ (0 ratings, 2 views)

Sign in to rate this item.

[Facebook](#) [Twitter](#)

[OPEN](#)

#### Description

*Instagram for GeoEvent* includes an input connector that can be used with [ArcGIS GeoEvent Extension for Server](#) to receive Instagram photo feeds.

Access the *Instagram for GeoEvent* GitHub project [here](#).

#### Releases

**Latest:**  
10.3.x: [Release 1](#) - March 4, 2015 (or click *OPEN* above to download)

**All:**  
10.2.x:

- [Release 1](#) - December, 17 2013

**What is a Connector?**

# Connectors

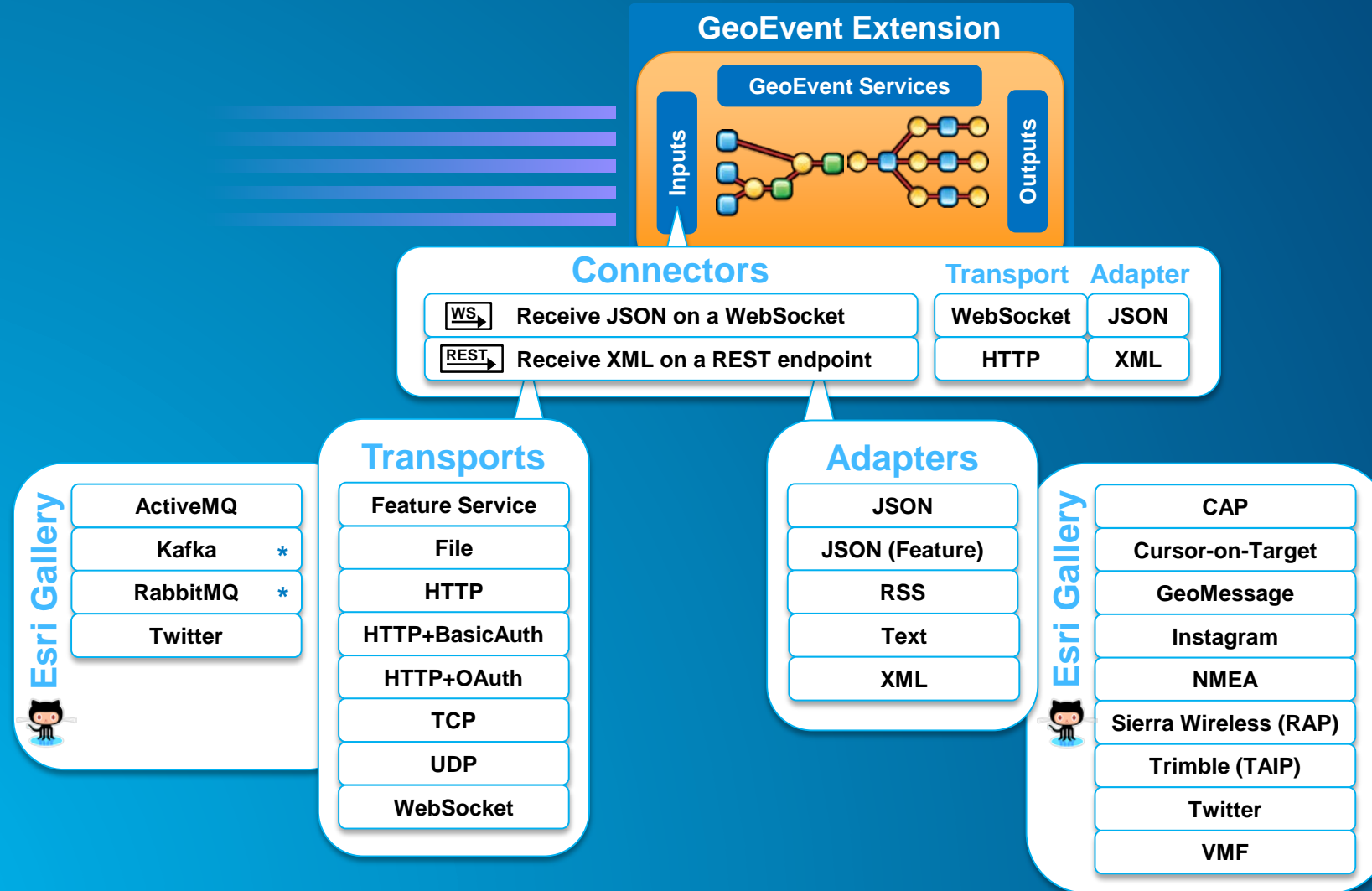
*What is a connector?*

- **Connectors** made up of two customizable components – **transport** and **adapter**
- Types of transports and adapters:
  - Inbound transport – connects to and gets raw bytestream
  - Inbound adapter – converts raw bytestream into a **GeoEvent**
  
  - Outbound adapter – converts **GeoEvent** into a byte array, formatted to an output type
  - Outbound transport – accepts arrays of bytes from the adapter and transmits them



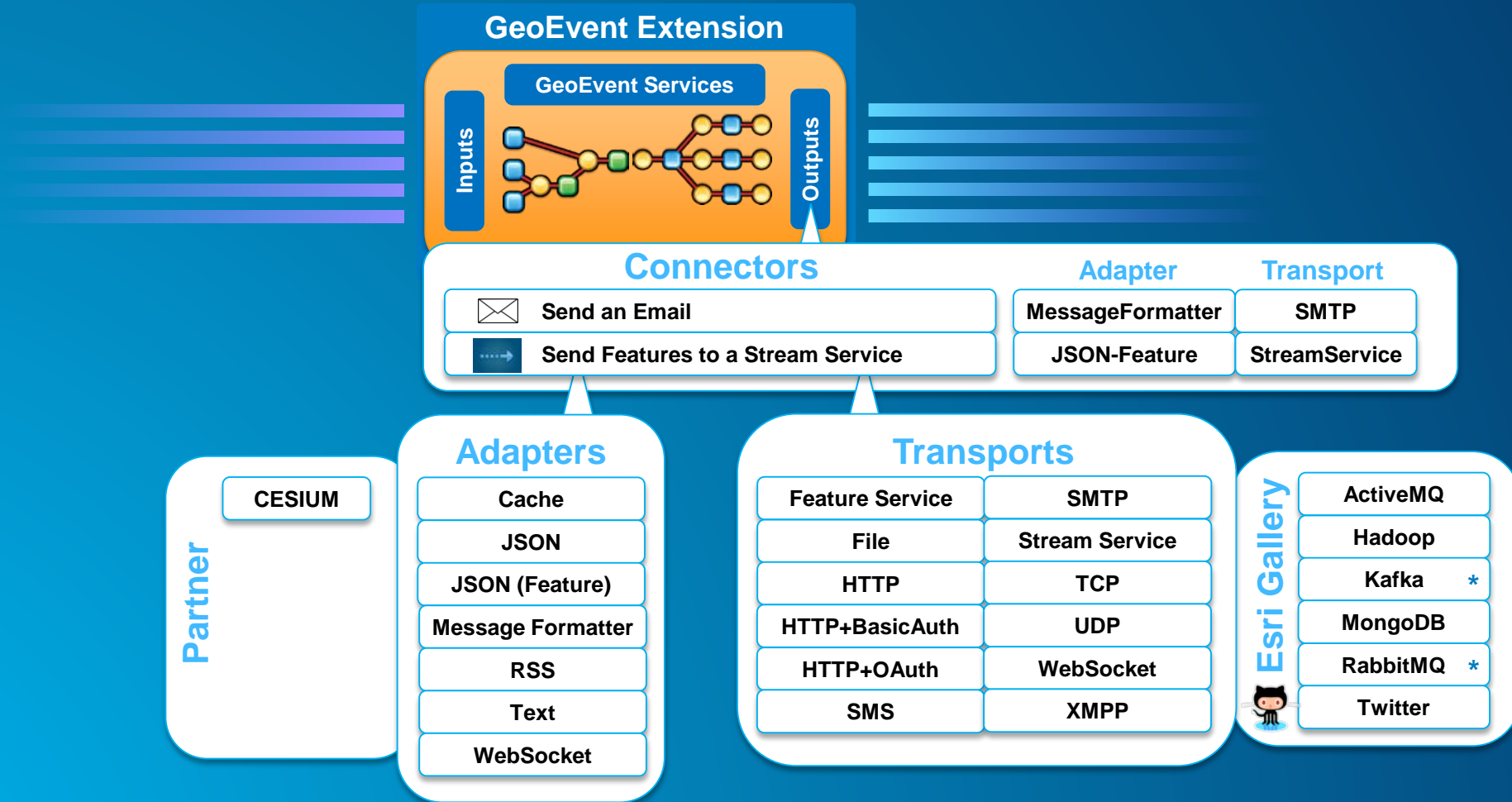
# Receiving Real-Time Data

*Input Connector = Transport + Adapter*



# Sending Real-Time Data

*Output Connector = Adapter + Transport*



# Building Community Connectors & Processors

*What you will need...*

Java 6 or 7



GeoEvent SDK



Demo

# Building and Using a Connector

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Common Alerting Protocol (CAP) Connector

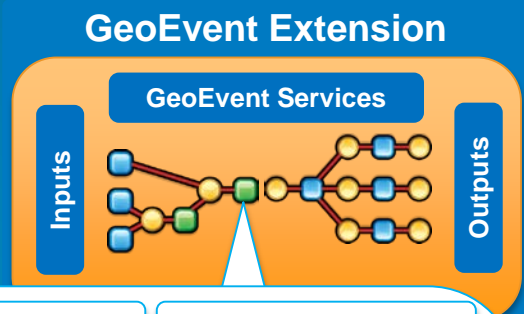


# Community Processors

# Applying real-time analytics

## GeoEvent Processing

- You can perform continuous analytics on GeoEvents as they are received using a **processor**.



The diagram illustrates the GeoEvent Extension architecture. It features a central 'GeoEvent Services' block with 'Inputs' on the left and 'Outputs' on the right. A network of colored nodes (blue, green, yellow) is connected by lines, representing the flow of data through various processing services.

**You can create your own processors.**

**Out of the Box**

Buffer Creator	Geotagger
Convex Hull Creator	Incident Detector
Difference Creator	Intersector
Envelope Creator	Projector
Field Calculator	Simplifier
Field Enricher	Symmetric Difference
Field Mapper	Track Gap Detector
Field Reducer	Union Creator

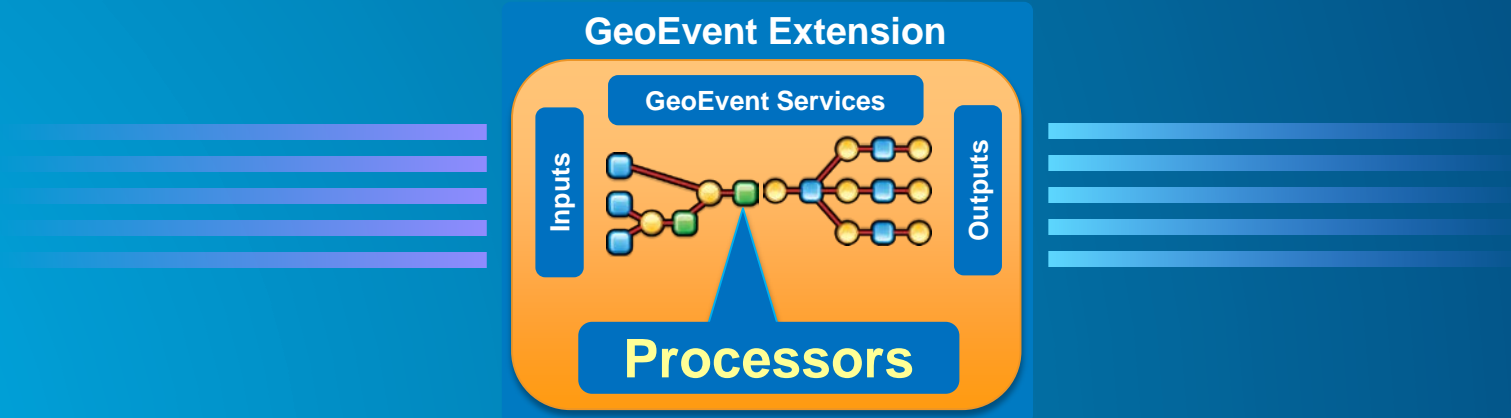
**Esri Gallery**

Add XYZ	Range Fan
Bearing	Reverse Geocoder
Ellipse	Service Area Creator
Event Volume Control	Track Idle Detector
Extent Enricher	Query Report
Field Grouping	Visibility
GeoNames Lookup	Unit Converter
Motion Calculator	Spatial Query

# Processors

*What is a processor?*

- **Processors** perform some action on each GeoEvent passed to it
- **Processors** can be used to:
  - Modify existing fields or the geometry
  - Add new fields
  - Filter
  - Create new GeoEvent(s)

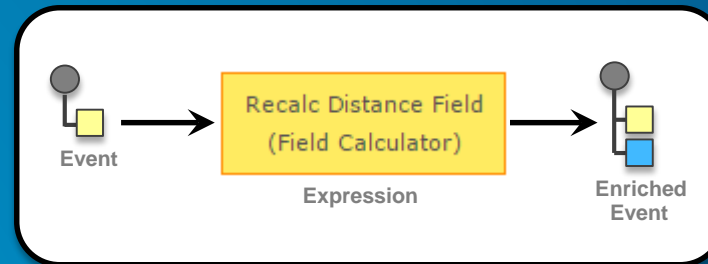


# GeoEvent Processing

Calculate new fields on a GeoEvent

- A **Field Calculator** processor uses an expression to
  - calculate a new field or update an existing field.
  - Expressions can be mathematical expressions, string operations, or regular expressions.

SuspectID	V10987
Date	1405176845553
BatteryLevel	Low
Distance	105.6
Speed	1.2
Course	186.4
geometry	-117.123..., 36.064...



Convert from  
Feet to Miles  
Expression:

Distance / 5280

SuspectID	V10987
Date	1405176845553
BatteryLevel	Low
Distance	0.02
Speed	1.2
Course	186.4
geometry	-117.123..., 36.064...

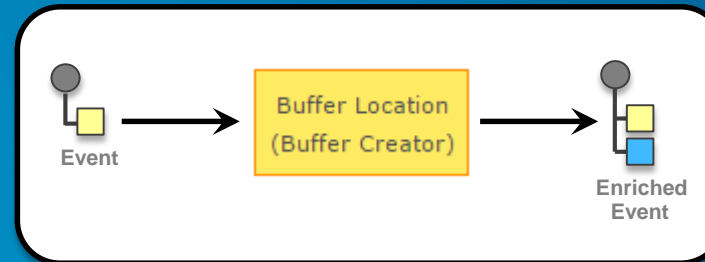


# GeoEvent Processing

*Enrich the geometry of a GeoEvent*

- A **Buffer Creator** processor
  - applies a buffer to a geometry field on the incoming GeoEvent
  - and either:
    - enriches the GeoEvent with a new geometry field representing the buffered result
    - or replaces the geometry of the incoming GeoEvent with the buffered result

SuspectID	S90909
Date	1405176845553
BatteryLevel	High
Distance	0.2
geometry	-117.123..., 36.064...



SuspectID	S90909
Date	1405176845553
BatteryLevel	High
Distance	0.2
geometry	-117.123..., 36.064...
buffer	rings" : [ [ [ -116.3175, 33.6703],[ -116.3175, 33.6703]...]]

Demo

# Working with a Community Processor

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Spatial Query & Query Report Processors

# Demo Summary

- **GeoEvent Extension – Java SDK**
  - Java 6 or 7
- **Building Maven**
  - Modern IDE's can import and build the project
- **Source Control – GitHub**
  - A Git client is required

**Get involved!**



# GeoEvent Communities

Contribute and use the community connectors and processors

[esri.github.io/#GeoEvent](https://esri.github.io/#GeoEvent)

Esri is on GitHub!

We're excited about helping developers build and share software. Browse our open source code and get started with our powerful ArcGIS platform today.

[BROWSE ON GITHUB](#)

Need an ArcGIS subscription? Start developing today for free.

Filter by language or keyword:

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ArcGIS GeoEvent Processor Sample Instagram Inbound Connector for receiving Instagram feeds.  
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[links.esri.com/geoevent](https://links.esri.com/geoevent)

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## ArcGIS GeoEvent Gallery

Welcome to the ArcGIS GeoEvent Gallery

**Group Content**

- All Results
- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Show ArcGIS Desktop Content

### ArcGIS GeoEvent User Community Gallery

Welcome to the ArcGIS GeoEvent user community.

**Group Content**

- All Results
- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Show ArcGIS Desktop Content






### ArcGIS GeoEvent Partner Gallery

Welcome to the ArcGIS GeoEvent Partner Gallery. Here you'll find the latest ArcGIS GeoEvent content developed and shared by Esri Partners.

**Group Content**

- All Results
- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Show ArcGIS Desktop Content

	Title	Owner	Rating	Views	Date
	exactEarth AIS Data via GeoEvent Processor	exactEarth	★★★★☆	12	October 15, 2013
	Code Sample by exactEarthLimited	exactEarthLimited	★★★★☆	0	March 5, 2014
	Valarm Connector for Esri GeoEvent Processor	Valarm	★★★★☆	26	March 5, 2014
	CompassLDE Connector by CompassCom	CompassCom	★★★★☆	104	June 25, 2014
	enviroCar Connector for GeoEvent	enviroCar	★★★★☆	1	March 2, 2015

**Group Details**

GeoEventTeam  
Status: public  
Contributors: All members  
Tags: ArcGIS, GeoEvent, processor, server, Connector, Transport, Adapter, Real, Real-Time, community, content, track, tracking, alert, monitor, business, partner, user, configuration, extension

# How can you get involved?

## GeoEvent GitHub projects

- Access GeoEvent repositories @ [esri.github.io/#GeoEvent](https://esri.github.io/#GeoEvent)
- Update connectors/processors
- Create a pull request and/or submit issues
- Changes are reviewed and committed as appropriate

The screenshot shows the GitHub repository page for 'Esri / instagram-for-geoevent'. The repository description is 'ArcGIS GeoEvent Extension Sample Instagram Inbound Connector for receiving Instagram feeds.' It has 26 commits, 2 branches, 0 releases, and 7 contributors. The current branch is 'master'. The commit history shows a recent commit by 'gtieman' on Jan 26. The file list includes 'instagram-adapter', 'instagram-transport', '.gitignore', 'CONTRIBUTING.md', 'README.md', and 'instagram-for-geoevent.png'.

The screenshot shows the GitHub repository page for 'Esri / solutions-geoevent-java'. The repository description is 'Custom processors, adapters and transports for geoevent server.' It has 293 commits, 5 branches, 0 releases, and 6 contributors. The current branch is 'master'. The commit history shows a recent commit by 'pHill5136' 8 days ago. The file list includes 'application', 'data', 'solutions-geoevent', '.gitattributes', '.gitignore', and 'CONTRIBUTING.md'.

# How can you get involved?

## *GeoEvent Galleries*



### ArcGIS GeoEvent Partner Gallery

[links.esri.com/geoevent-partner-gallery](https://links.esri.com/geoevent-partner-gallery)

- Invite only – join by emailing [geoevent@esri.com](mailto:geoevent@esri.com)



### ArcGIS GeoEvent User Community Gallery

[links.esri.com/geoevent-community-gallery](https://links.esri.com/geoevent-community-gallery)

- Sign in to ArcGIS Online
- Browse to the link above
- Click  JOIN THIS GROUP

## Other GeoEvent Extension Sessions

- **The Road Ahead: ArcGIS for Server and Portal for ArcGIS**
  - Fri 8:30-9:30am, Primrose C/D




# Where to learn more?

## Resources

- To learn more, visit the 'Get Started' area of the GeoEvent Extension product page:

- <http://links.esri.com/geoevent>

- Introduction
- Notifications
- Stream Services
- RSS, HTTP, Files
- REST Admin API
- Clustering

 Open ▾ Details	<b>Tutorial - Introduction to GeoEvent</b> This tutorial is the first in a series of tutorials introducing you to the capabilities of ArcGIS GeoEvent Extension for Server. 📄 Document Link by GeoEventTeam Last Modified: December 30, 2014 ★ ★ ★ ★ ★ (0 ratings, 0 comments, 11 views)
 Open ▾ Details	<b>Tutorial - Stream Services in GeoEvent</b> The Stream Services in GeoEvent tutorial introduces you to stream services, a new type of ArcGIS for Server service which emphasizes low latency, real-time data dissemination for client/server data flows. 📄 Document Link by GeoEventTeam Last Modified: December 30, 2014 ★ ★ ★ ★ ★ (0 ratings, 0 comments, 18 views)

- Ask questions on the GeoEvent Forum:

- <https://links.esri.com/geoevent-forum>

**Thank you!**

**Please fill out the  
session survey at:**

**[www.esri.com/  
RateMyDevSummitSession](http://www.esri.com/RateMyDevSummitSession)**



# Questions / Feedback?



To learn more:

<http://links.esri.com/geoevent>

<https://links.esri.com/geoevent-forum>