

Version 25



Trapeze
Enterprise Asset Management

GIS Integration

Administrator Guide

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Toll-Free Telephone: 1-877-411-8727

E-mail: cc@trapezegroup.com

FTP Site: <https://ftp.trapezegroup.com/>

Web Site: <https://collaborate.trapezegroup.com>

The website provides access to Trapeze Collaborate which offers resources to implement and operate the software, search knowledge, participate in communities, log/track service requests, sign-up for release alerts, view product health recommendations, and download updates or documentation. For secure access to Collaborate, contact Customer Care through the website or by calling the number above.

Product Compatibility

Refer to the latest [Product Compatibility](#) information on Trapeze Collaborate for requirements including operating system information, databases, Crystal reports, network protocol, HTTP servers and browsers that are supported.

GIS Integration - Administrator Guide

Version 25.x

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1. Overview

The GIS Interface module enables bi-directional integration with an ESRI ArcGIS Feature Server. It both sends and receives updates from your GIS software.

Integration Checklist

Following are the steps that will be completed in order to use the GIS Interface module:

- ☐ Obtain ESRI licensing. Ensure licensing will work with MAXQueue.
- ☐ Install the MAXQueue package.
- ☐ Configure MAXQueue to work with GIS.
 - i. Enable services.
 - ii. Set variables.
- ☐ Configure your asset management application for use with GIS in the Enterprise Portal.
 - i. GIS Mapping Types screen
 - ii. GIS Feature Mapping screen

Prerequisites

EAM Application 25.x

MAXQueue

Esri Licensing

- ArcGIS Server
 - Any license level (Basic, Standard, Advanced) required for GIS Get Assets. Features services must be published and feature access must be enabled for assets involved in the integration
 - Standard or Advanced license level required for GIS Send Staged Data. Any data sent to GIS must have feature services published, feature access enabled, and the appropriate create and update operations allowed.
- Esri Services
 - Authentication Requirements: Token authentication on all feature services is required.

- Feature services must be accessible from external web connections.
- Access to the ESRI Geometry Server is required. This is included with ArcGIS Server but must be turned on. To access the Geometry Server, log into the ArcGIS Server Manager and go to the Utilities menu. Start the service, then add the REST URL as a variable in MAXQueue. If updates to GIS are to be done in a versioned environment, the feature services that will be updated should be published using a versioned source.

GIS Module Elements

The module uses the following elements to accomplish the integration.

Get Assets

This interface is a one directional interface from ESRI ArcGIS to the asset management system. It retrieves data from a given GIS server and then uses that data to update information in the system based on a user defined data mapping. It can create and update assets through the Asset Primary screen, and can create or update subsystems and subsystem properties through the Equipment Subsystems and Equipment - Subsystems and Parts screens.

Mapping from the GIS system to the asset management system is defined on the following screens within Enterprise Portal:

- GIS Mapping Types - This screen allows configuration to define where feature services involved in the integration are and how they are configured.
- GIS Feature Mapping - This screen allows configuration to define how each feature should be processed by the integration.

This service not only takes the information from the GIS server and maps it to assets within the system or subsystems, it also creates shapes, segments, and markers to represent the asset's geometry data. These features can then be used by MAXQueue's GIS Get Assets service to translate values from ArcGIS to EAM.

When configured to use REST, this service can create and update addresses.

Configuration

vars.UpdateSegmentGeometry: Set this to **Y** to update the geometry on a segment. This may affect the accuracy of work history. This option is set to **N** by default to not update the segment or shape as this may affect existing linear work orders.

Send Staged Data

This service takes the data staged to MAXQ_Staging under the EventType "GISOutBound", and uses it to update or create features in ESRI GIS. Because this only handles already staged data, it does nothing by itself. It only works in tandem with another service that takes data from the asset management system and stages it based on the standard structure defined below.

Stage Subsystem

The purpose of this integration is to create and update subsystems. This will facilitate mapping and analysis of property values originating from the asset management system into the ESRI environment. This is part of the base GIS module.



Note: This service can use the Enterprise Portal screens to set up outbound data mapping instead of XML files. This service reads work order, service request, equipment, and subsystem mappings from the GIS [Work Order, Service Request, Equipment, and Subsystem] Mapping screens.

Stage Service Request

The purpose of this integration is to create and update service request locations, including point, polygon, and linear geometries. This will facilitate mapping and analysis of the location of service requests originating from the asset management system into the ESRI environment. This is part of the base GIS module.



Note: This service can use the Enterprise Portal screens to set up outbound data mapping instead of XML files. This service reads work order, service request, equipment, and subsystem mappings from the GIS [Work Order, Service Request, Equipment, and Subsystem] Mapping screens.

Stage Work Order

The purpose of this integration is to create and update work order locations, including point, polygon, and linear geometries. This will facilitate mapping and analysis of the location work orders originating from the asset management system in the ESRI environment. This is part of the base GIS module.



Note: This service can use the Enterprise Portal screens to set up outbound data mapping instead of XML files. This service reads work order, service request, equipment, and subsystem mappings from the GIS [Work Order, Service Request, Equipment, and Subsystem] Mapping screens.

Stage Equipment

This integration is responsible for watching for inserts or updates to EQ_MAIN in the asset management system. When equipment is created or updated its Asset Category information is gathered. The client will define a semicolon delimited list of Asset Categories that they would like to send to GIS in the MAXQueue variable vars.AssetCategories. If the equipment's asset category is in the vars.AssetCategories list, the equipment is formatted for the standards required by the GIS Send Stage Data integration, and then written to the MAXQ_Staging table. Later, when the GIS Send Stage Data integration runs, the data will be sent to GIS.

This integration makes use of a mapping file in order to transform the Equipment data in to something that can be interpreted by GIS. The file is located at \\<deployment>\MAXQueue\Server\GISMappingFiles\EquipmentMappings.xml. This file allows the client to define, per Asset Category, how they would like to transform the data before it is sent to GIS.



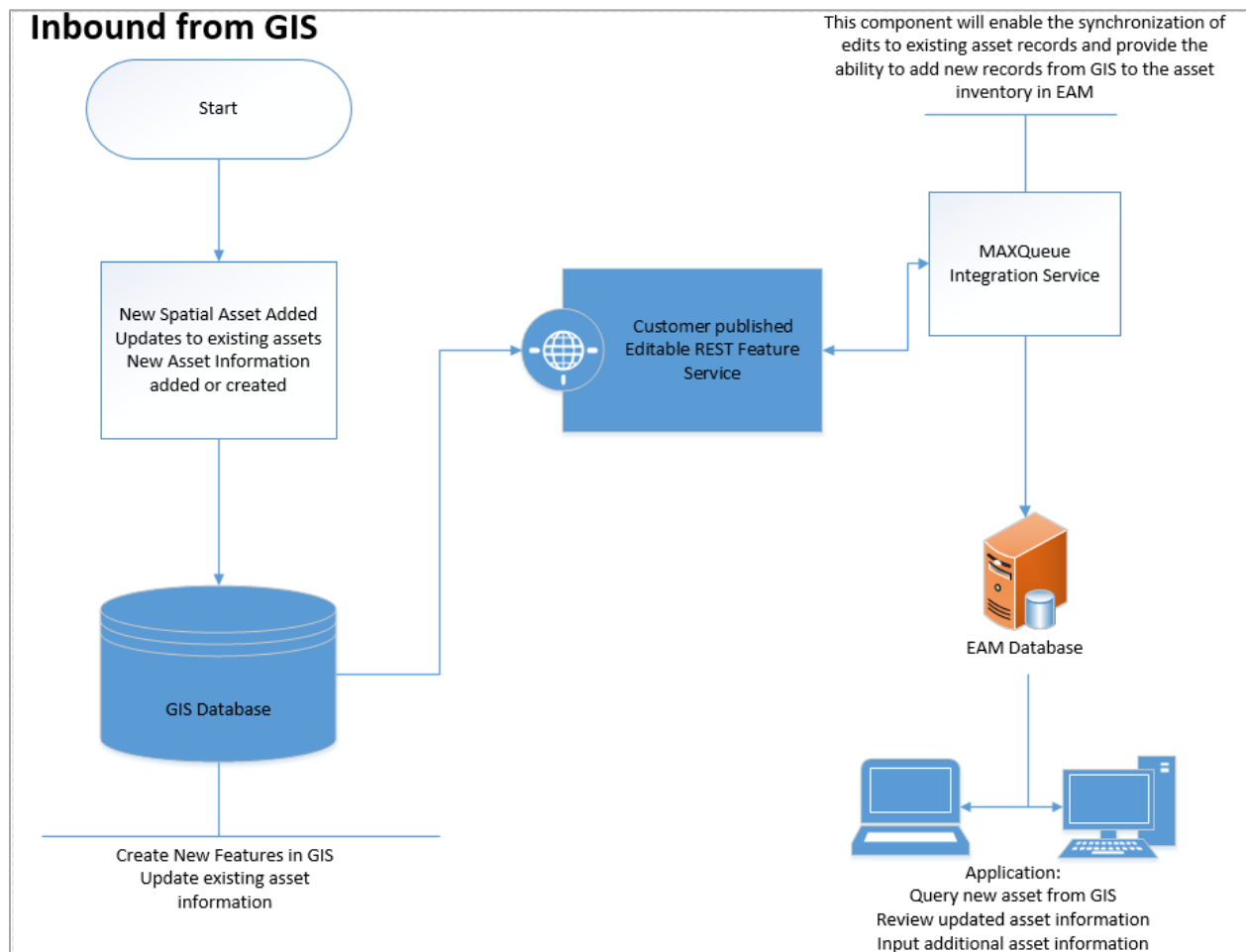
Note: This service can use the Enterprise Portal screens to set up outbound data mapping instead of XML files. This service reads work order, service request, equipment, and subsystem mappings from the GIS [Work Order, Service Request, Equipment, and Subsystem] Mapping screens.

Integration Process

Inbound from GIS

The GIS Interface requests new and updated assets from GIS for:

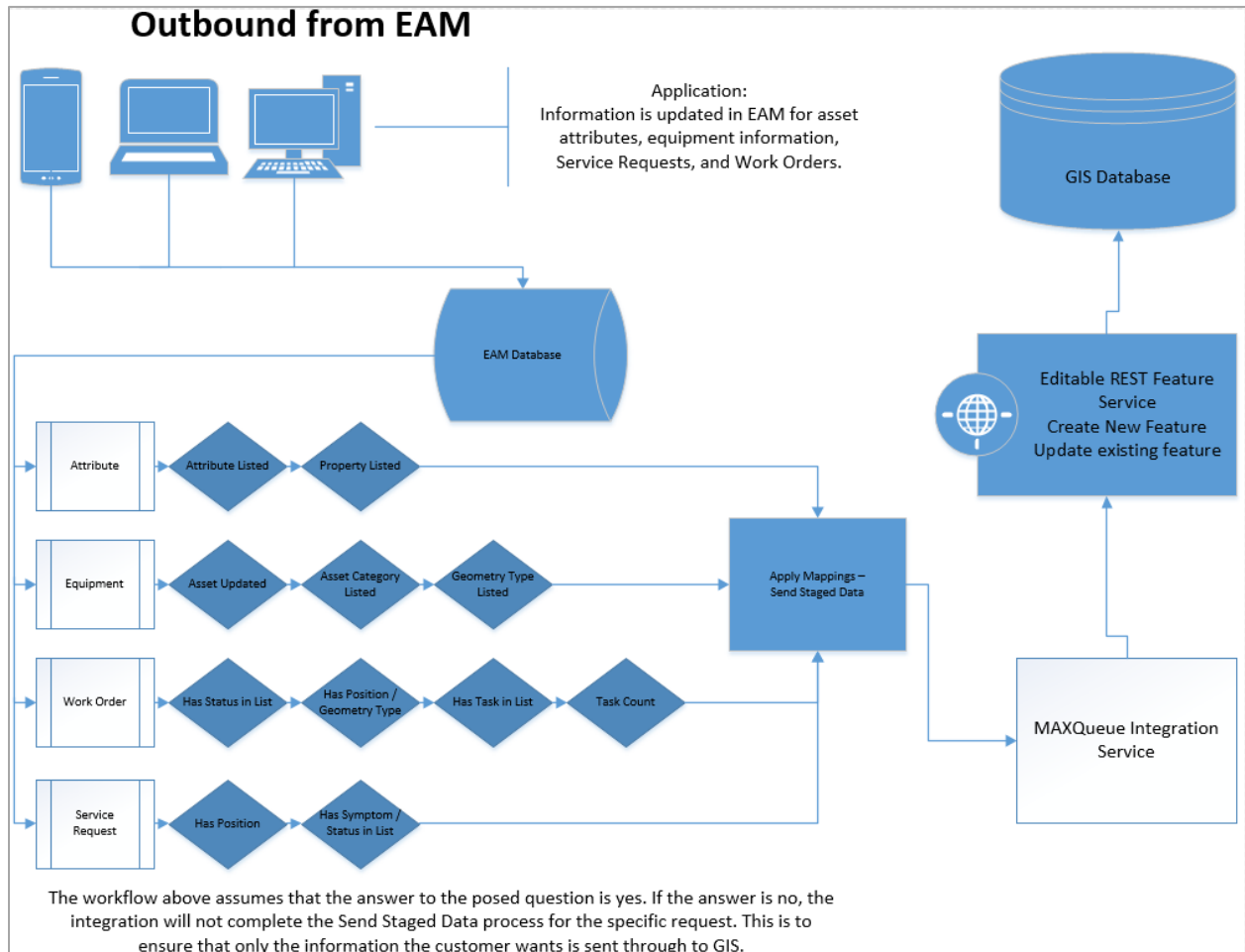
- Creation of assets with geospatial coordinates, including points, lines, and polygons.
- Update of existing assets, including attributes and spatial location.
- Data driven configuration options that allow for creating or updating assets based on values in GIS.



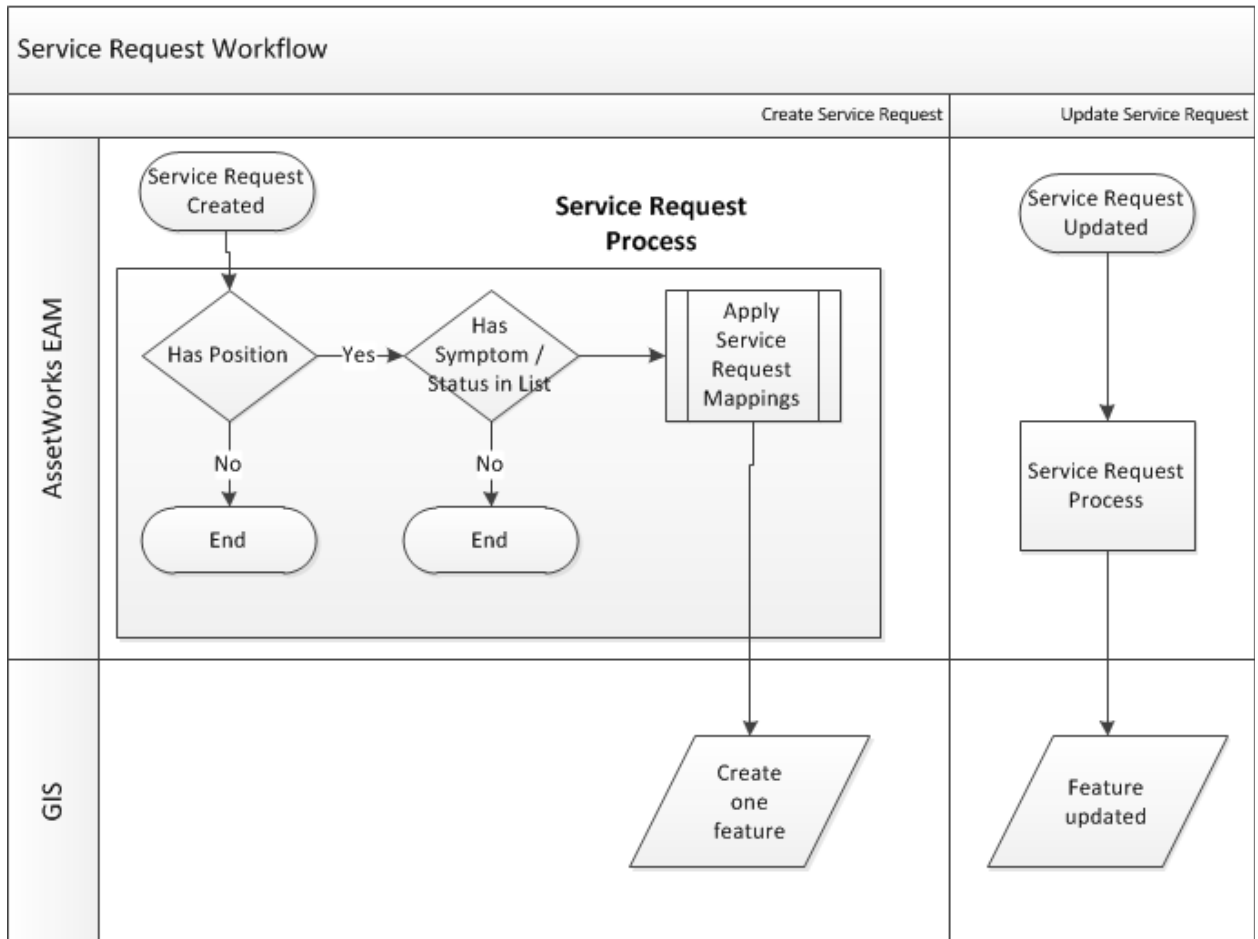
Outbound to GIS

The GIS portion of the Interface sends data to GIS for multiple scenarios, updating asset attributes in GIS based on changes in the asset management system, creation and update of service request and work order features in GIS as they are created and updated in the system.

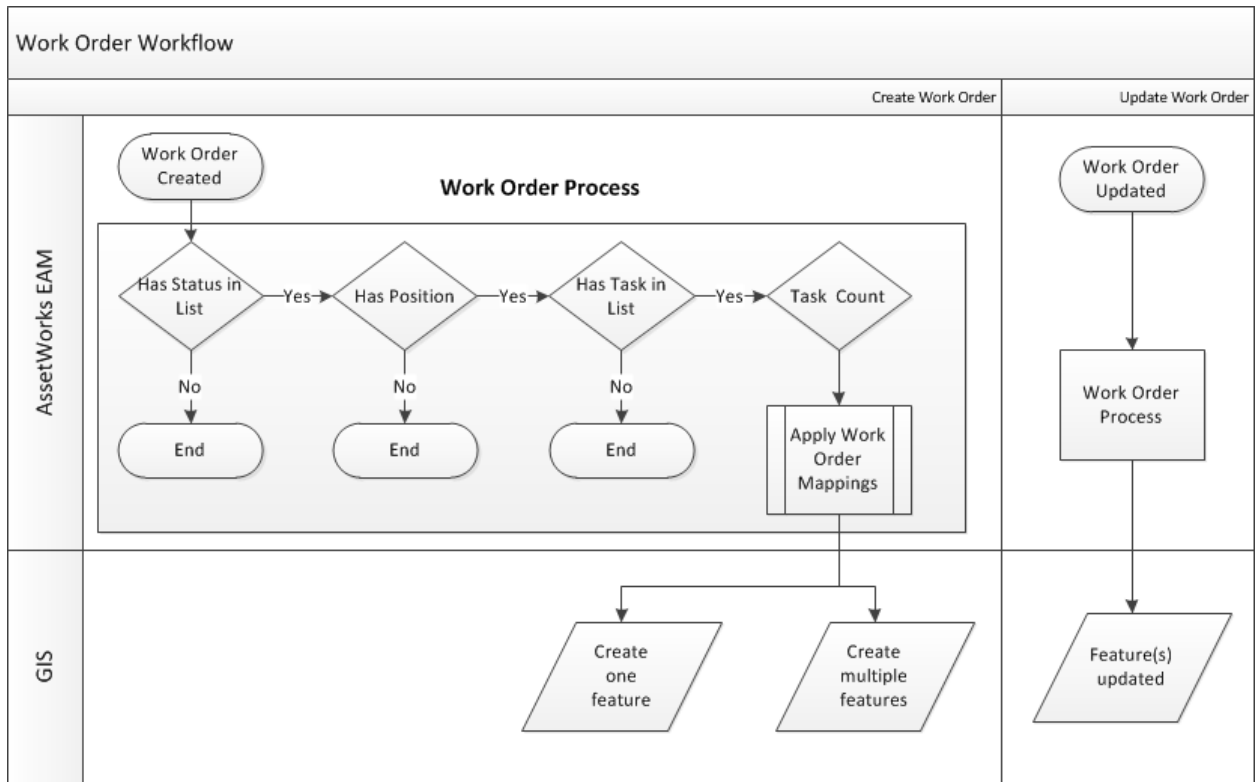
- Update of attributes within GIS systems from the asset management system.



- Creation and update of service request locations.



- Creation and update of work order locations for assets that have geospatial coordinates.



2. Configuring the GIS Integration

All GIS integrations are implemented in MAXQueue and require set up of variables in that environment. The integration timing is configurable and should be set at an interval that meets the business needs of your organization. It is recommended that organizations set an interval of nightly or weekly, during off hours, to schedule the integration updates.

Configuration of the GIS Assets service involves entering information on two web screens and configuration of variables within the MAXQueue Designer. The two web screens involved are the GIS Mapping Types screen and the GIS Feature Mapping screen.

Prerequisites

Ensure that the following items have been completed by your GIS department or lead:

1. Editable REST service is published and available to connect with EAM MAXQueue Interface Management tool.
 - a. Have your GIS manager provide you with the URL to the appropriate feature service for your assets.
2. Ensure that the following fields exist and are available in the organizations GIS:
 - a. Last_Edit_Date – Ensure this field is a tracking field within GIS.
 - b. Created_Date – Ensure that this field is set as a date field and not a text field. If you do not need to track this information in the GIS system, you can use the same field information as your Last_Edit_Date field.
3. Determine what fields you have available in GIS and if you would like to track specific information from EAM in your GIS system:
 - a. Feature category
 - b. Data Source (where the information being brought into EAM was originally retrieved from)

GIS Mapping Types

Navigate to the GIS Mapping Types Screen. This screen is used to specify where your feature services are and how they are configured.

Shared Info

- Feature mapping type (Required) – System-defined unique ID for that mapping type.

Basic Info

- Feature Layer Name – This will be the name of the type of feature you will be bringing into the system (signs, roads, hydrants, etc.) You will need to create one Mapping Type for each feature layer to which you will be linking. For example:

Feature Layer Name	(#) Service index
• 2015 Pavement Condition Index	(4)
• 2015 Pavement Friction	(6)
• 2015 International Roughness Index	(8)
• 2014 Pavement Condition Index	(11)
• 2014 Pavement Friction	(13)
• 2014 International Roughness Index	(15)
• 2013 Pavement Condition Index	(18)
• 2013 Pavement Friction	(20)
• 2013 International Roughness Index	(22)
• PMIS 2015	(24)
• PMIS 2014	(25)
• PMIS 2013	(26)
• PMIS 2012	(27)
• PMIS 2011	(28)

- Service Index (Required) - The index of the feature service. Values can be found in ESRI and applied here. In the example above, the number in the parentheses represents the service index needed within the system.
- Feature server URL (Required) - Defines the location for the ESRI REST service. Values can be found in ESRI and applied here. This URL will be provided by your GIS manager.
- GIS field defining feature category (Optional) - Field in GIS that categorizes features. sign_cat
- GIS field defining data source (Recommended, Optional) - Field in GIS that lists the login of the user that made the last edit. last_edited_user
- GIS field defining date created (Required, but can be set to the same field as the edit date) - Field in GIS that is timestamped when a new feature is created. created_date
- GIS field defining the last edit date (Required) - Field in GIS that is timestamped when a feature is updated. last_edited_date
- Last query timestamp - Managed by the integration and used to identify features that are new or updated. Defines whether or not we get new data based on last edit. If the date created or edited is more recent than the last edit or create, then the application will synchronize with ESRI.



Note: This field should not be edited except during initial setup and testing.

GIS Feature Mapping

Navigate to the GIS Feature Mapping screen. This screen is used to specify how the integration should process features into assets within the system.

Shared Info

- Feature mapping type (Required) - Links to the GIS Mapping Types screens and will show a pick list of any entries on that screen. Applies to the Mapping Type you created on the previous screen.
- Feature category - Defines values found in GIS features that should be processed differently. If all features should be processed the same or you did not identify a feature category GIS field in the Mapping Types screen, check the **Use default category** option.



Note: Values entered here would be found in the column in GIS that is specified on the GIS Mapping Types screen. For example, records in GIS may have a field that specifies the risk of asset failure (High, Medium, and Low). For each risk category a different GIS Feature Mapping could be created and each type could be processed differently. High risk assets may have higher default priorities and be assigned a PM Class with more frequent inspections than those assets with lower risk.

Basic Info

Each line in the Basic Info area describes how values in each column in GIS should be processed.

- GIS field defining asset ID - The column in GIS that contains a unique ID and is used to create or update the corresponding Asset ID.
- GIS field name - Lists the column in GIS.

- **Maps to** - Specifies where the value found in that column for that record should be stored in the system. Valid options are the Asset Detail, Subsystem Properties, Linear Attributes, or Test Results.
- **EAM Object Name** - If Asset Detail is specified the object name must be entered. This can be identified in the application when the show UI controls are enabled by holding shift and clicking into a field.
 - Linear, point and polygon assets differ with regard to the EAM object name used.
 - If Subsystem Properties is specified, the appropriate subsystem and property may be chosen from a choice list.
- Default value if not set is used to specify a value in cases where a value isn't recorded in GIS. This is especially useful for preventing interface errors when values are required.

Default Data

This section is used to set any required values that are not maintained in GIS. For each default used, the EAM object name must be specified and a valid default value given.

Required Fields for Assets

Any asset created in the asset management system has certain required elements. Proper configuration of the integration to create assets requires that these elements are specified in the following table.

Non-Linear Defaults

Description	Table Name	Column Name	Data Type	Rqd	BO Name
Equipment Number	EQ_MAIN	EQ equip_n o	varchar(20)	Y	Asset.EquipmentID
Asset Type	EQ_MAIN	asset_type	Choice List	Y	Asset.AssetType
Model Year	EQ_MAIN	YEAR	int	Y	Asset.ModelYear
PM Program Type	EQ_MAIN	PM_PROG_ TYPE	Choice List	Y	Asset.PMProgramType
Life Cycle Status Code	EQ_MAIN	PROCST_pr oc_status	varchar(2)	Y	Asset.LifeCycleStatusCodeID
Manufacturer ID	EQ_MAIN	manufacture r	varchar(15)	Y	Asset.ManufacturerID
Model ID	EQ_MAIN	model	varchar(15)	Y	Asset.ModelID
Equipment Type	EQ_MAIN	EQTYP_equi p_type	varchar(30)	Y	Asset.EquipmentType

Description	Table Name	Column Name	Data Type	Rqd	BO Name
Equipment Description	EQ_MAIN	description	varchar(40)	Y	Asset.EquipmentDescription
Serial Number	EQ_MAIN	serial_no	varchar(50)	Y	Asset.SerialNumber
Equipment Class for Meter Types	EQ_MAIN	CLASS_classes_meter	varchar(30)	Y	Asset.MeterTypesClass
Maintenance Class	EQ_MAIN	CLASS_classes_maint	varchar(30)	Y	Asset.MaintenanceClass
PM Program Class	EQ_MAIN	CLASS_classes_pm	varchar(30)	Y	Asset.PMProgramClass
Standards Class	EQ_MAIN	CLASS_classes_std	varchar(30)	Y	Asset.StandardsClass
Rental Rates Class	EQ_MAIN	CLASS_classes_rental	varchar(30)	Y	Asset.RentalRatesClass
Resources Class	EQ_MAIN	CLASS_classes_shop_sch	varchar(30)	Y	Asset.ResourcesClass
Asset Category	EQ_MAIN	ACAT_category_no	varchar(15)	N	Asset.AssetCategoryID
Assigned PM Location	EQ_MAIN	LOC_assign_pm_loc	varchar(10)	Y	Asset.AssignedPMLocationID
Assigned Repair Location	EQ_MAIN	LOC_assign_repr_loc	varchar(10)	Y	Asset.AssignedRepairLocationID
Department ID	EQ_MAIN	DEPT_dept_code	varchar(10)	Y	Asset.DepartmentID
Department to notify for PM	EQ_MAIN	DEPT_pm_notify_dept	varchar(10)	Y	Asset.DepartmentToNotifyForPM
Default Priority ID on Wos	EQ_MAIN	PRI_shop_priority	varchar(2)	Y	Asset.DefaultPriorityIDForEquipment

Linear Defaults

Description	Table Name	Column Name	Data Type	Rqd	BO Name
Equipment Number	EQ_MAIN	EQ_equip_no	varchar(20)	Y	Asset.EquipmentID
Asset Type	EQ_MAIN	asset_type	Choice List	Y	Asset.AssetType

Description	Table Name	Column Name	Data Type	Rqd	BO Name
PM Program Type	EQ_MAIN	PM_PROG_TYPE	Choice List	Y	Asset.PMProgramType
Equipment Type	EQ_MAIN	EQTYP_equip_type	varchar(30)	Y	Asset.EquipmentType
Equipment Class for Meter Types	EQ_MAIN	CLASS_classes_meter	varchar(30)	Y	Asset.MeterTypesClass
Maintenance Class	EQ_MAIN	CLASS_classes_maint	varchar(30)	Y	Asset.MaintenanceClass
PM Program Class	EQ_MAIN	CLASS_classes_pm	varchar(30)	Y	Asset.PMProgramClass
Standards Class	EQ_MAIN	CLASS_classes_std	varchar(30)	Y	Asset.StandardsClass
Rental Rates Class	EQ_MAIN	CLASS_classes_rental	varchar(30)	Y	Asset.RentalRatesClass
Resources Class	EQ_MAIN	CLASS_classes_shop_sch	varchar(30)	Y	Asset.ResourcesClass
Asset Category	EQ_MAIN	ACAT_category_no	varchar(15)	N	Asset.AssetCategoryID
Assigned PM Location	EQ_MAIN	LOC_assign_pm_loc	varchar(10)	Y	Asset.AssignedPMLocationID
Assigned Repair Location	EQ_MAIN	LOC_assign_repr_loc	varchar(10)	Y	Asset.AssignedRepairLocationID
Department ID	EQ_MAIN	DEPT_dept_code	varchar(10)	Y	Asset.DepartmentID
Department to notify for PM	EQ_MAIN	DEPT_pm_notify_dept	varchar(10)	Y	Asset.DepartmentToNotifyForPM
Default Priority ID on Work Orders	EQ_MAIN	PRI_shop_priority	varchar(2)	Y	Asset.DefaultPriorityIDOnWOs
Life cycle status code	EQ_MAIN	PROCST_proc_status	varchar(2)	Y	Asset.LifeCycleStatusCodeID
Work Order Authorization	EQ_MAIN	work_orders_ok	varchar(10)	N	Asset.WorkOrders
Depreciation Method	EQ_MAIN	depreciation_method	Choice List	Y	Asset.DepreciationMethod
Usage Types Class	EQ_MAIN	class_class_meter	Choice List	Y	Asset.UsageTypesClass

Test Results

Test Results allow clients to capture a snapshot of asset conditions. ESRI column values are mapped to Test Elements in the system and stored on a Test Result of a user defined Test Type, which is set in vars.TestTypeID. The following instructions outline how to configure and enable Test Result creation: User definable categories for an asset.

1. On the Test Elements screen, create a new element for every column that should have a value mapped from ESRI. The Test Element ID must exactly match the ESRI column name.

The screenshot shows the 'Test Elements' screen. At the top, there is a navigation bar with 'ADMIN MODE', 'CHANGE REQUEST', 'HELP', 'PREFERENCES', and 'MENU'. Below this is a toolbar with icons for Search, Reload, Sort, New, Copy, Delete, Edit, Save, Cancel, Export, and Report. The main area is divided into two sections: 'Elements' and 'Symptoms'. The 'Elements' section contains a form with fields for 'Description', 'Procedures', 'Validate minimum value', and 'Validate maximum value'. The 'Symptoms' section contains a table of symptoms associated with the test element.

Row #	Test element ID	Test element description	Validate minimum value

Elements
Symptoms

Test element ID

Description

Procedures

☐ Validate minimum value

☐ Validate maximum value

Symptoms

Symptoms associated to this test element

Row #	Delete	Symptom	Name

2. On the Equipment Activity Test Types screen, create a new test type and add the test elements created to the Test Elements tab.

3. On the GIS Feature Mapping screen, open the record of the Feature Mapping Type for which you would like Test Results created. On the Basic Info tab, enter the following information for each ESRI column to be mapped:
 - i. Set **GIS field name** to the ESRI column name.
 - ii. Set **Maps to** LINEAR ATTRIBUTES or TEST RESULTS
 - iii. Set **EAM object name** to the Test Element ID to which the ESRI column values should be mapped.
 - iv. Set **Value type** to:
 - a. NUMERIC if you would like the ESRI column value mapped to the **Numeric value** found column on the Test Element.
 - b. TEXT, DATE, or leave empty, if you would like the ESRI column value mapped to the **Qualitative finding** column on the Test Element.
4. In the MAXQueue GIS Get Assets integration, set the service variable vars.TestTypeID to the name of the Test Type created in step 2.

- Run the MAXQueue GIS Get Assets integration. One test result is created per asset. If the asset is linear, the segment, marker, and offset data is used on the Test Results screen.

 Note: If vars.TestTypeID is not set, or does not exist, no test result will be created. A valid Employee ID must be added to the configuration for the test result to complete.

Basic Info				
Equipment ID	LINESTRING			Status
Test type ID	EXISTS			
From marker/segment	BEG	LINESTRING	Offset	0.0000
To marker/segment	END	LINESTRING	Offset	0.0000
Date and time of test	11/07/2017 16:19			
Date and time due	11/07/2017 16:19			

MAXQueue Interface Management Tool

- Ensure that you have the MAXQueue package available for GIS. If you are not sure, please ask your EAM representative or contact Customer Support.
- Ensure that all global variables are entered for the MAXQueue integration for all services.

Instance Variables:		
Variable	Value	Encrypt
vars.FAUser	[Username For EAM]	
vars.FAPassword	[Password For EAM]	
vars.FAUrl	[URL For Web Instance]	
vars.ODBCName	[ODBC Name]	
vars.ODBCUser	[Username for ODBC connec	
vars.ODBCPassword	[Password for ODBC connec	
vars.DBType	MSSQL	
vars.FAPass	[Set to valid FA Password]	
vars.GeometryServerURL	[The URL to the SOAP servic	
vars.EAMSourceName	[The username of the MAXQ	
vars.ESRIUser	[Set to valid ESRI User (Use	
vars.ESRIPass	[Set to valid ESRI Password	
vars.StoreShapeAsGeom...	[Set to N to store shape as P	
vars.GISDebug	[Set to Y to log web service ti	

- Obtain the following from your GIS manager:
 - Geometry Server (17.0.2 + REST service)

- ii. Esri User Name
 - iii. Esri Password
4. Enter the following fields:
- i. vars.EAMSource Name – The value in this field will be compared to the value in the GIS field defining data source (if not blank). If these two values match, that feature will not be returned by the Get Assets service. If you are using the GIS – Get Assets service on the same feature layer as one of the services that uses the GIS – Send Staged Data service, you would map that same username to the GIS field defining data source so that Get Assets doesn't process data that is already up to date in EAM. If GIS – Send Staged Data is not being used, this field may be left blank.
 - ii. vars.StoreShapeAsGeometry set to N
 - iii. vars.GISDebug set to Y
5. Set the Service variables that apply only to the service you are setting up. For example:

Service Variables:		
Variable	Value	Encrypt
vars.DateOnly	[Set to 'Y' if Create and Edit Date fields are date only values in GIS, otherwise leave blank or set to N. You should be able to get this information from your GIS manager. Typically set to Y.	
vars.TreatAsPoint	[Pipe delimited list of layers to treat as points]	
vars.DuplicateCheckEnabled	[Set to 'Y' if the interface should check for duplicate features]	
vars.ProcessGeometry	[Set to 'Y' if the interface should create Shapes, Segments, and Markers as necessary to represent ESRI Geometry Data, otherwise leave blank or set to N.]	
vars.FASuiteIDColumnNameMapping	[A list of mappings from Service ID to Suite ID]	
vars.MapTypesToIgnore	[pipe delimited list of map types to ignore]	
vars.TestTypeID	[The Test Type ID to be used]	

- i. vars.DateOnly - Set to ` if Create and Edit Date fields are date only values in GIS, otherwise leave blank or set to N. You should be able to get this information from your GIS manager. Typically set to Y.
- ii. vars.TreatAsPoint – Leave blank
- iii. vars.DuplicateCheckEnabled - N
- iv. vars.ProcessGeometry – Set to Y if the interface should create Shapes, Segments, and Markers as necessary to represent ESRI Geometry Data, otherwise leave blank or set to N.
- v. vars.FASuiteIDColumnNameMapping – Leave blank
- vi. vars.MapTypesToIgnore – Leave blank

- vii. vars.TestTypeID – Enter the TEST TYPE ID that was created for your assets and entered on the Feature Mapping Screen for TEST RESULTS. If no Test Type was created, this field may be left blank.

Integration – Outbound to GIS

The interface requires additional configuration to specify how GIS attributes are transferred to the system. An XML file can be used for this configuration. Place the XML files in the following location which is accessed through Windows Explorer:

Deployment Name 16GIS > MAXQueue > Server > GISMapping Files

Refer to the template files that are located in the deployment folder for details on configuring the XML file.

3. Error Resolution and Troubleshooting

Error Resolution

When a MAXQueue process generates an error, it is viewable in the MAXQueue portal within the application. The name of this portal is configurable and often called the Error Handler. The **Error Message** lists the entire error in text format. This information can be useful for system administrators. The error **Name** indicates the action the integration was doing when the error occurred.

ID	Name	Connector	Error
			The remote server returned an unexpected response: (400) Bad Request. Assembly: NTTAGIS Type: NTTAGIS.GISCall Method: MakeWebServiceCall Stack: Server stack trace: at System.ServiceModel.Channels.HttpChannelUtilities.ValidateRequestReplyResponse(HttpWebRequest request, HttpWebResponse response, HttpChannelFactory`1 factory, WebException responseException, ChannelBinding channelBinding)</p> <p>at System.ServiceModel.Channels.HttpChannelFactory`1.HttpRequestChannel.HttpChannelRequest.WaitForReply(TimeSpan timeout)

Current Error

Error Message

The remote server returned an unexpected response: (400) Bad Request.

Assembly: NTTAGIS

Type: NTTAGIS.GISCall

Method: MakeWebServiceCall

Stack:

Full Error Message

Error ID

7

Name

NTTA GIS ^ Make Web Service Call

Error Name

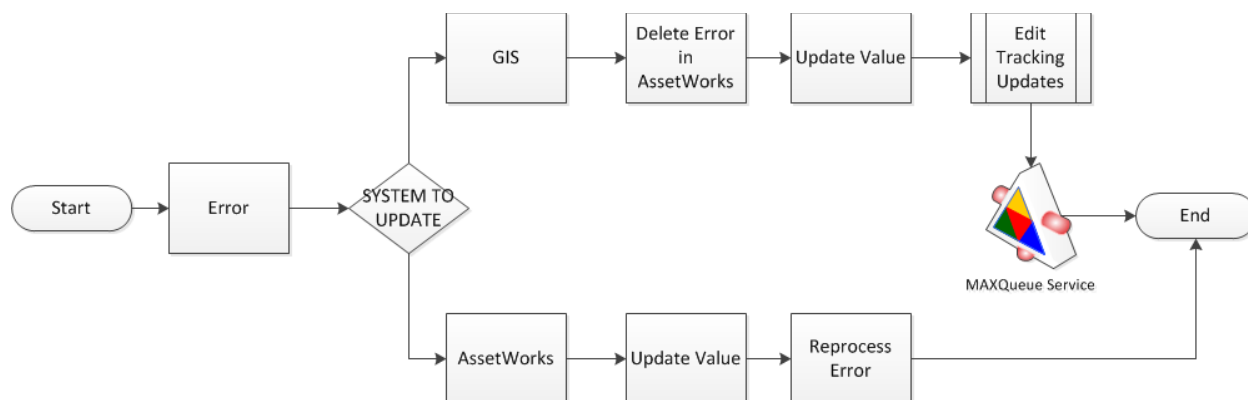
There are two general types of errors encountered: connection errors and data errors.

Connection errors can result when the web service endpoint is unavailable or is typed incorrectly in the configuration screens. This error message may take different forms depending on the cause, but the key identifier is that this error originates from an action that is attempting to request or send data.

Data errors will occur when the integration is attempting to save or update a record in either system. These types of errors have several causes and may be related to data configuration in either system. The most common type of error is caused by values in one system that are not defined in the other. When these errors occur, the error message will include the text:

Saving Asset failed with the following message: Cannot reference <THIS VALUE>

The first step in resolving this type of error is to decide which system needs to be updated. The resolution process is slightly different depending on this decision.



If the update should occur in GIS, the error message may be deleted from the Error Handler. Each individual error message can be deleted by clicking the Delete Error button at the bottom of the Error Handler screen. The value in GIS should be edited, this process will automatically update the field used to track when a record was last edited. The next time the integration runs, per timing configuration, this record will be selected from the GIS service and processed by the integration.



If the update should occur in the asset management system, the value that should be created or updated will be clearly stated in the Error Message. After the value issue is resolved, click the Reprocess Error button.

Possible Error Messages

The following is a list of potential error messages that may be received based on the system's ability to connect to ESRI.

Error from ESRI	Process	Resulting Error Message
BadRequest	System waits for 1 second and tries again up to 5 times. If a connection still cannot be made, the resulting error message is sent.	<i>Unable to make connection to endpoint <your endpoint>.</i>
Forbidden		
NotFound		
RequestTimeout		
InternalServerError		
ServiceUnavailable		
MethodNotAllowed	Resulting error message immediately sent. This issue cannot be resolved without a change to your setup.	<i>HTTP GET is required. Please review documentation and ensure that HTTP GET has been allowed on the ArcGIS Admin portal.</i>

Error from ESRI	Process	Resulting Error Message
498 (token expired)	System tries up to 5 times to get a new token. If a new token is not received, the resulting error message is sent.	<i>Token expiration occurred, unable to make new token request, MAXQueue restart required.</i>
499 (token based authentication is required)	Resulting error message immediately sent. This issue cannot be resolved without a change to your setup.	<i>The provided endpoint <your endpoint> requires token based authentication. Please provide values for vars.ESRIUser and vars.ESRIPass.</i>
Unauthorized	Error message immediately sent. Invalid credentials were entered. A MAXQueue commit with the correct values will be required.	<i>Invalid username and/or password when getting token. Please ensure vars.ESRIUser and vars.ESRIPass are valid.</i>
Fatal Error	Error message immediately sent.	<i>An error occurred while contacting the Endpoint <your endpoint> at Layer ID <your layer ID>. This issue may be the result of the wrong Layer ID being used. Or, it could be an improperly formatted query. Double-check that all column names on the GIS Mapping Types screen are accurate.</i>

Character Limit Issues

The interface does not limit based on characters which allows polygon shape data that does not exceed the database limit for size to be imported without error.

When it is necessary to use complex geometries, such as multi-polygons, or when you must overcome the 500-point limit of the Basic Info tab, the MAXQueue GIS integration must be used to load GeoJSON shape data.

Appendix A. GIS Mapping Tile and Geocoding Services Policies

Trapeze EAM's mapping module allows customers to choose many options and layers in order to enhance the use of the mapping integration and meet their mapping needs. Trapeze expects customers to adhere to the usage policies of any service they use. An overview of the OpenStreetMaps and MapQuest usage policies are explained below. These two services are the most commonly used, free options and have specific usage policies that must be followed.

OpenStreetMaps Usage Policy Overview

OpenStreetMap (OSM) data is free, however, their tile servers are not. Heavy use, such as distributing an app that uses tiles from openstreetmap.org, is forbidden without prior permission. An organization must receive permission from OpenStreetMaps System Administrators to use this service in production. For the full usage policy or more information concerning the specific rules regarding OSM, review their policy page: <https://operations.osmfoundation.org/policies/tiles/>.

MapQuest Usage Policy Overview

Users may share a map or directions with another individual for that individual's personal, non-commercial use. Users may not commercially exploit the materials or underlying data which includes but is not limited to:

- Creating derivative works of the materials
- Using any data mining, robots, or similar data gathering and extraction tools on the materials
- Framing any portion of the materials
- Reprinting, copying, modifying, translating, porting, publishing, sublicensing, assigning, transferring, selling, or otherwise distributing the materials without the prior written consent of MapQuest

For the full usage policy or more information concerning the specific rules regarding MapQuest, review their policy page at <https://hello.mapquest.com/terms-of-use>.

Trapeze Policy and Recommendations

- Trapeze does not support the unlicensed use or misuse of any tile or geocoding service.
- Usage for short term testing is supported but usage for production is not allowed without written, expressed permission from the service provider.
- Professional Services, Sales, and Customer Support should use this information to ensure that customers are not jeopardizing their solutions by using a map service in an unlicensed manner.