TankData Gateway Overview Guide

Introduction:
The TankData Gateway is a web service which allows a consuming app to perform TankDataOnline website functionality. To fully utilize this web service, the following assumptions are made:

1. The developer has some basic concepts of the TankDataOnline website.
2. The web service is not intended to replace the website but rather to work in conjunction with in managing your organizations, locations, tanks and inventory.
3. That the organization using the web service has backend system to store the data returned from the web methods.

Logging In:
You may log into the web service via one of two URLs:
http://latlontdg.tanklink.com/service.asmx
https://latlontdg.tanklink.com/service.asmx
Once you have successfully logged in you will have access to all of your organizations, locations, tanks and inventory. The TankData Gateway web service has security is in place to prevent you from accessing another customer's data and vice versa. If your base organization has sub organizations your credentials will automatically grant you access to those entities as well.

Functional Areas:
The Tanklink website allows organizations to manage their business via screens. The TankData Gateway tries to provide similar functionality to a developer by exposing web services associated with each of the following objects:

- Organization
- Location
- Tank
- User
- Product
- Inventory

Working With Organizations:
An organization represents the user's company or companies (e.g. a corporation). The TankData Gateway technical specification lists all of the properties associated with the Organization object. This document will only focus on the key properties/parameters that you will need to invoke these web methods. Below is a table of the Organization properties that you need to familiarize yourself with.

OrganizationID	INT	The TankData primary key
ParentOrganizationID	INT	If the organization is a corporation and contains one or more sub organizations,
Address	String	
City	String	
State	String	
PostalCode	String	
ParentOrganizationID	INT	
Stamp	TimeStamp	

Retrieving Inventory:

The TankData Gateway allows you to retrieve the inventory from all of your tanks. When you call the GetInventory web method, you receive a list of your top 100 <u>unprocessed</u> inventory records.

- Your inventory list is sorted in ascending order by inventory time. It is not sorted by tank or organization.
- Each time you call this web method it will return an ID which points to your next set of unprocessed inventory. A return ID value of 128 means that you are current and have retrieved your entire unprocessed inventory.
- Re-calling this method with this ID does the following:
    1. It acknowledges that you received the prior inventory recordset.
    2. It sets the status of your prior recordset from "unprocessed" to

"processed". Refer to the TankData Gateway technical spec for the structure of this list object.

Important notes on this web method:

1. Currently this web method does not allow you to retrieve inventory based on a TankID. If you think that you will need to view this inventory over a period of time, store the inventory you retrieve in a backend database.
2. After you have received your Inventory recordset, the web method automatically sends a delivery confirmation receipt back to the Gateway. Once processed, the status of the recordset that you received will changed from "unprocessed" to "processed".
3. <u>Once a recordset has its status set to "processed" you can no longer retrieve those inventory</u> records via the web service. If you wish to re-access any historical inventory, you will need to contact customer support and ask them to reset the status.
4. If you do not send an acknowledgement back to the Gateway, every subsequent time you call the web service you will get the same set of inventory records.

Retrieving Other Data (base web methods):
The majority of the Gateway web methods use the TankData internal IDs to retrieve data. Examples of internal IDs are: TankID, LocationID and OrganizationID. Since you are not expected to know the values of these internal IDs, we have provided you a number of base web methods that return those IDs in the form of scaled down list objects. GetTank, GetOrganization and GetLocation are examples of web methods which return list objects that contain TankData internal IDs.

- Once you have these IDs you can use them to get more specific information on a tank, location or organization object (e.g. GetTankGeneral, GetRTU, GetLatLonLocationByLocationID).
- You can also use these IDs as parameters to web methods which update your objects (e.g. UpdateOrganization and UpdateLocation). Refer to the TankData Gateway technical spec if you want information on how to traverse the list objects returned from these base web methods.

Retrieving Data (timestamp methods):
The timestamp web methods are an alternative to the base web methods. These web methods are more exclusive than their base counterparts because they only return objects which have been updated later than a timestamp value that you pass. The Timestamp is a number. It is not a date.

- The timestamp web methods also return a timestamp of when the object was last updated. If you store these timestamps with the Tanklink IDs in your backend database, you can track when your objects get updated.
- If your organization has a large number of tanks, you will discover that calling GetTankByTimeStamp to be more prudent than calling the GetTank web method since the number of objects in your returning list object would be a lot smaller. The obvious drawback to using these methods is that you would need to store the timestamps on each call.

Retrieving Data (ID methods):
The function of the ID web methods are the most exclusive of the three retrieval web methods. In most cases they only retrieve the detail information of a single object.

Updating Data:
Once you have the appropriate internal TankData ID, you can call its update method. To update an object I recommend that you do the following steps:

- First pre-load your object by calling one of the list methods (e.g. GetLocation)
- Next update the properties of your object within your consuming app
- Then pass that object to the TankData Gateway and call its update method.

By first pre-loading your object via the list method you are insuring that you won't pass any null mandatory properties when you call the update method.

Adding Data:
I recommend using the same steps when updating object but instead of calling the update method, call the add counterpart. The add method will automatically create a new ID and return it to you.

Guides

The following lists contain the base, timestamp and ID based retrieval web methods. Refer to the technical spec to see a complete listing of each object property.

Retrieval Web Methods (base) – No input parameters required outside of credentials	
GetInventory	Returns an array of un-processed inventory records
GetTank	Returns a compact list object of all the tanks in your base and sub organizations. Each object contains the unique TankData Tank ID
GetLocation	Returns a compact list object of all the locations in your base and sub organizations. Each object contains the unique TankData Location ID
GetOrganization	Returns a compact list object of all the organizations in your base and sub organizations. Each object contains the TankData Organization ID
GetBatteryType	Returns a distinct list of the types of batteries used by your tanks
GetDeviceType	Returns a distinct list of the radio types used by your tanks
GetProducts	Returns a distinct list of the products stored in your tanks
GetStrapChart	Returns the strap charts descriptions for all of your tanks
GetUnitOfMeasure	Returns a list of all the valid unit of measures associated with configuring a tank
GetUser	Returns a list of all the users in your organization and sub organizations. Each object contains the unique TankData User ID

Retrieval Web Methods (timestamp) – No input parameters required outside of credentials and a timestamp value	
GetLocationByTimeStamp	Returns a compact list object of all the locations in your base and sub organizations where the records update time > than your timestamp value. Each object contains the unique TankData Location ID
GetOrganizationByTimeStamp	Returns a compact list object of all the organizations in your base and sub organizations where the records update time > than your timestamp value. Each object contains the unique

	TankData Organization ID
GetTankByTimeStamp	Returns a compact list object of all the tanks in your base and sub organizations where the records update time > than your timestamp value. Each object contains the unique TankData Tank ID

Retrieval Web Methods (ID) – Returns a single object based on the TankData ID	
GetAlertDefinitionByLocation	Returns all the location alarms based on Location ID parameter
GetAlertDefinitionByOrganization	Returns all the organization alarms based on Organization ID parameter
GetAlertDefinitionByTank	Returns all the tank alarms based on Tank ID parameter
GetCallSchedule	Returns a tank call schedule based on Tank ID parameter
GetDelivery	Returns all the deliveries for a tank based on Tank ID parameter
GetLocationByLocationID	Returns the detail information of a location based on Location ID parameter
GetOrdersByTank	Returns all the orders associated with a tank based on Tank ID parameter
GetRTU	Get the device information associated with a tank based on Tank ID parameter
GetTankAlarmConfiguration	Get all the alarm settings associated with a tank based on Tank ID parameter
GetTankGeneral	Get general settings associated with a tank based on Tank ID parameter
GetTankNotes	Get any notes associated with a tank based on Tank ID parameter
GetUserPermissions	Get all permissions associated with a user based on User ID paramter