Version 25 | Trapeze Enterprise Asset Management

# Linear Asset Management

Administrator & User Guide

**Trade Secret | February 2025**

**Technical Support**

Trapeze provides several ways to connect with the Customer Care team. Please provide detailed information to the representative. If you are reporting an issue by e-mail, include any error messages, screen shots of your problem, and steps to replicate the issue.

Customer Care is available Monday through Friday, 8:00 a.m. to 8:00 p.m., Eastern Standard Time.

| | |
|---|---|
| Toll-Free Telephone: | 1-877-411-8727 |
| E-mail: | cc@trapezegroup.com |
| FTP Site: | https://ftps.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.

# Linear Asset Management – Administrator and User Guide

Version 25.x

February 2025

## Contents

# 1. Overview

A linear asset is a fixed infrastructure asset where length is an important component of its definition.

Linear assets can be tracked and managed in the system using a variety of tools and features. Users can create and manage work orders against specific linear assets, plan preventative maintenance schedules, and track the lifecycle of linear assets and components.

The following functionality is available within the system to manage linear assets.

- Linear Referencing System – Segments and Markers, Shape definitions
- Enterprise Portal Asset Screens – Basic Info, Offsets, Asset Segments
- Test Results – Build linear attributes based on location along linear length

The Linear Referencing System is the framework for creating linear assets and involves setting up segments, markers and shapes. This information is then used throughout the system to manage the assets.

The data created in the Linear Referencing System can also be used to visually display the linear asset on maps if your organization uses the mapping features in the system. Assets will display on maps depending on whether they were created as a Linear or Stationary Asset.

## Assumptions

- Do not use the browser's **Back** button in the Web Modules as unanticipated results may occur.
- Do not open or use the same instance of the Web Modules in multiple browser windows or tabs. This can cause errors or unexpected performance issues.

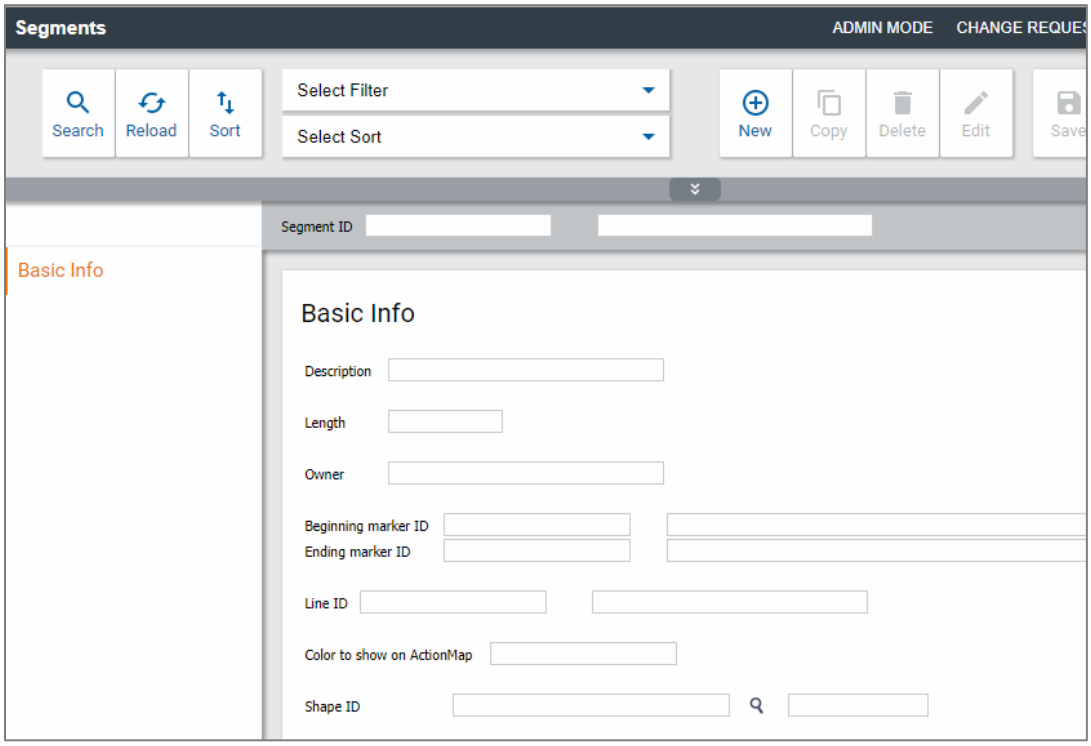
# 2. Setting-up Linear Referencing System

In order to manage linear assets, segments and markers must be defined and linked in the system. This is done through Enterprise Portal screens which are accessed by clicking the Screens button at the top left of the system.

Go to Setup > Equipment Units > Linear Assets to see the screens available to manage linear assets which include the Options, Markers, Segments, Lines and Shapes screens.

## Defining Segments and Markers

**Segments** are a specific linear length from point A to point B.



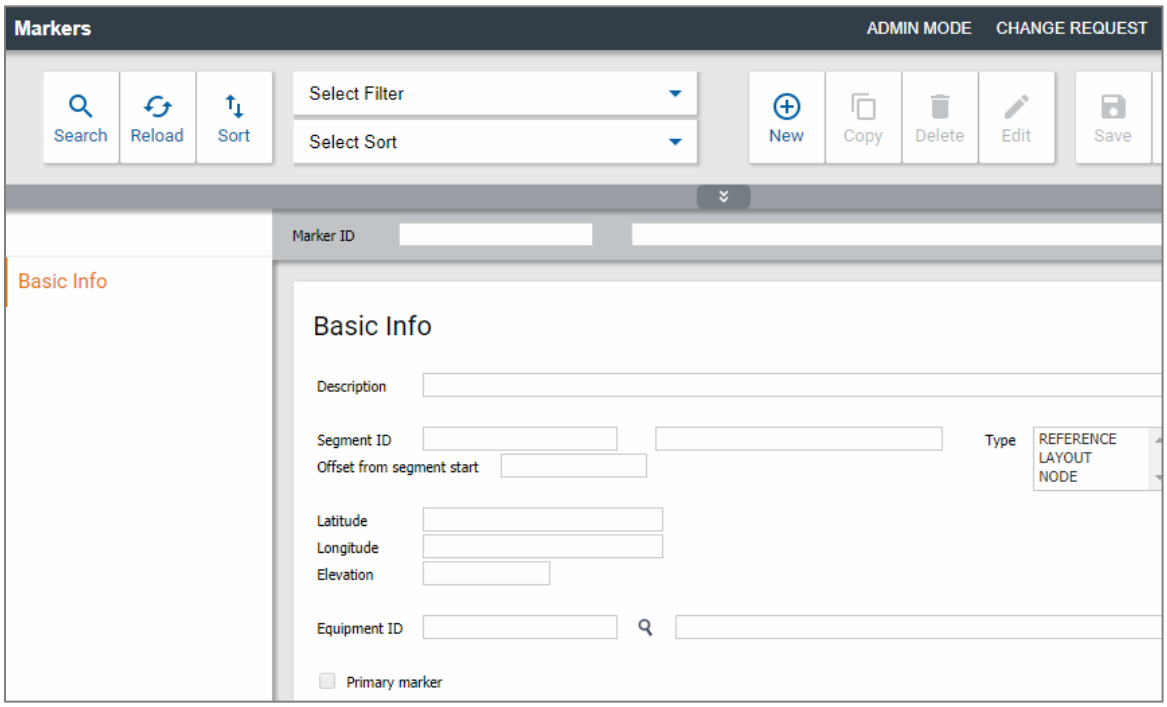

**To define a segment:**

1. Open the Segments screen.
2. Click **New**.
3. Select a Segment ID.
4. Complete information on the Basic Info tab.
    - Length is the full extent of the element and must be entered.
    - Beginning marker ID: This must be defined on the Markers screen

- Ending marker ID: This must be defined on the Markers screen

5. Click **Save**.

**Markers** are the points that define the beginning and end of a segment. They can be a major junction in the element such as an intersection or mile marker. The first marker is the “zero” point where the segment begins. Each marker must have a distance from the start of the segment which is the first marker.



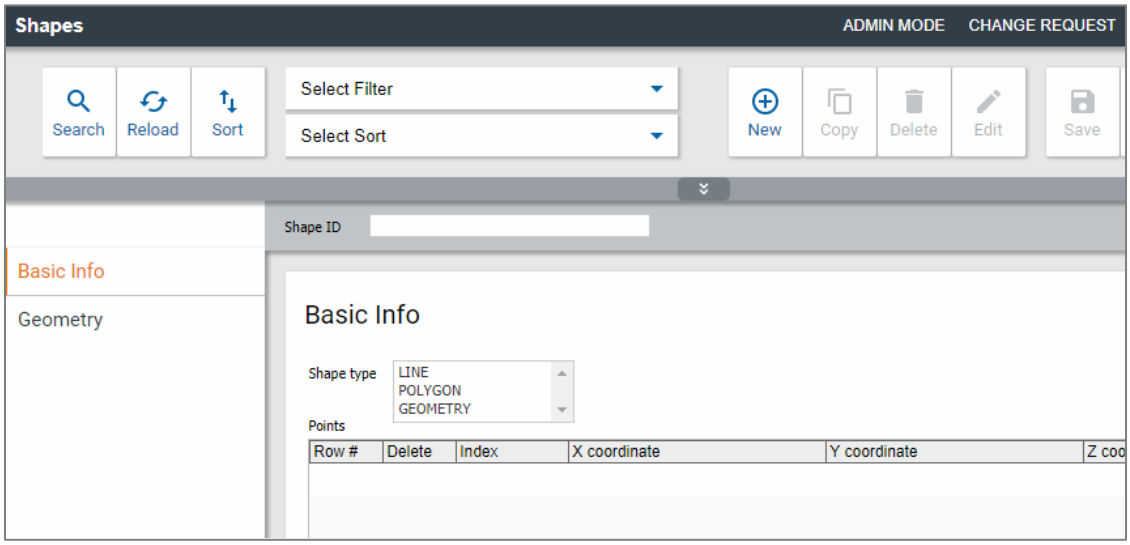

**To define a marker:**

1. Open the Markers screen.
2. Click **New**.
3. Select a Marker ID.
4. From the **Basic Info** tab, select the **Segment ID** you are referencing.
5. Define the **Offset from segment start** or the **Latitude**, **Longitude** and **Elevation** of the element.
    - Offset measures the displacement from a point to a reference point.
6. Click **Save**.
7. Update the segment on the Segments screen with the Marker IDs.

The relationship of the segments and markers defines the linear asset. Distance is measured as the length between two markers on a segment. A linear asset is then defined as the length between two designated markers on the segment. The markers do not have to be adjacent, but must be on the same segment.

## Defining Shapes

**Shapes** define how the linear asset should be displayed geographically.




**To define a shape:**

1. Open the Shapes screen.
2. Select a Shape ID from the drop-down list.
3. Define Shape type: LINE, POLYGON or GEOMETRY.

   If the Shape type is GEOMETRY then the shape data is maintained by an interface with a GIS system.

4. Define lines based on a string of X and Y coordinates. This string of coordinates defines the path from the start to the end of an element.

   This data can be imported from a GIS database.

5. Click **Save**.
6. Update the segment on the **Segments** screen with the **Shape ID**.

Once defined, shapes are linked to segments and linear assets. The shapes define what the linear asset will look like on the maps within the system.

# 3. Creating a Linear or Stationary Asset

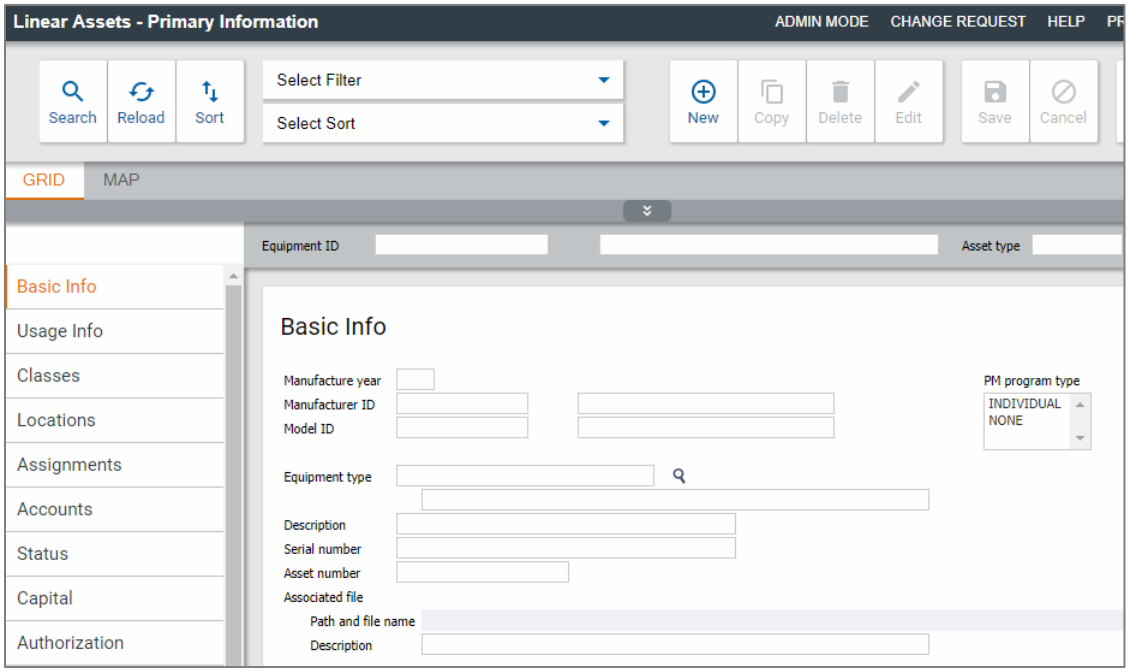
There are two types of linear assets to consider:

- **Linear Assets:** Length is a critical attribute defining the asset
    - Long assets, or assets that need to be managed using their length such as roadways, pipelines, or medians.
- **Stationary Assets:** Length is important, but not critical to the asset definition
    - Shorter assets such as bridges, culverts, storm conveyances, guardrails, walls, or fence lines.

Consider the following questions when determining the linear asset type:

- Do I need to manage the asset based on its length? Linear Asset
- Will it be necessary to track inspection/repair activities at defined points along the length? Linear Asset
- Do attributes associated with the asset change along the length, without fundamentally changing the asset? Stationary Asset

## Defining Linear Assets



**To define a linear asset:**

1. Click **New**.
2. Select the **Equipment ID**.
3. Define standard information for the Asset including Basic Information, Equipment Types, Equipment Class, Life Cycle Priority, etc.
4. On the **Offsets** tab, define the linear referencing detail that was previously set up which includes the **Marker ID/segment ID** and **Shape ID**.
5. (Optional) Define cutouts or replacement of portions of assets (for example, when replacing a section of pipe for a water system) in the **Assets Segments** section of the **Offsets** tab.
6. (Optional) Define attributes, which are structures or features of an asset that need to be managed, but do not change the asset into something else, in the **Assets Segment** section of the **Offsets** tab. An example of an attribute for a road would be sidewalks, drainage features or pavements types.
7. Click **Save**.

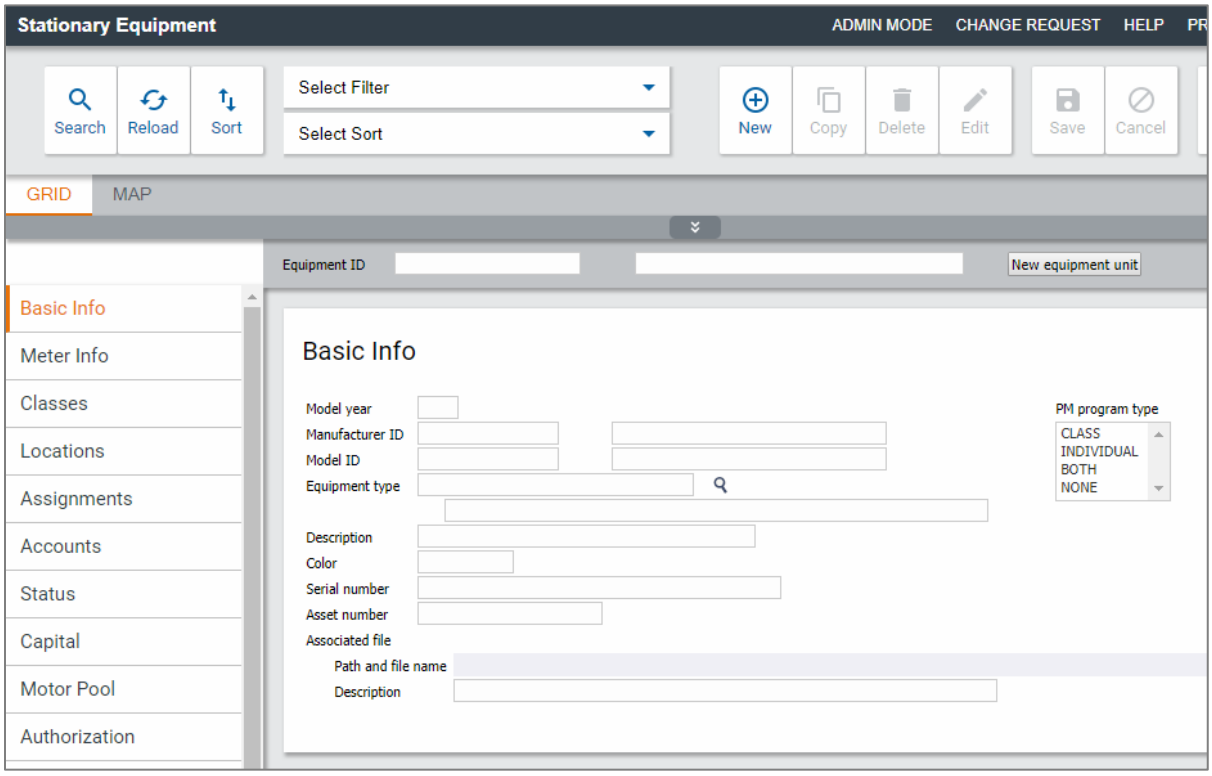
## Display of Linear Asset

If a Shape ID is specified, the asset shape will be displayed on the map. If not, the Segment Shape will be used for display if it was specified when defining segments and markers for the asset.

# Defining Stationary Assets

The advantages of defining assets with length as stationary assets are as follows:

- Do not need to build a unique linear reference
- Do not need to manage markers at short distances
- Do not need to adjust for angular relationships to linear segments (for example, a guard rail that curves at an angle on a bridge approach)




**To define a stationary asset:**

1. Open the Stationary Equipment screen.
2. Click **New**.
3. Select **Equipment ID**.
4. Define standard information for the Asset including Basic Information, Equipment Types, Equipment Class, Life Cycle Priority, etc.
5. On the **Position** tab, define the **Latitude** and **Longitude**. Select the **Shape ID** to display the asset as a line or shape on map views throughout the system.
6. Click **Save**.

## Display of Stationary Asset

If a Shape ID is specified, the asset shape will display on the map. If not, Lat/Long will be used to display the asset on maps. If neither shape nor lat/long have been defined, the system will attempt to use any segments, marker or offsets that were specified when creating the asset.

# 4. Maintaining a Linear Asset

Linear assets are maintained similar to other assets using work orders and service requests.

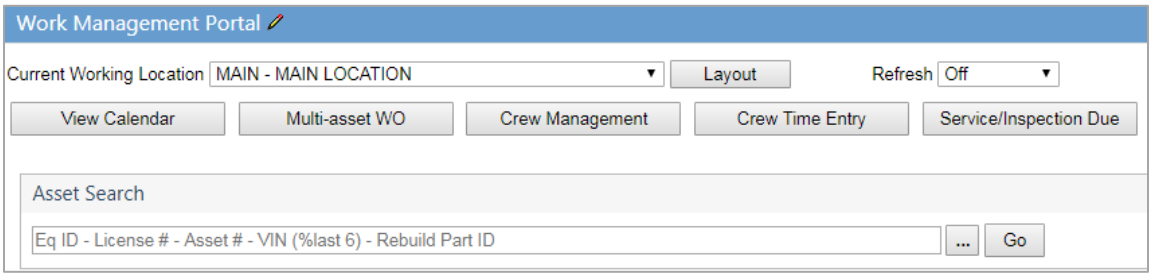
## Creating a Linear Work Order

There are two types of work orders for linear assets:

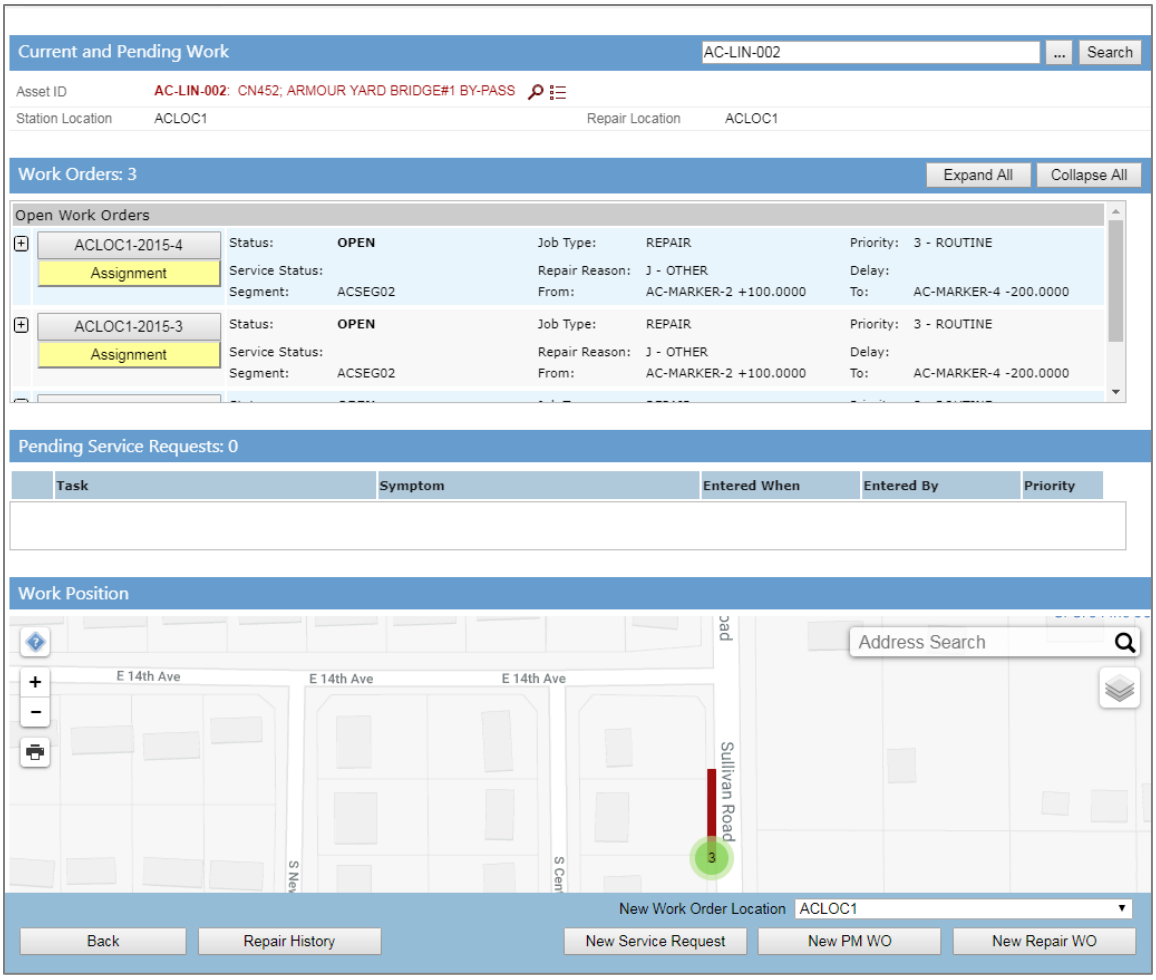
- Linear work order that tracks where along the length of the asset maintenance was performed.
    - Requires input of From and To Marker references for each maintenance action.
    - Can be applied generally to a work order or refined to specific locations.
- Standard work order for stationary asset with length.
    - For assets like bridges and guardrails, the From and To Markers are not tracked.
    - All maintenance applies to the whole asset.

Follow these steps to create a work order:

1. From the Work Order Management Portal, enter the Asset / Part ID into the **Asset Search** field. Or, click the ... button to select an asset using the Asset Chooser.
2. Press **Go** or select an option from the Asset Chooser list.




*The **Current and Pending Work** screen will display which allows users to view existing Work Orders and Service Requests.*




3. Review any existing **Work Orders** and their assignments to ensure a new Work Order will not duplicate labor on the asset.

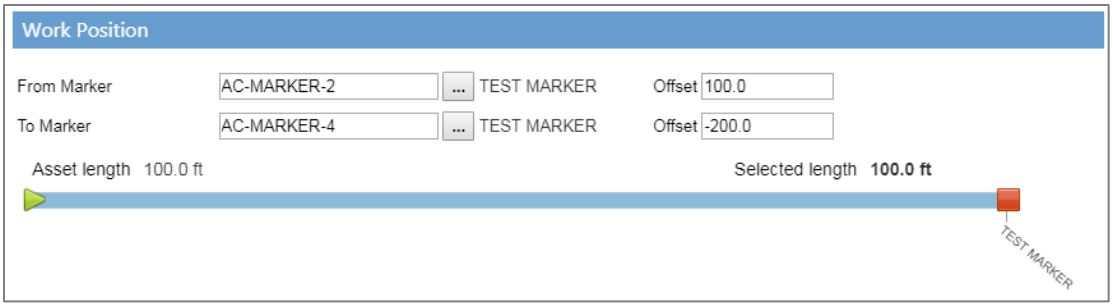
4. Review the **Pending Service Requests** to see if a symptom matches the work that needs to be done.

5. Service Requests and Work Orders will appear on the map in the **Work Position** section. Click on the icons to see more detail.

6. Review the asset's **Repair History** which can provide historical data about defect and repair trends.

7. Select either **New PM WO** or **New Repair** to create the work order.

8. Select the **Work Position** for the work order. Click ... to select the From Marker and To Marker. Set the Offsets by either typing in the number or clicking and dragging the red and green circles.

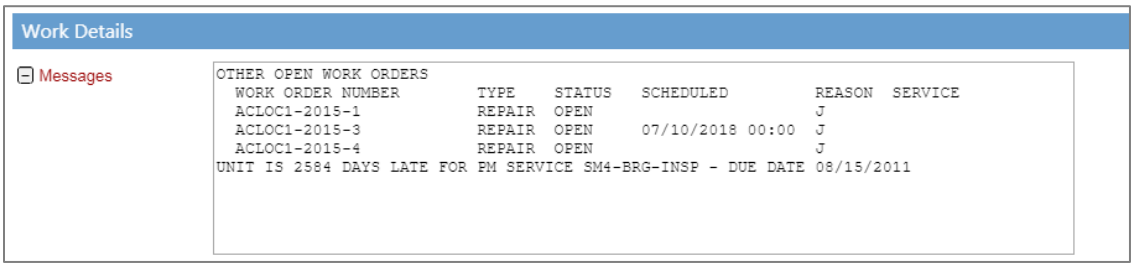



- **From marker/segment –** Defines the marker and segment ID at which the asset point originates.
- **To marker/segment –** Defines the marker and segment ID at which the asset point terminates.
- The **green ball** indicates the start of the segment while the **red ball** indicates the end of the segment.
- **Offset** measures the displacement from a point to a reference point, which can be negative if it is in the opposite direction of the default direction.

Note: Markers will appear below the segment. Clicking on these will populate the From Marker and To Marker fields above.

9. View the map to confirm the correct Equipment ID has been chosen. If the map does not appear, click **Show Map**.

10. Click to expand **Messages** in the **Work Details** section which may include warranty coverage, potential comebacks, other open work orders, late/soon due PM/inspection services



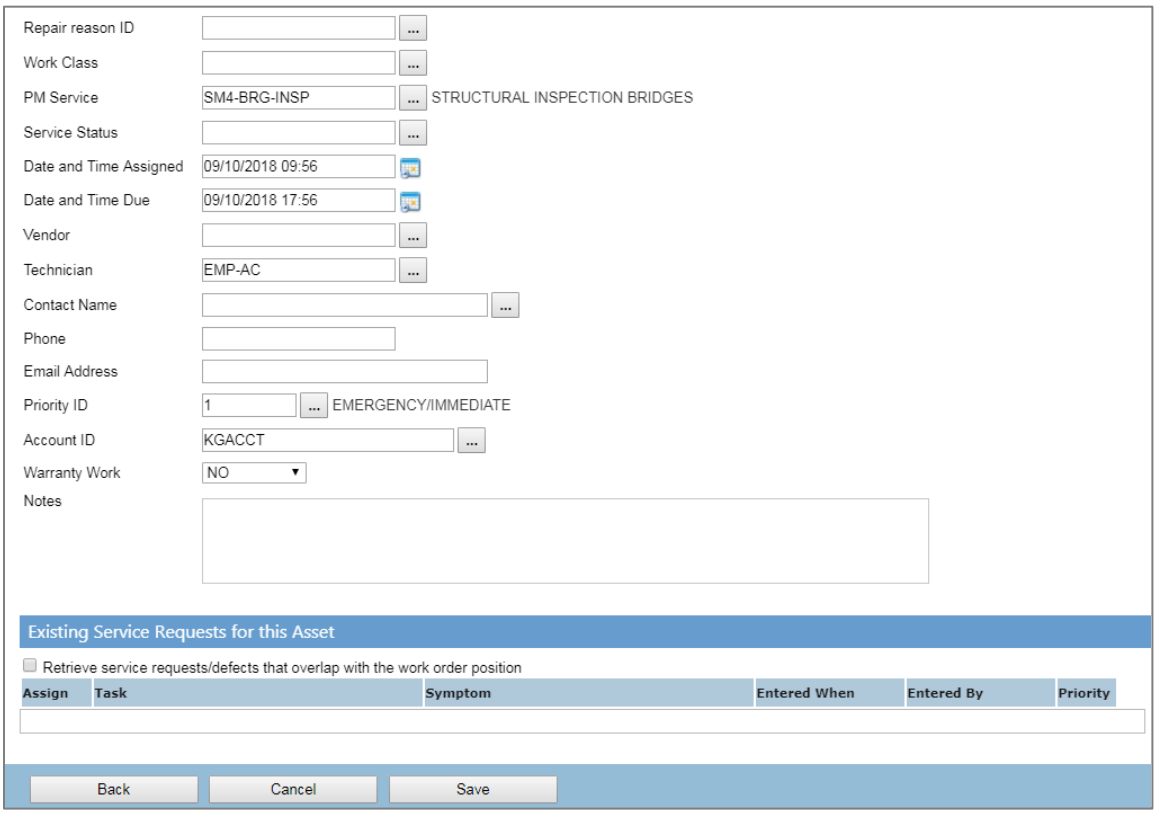

11. After reviewing the information, complete all fields as necessary on this screen. Everything not automatically populated is optional. **Work Class** is the only mandatory field on this screen which is not automatically populated.

Note: If Warranty Work is unknown and the user knows if the work is warrantable or not, set the value to **Yes** or **No** accordingly.

12. To create a repair work order in **Pending** status, insert a **Date and Time Assigned** that is in the future.

13. Add appropriate notes to clarify the repair work being performed.

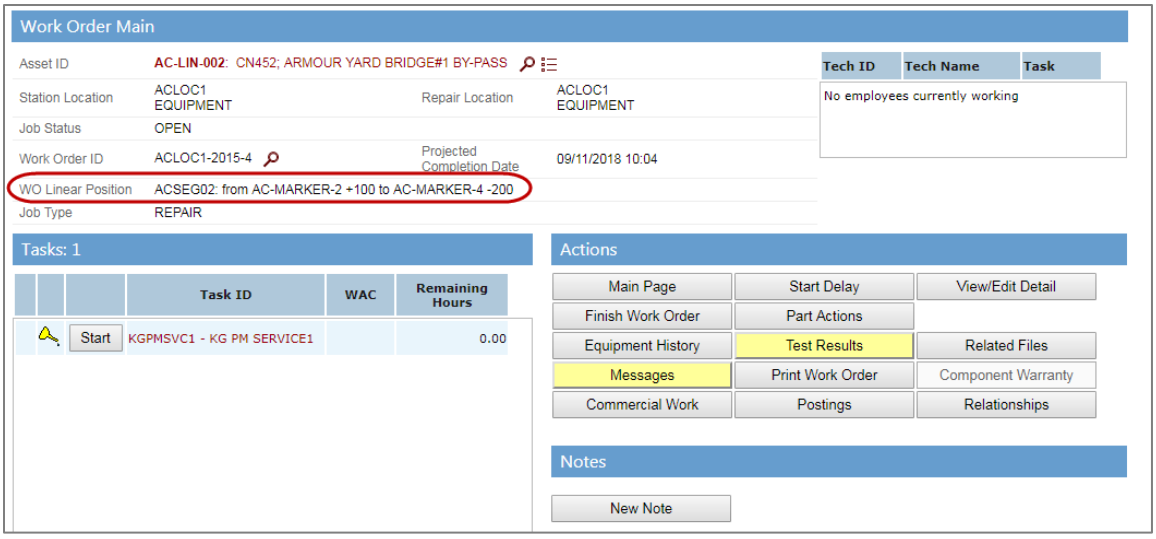
14. Select any additional service requests to attach to the work order.




15. Click **Save**.

Once the Work Order is created, it functions like a standard work order with some key differences:

- The Markers and Offsets form the framework for the maintenance.
- You will be prompted to add markers and offsets for all work order postings. These will be the defaults from the work order or can be more specific.

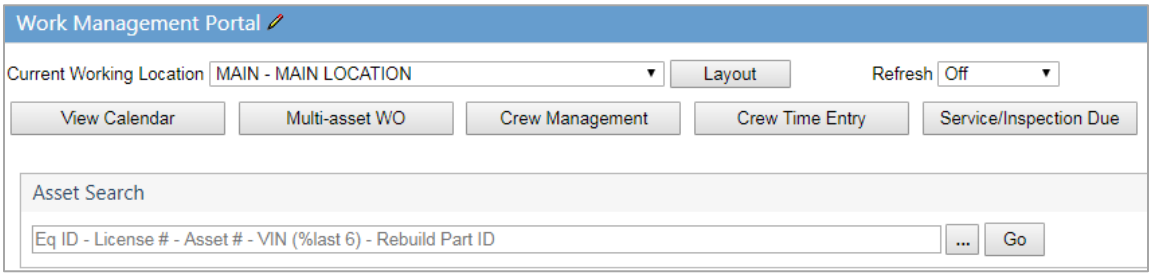



# Creating a Linear Service Request

A Service Request is a request for service for a defect to an asset. Service requests can come from individual complaints, PM Inspections or deferred work not completed on previous work orders. They are usually reported as symptoms and will need to be associated with a task when added to a work order.

1. From the Work Order Management Portal, enter the Asset / Part ID into the **Asset Search** field. Or, click the ... button to select an asset using the Asset Chooser.

2. Press **Go** or select an option from the Asset Chooser list.




*The Current and Pending Work screen will display for the chosen Asset.*

3. Review any existing **Work Orders** and their assignments.

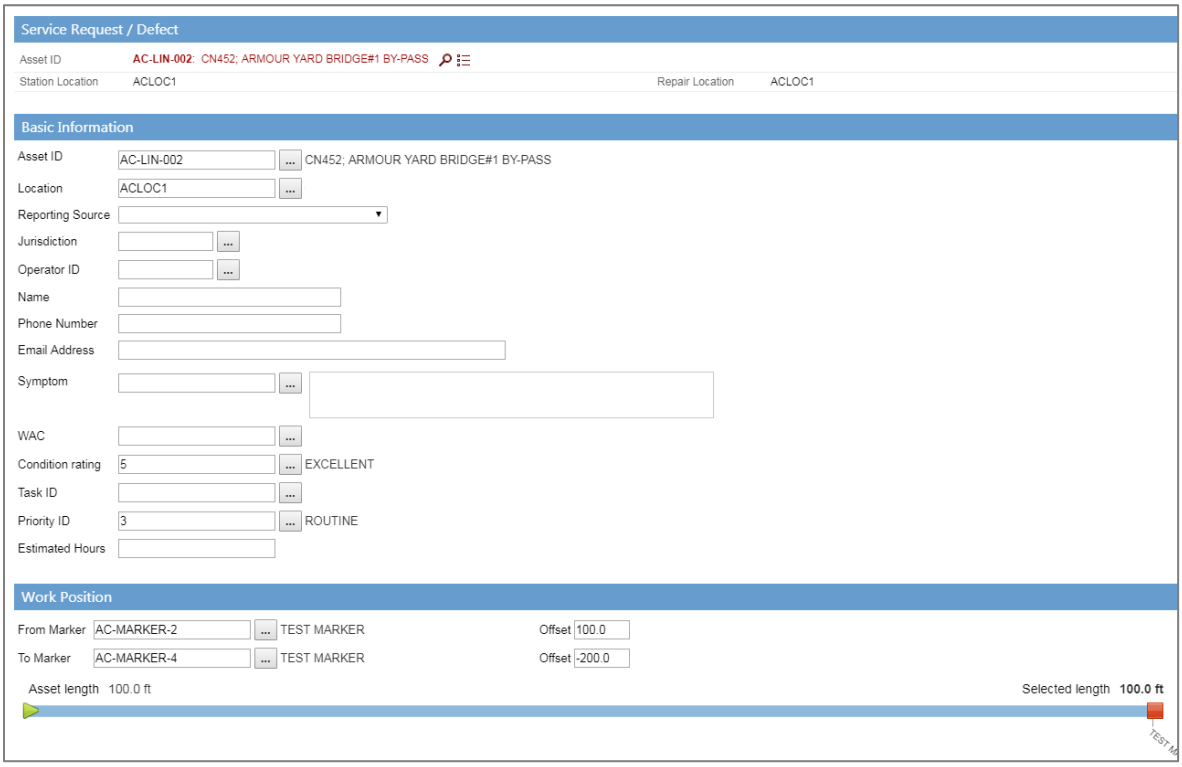
4. Review the **Pending Service Requests.** Unassigned service requests are identified with the selected Asset ID. You can assign these to existing work orders.

5. Service requests and work orders will appear on the map in the **Work Position** section. Click on the icons to see more detail.

6. Review the asset's **Repair History** which can provide historical data about defect and repair trends.

7. Click the  icon in the **Pending Service Requests** section to view or edit an existing service request, or click **New Service Request** to create a new service request.

   *The Service Request screen will display allowing the user to view or edit existing service requests or create new ones.*




8. Review or add details to the **Basic Information** tab**.** Following are some of the options that must be specified:

   - **Fail/Cause code** - Select a cause for the defect
   - **WAC** – Work Accomplish Code to indicate the correction
   - **Correction Performed** - Free form field on what was done
   - **Condition Rating** - 0-5 with 0 meaning out of service and 5 as excellent and near new
   - **Task ID** will allow a work order to be created with this task pre-defined.

9. Review or add details to the **Work Position** tab.

   - Click **Show Map** to see a map showing where the service request is located.

- Adjust markers and offsets by manually entering values into the offset fields or clicking and dragging the red and green dots to where they are needed.
- Using MobileFocus and an approved device, you can use GPS to create a service request from the exact location of the device.

10. Define attributes by clicking **Choose…** on the **Attributes** tab and specifying an **Effective Date**.
11. Review or add details to the **Notes and Comments** tab.
    - Add a note – Time stamped with user ID and not erasable
    - Add a comment – Comments can be erased
12. Add any necessary files by clicking **Add** on the **Files** tab.
13. Click **Save.**

    *The new or updated Service Request will be added to the asset and associated Work Orders.*

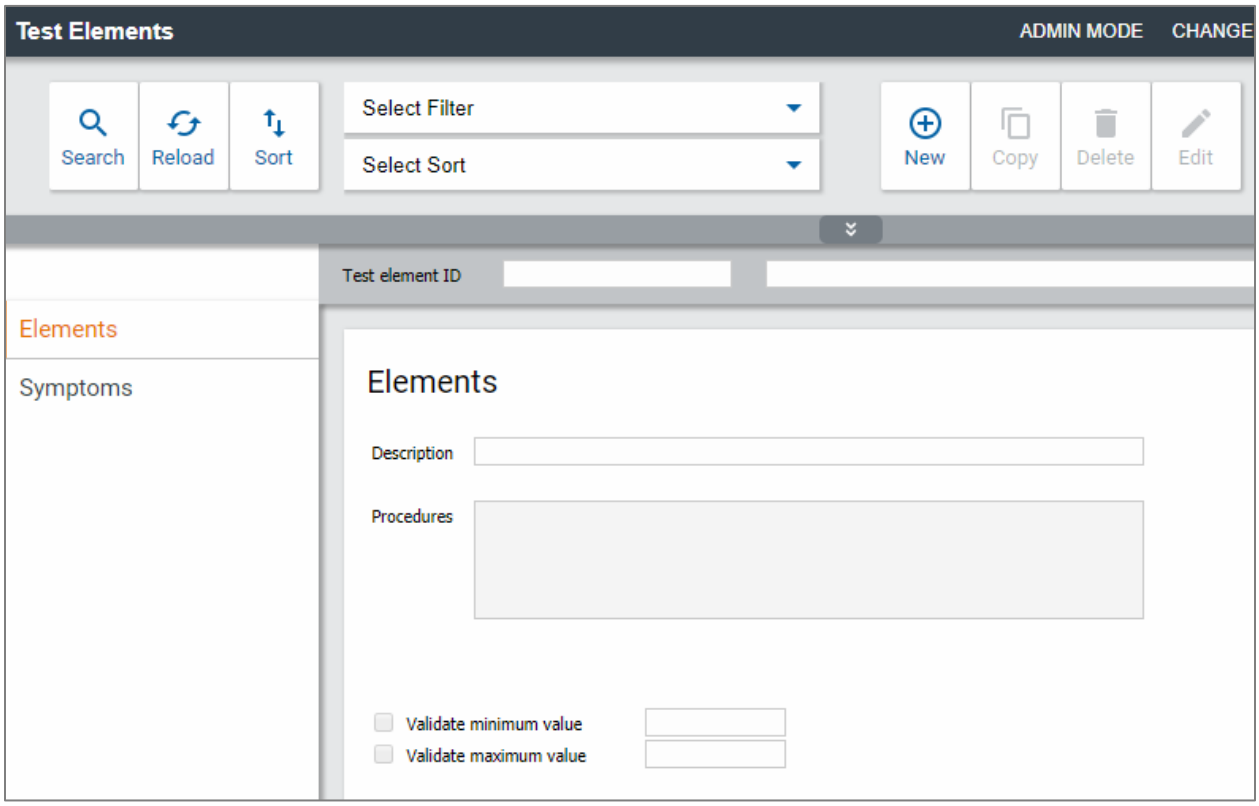
# 5. Creating Linear Asset Attributes (Test Results)

An attribute is a structure or feature of an asset that needs to be managed, but does not fundamentally change the asset. Examples of attributes for a road would be sidewalks, drainage features or pavements types. Creating attributes and linking them to assets is done through Enterprise Portal screens. Test Elements, Test Types, Test Groups and Test Results must be set up in order to create a linear asset attribute.

Go to Setup > Equipment Activity > Testing to view the pages required for attribute creation.

## Creating a Test Element

The creation of Test Elements allows a user to define what attributes they would like to have mapped to the asset once the test is completed (for example, speed, track type, or condition rating).



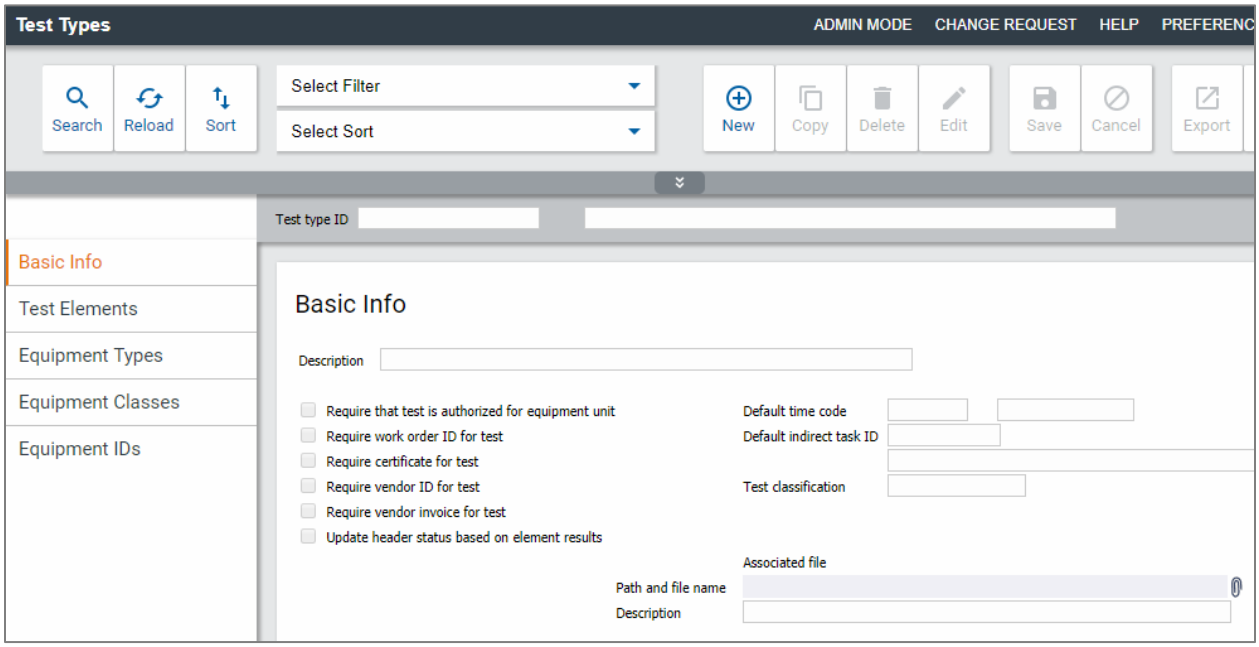

**To create a test element:**

1. Open the Test Elements screen.
2. Click **New**.
3. Create a **Test element ID**.

4. Specify **Description** on the **Elements** tab.
5. In the **Procedures** box, add any information to specify how you would like the test element performed.
6. Select or add rows to the **Symptoms associated to this element** table on the **Symptoms** tab. This would indicate which symptoms would prompt the addition of this element on a test.
7. Click **Save**.

## Creating a Test Type

The creation of Test Types requires a list of elements to be added to the Test Elements tab on the Equipment Activity Test Types screen.




1. From the Test Types screen, click **New**.
2. Create a **Test type ID**.
3. Identify what parameters you would like these test types to adhere to on the **Basic Info** tab.

   Be sure to set the **Test classification** field to **Attribute**.

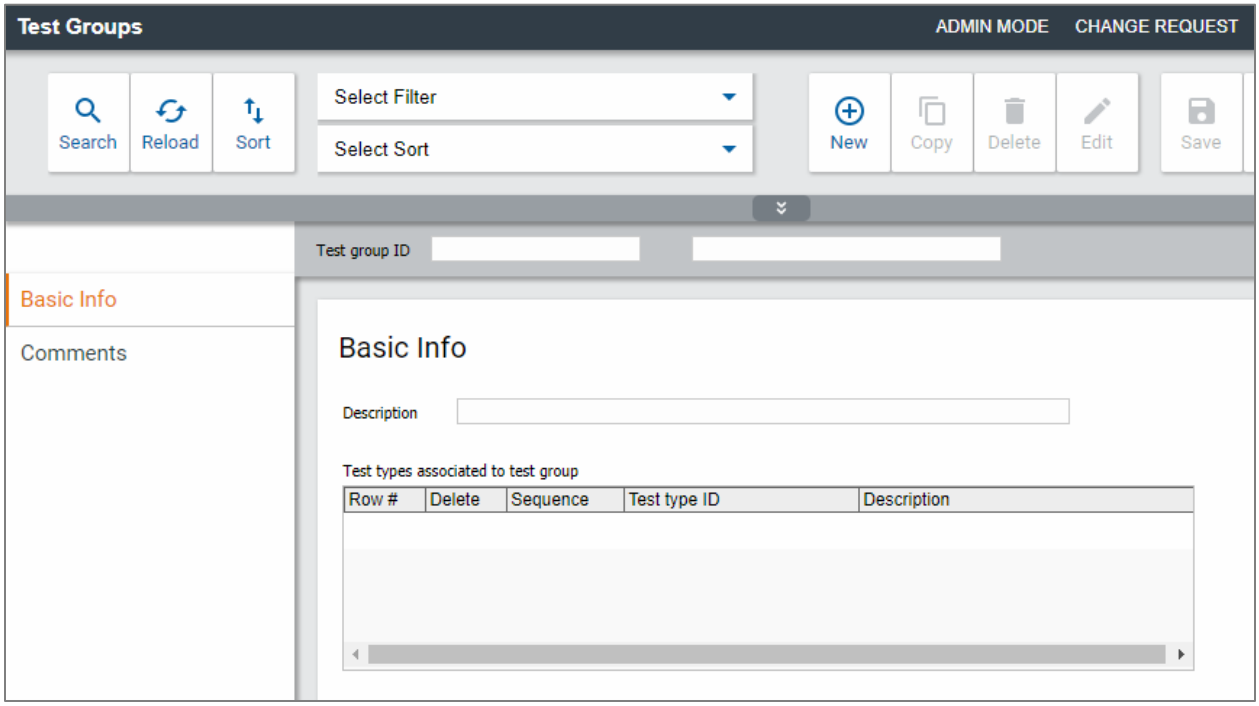
4. Add test element detail by row on the **Test Elements** tab.

5. Using the **Equipment Types**, **Equipment Classes** and **Equipment IDs** tabs, apply the test type to specific asset types, asset classes, or to specific assets.

6. Click **Save**.

## Creating a Test Group

Test groups enable you to group different test types that may be performed together.




**To create a test group:**

1. Open the Test Groups screen.

2. Click **New**.

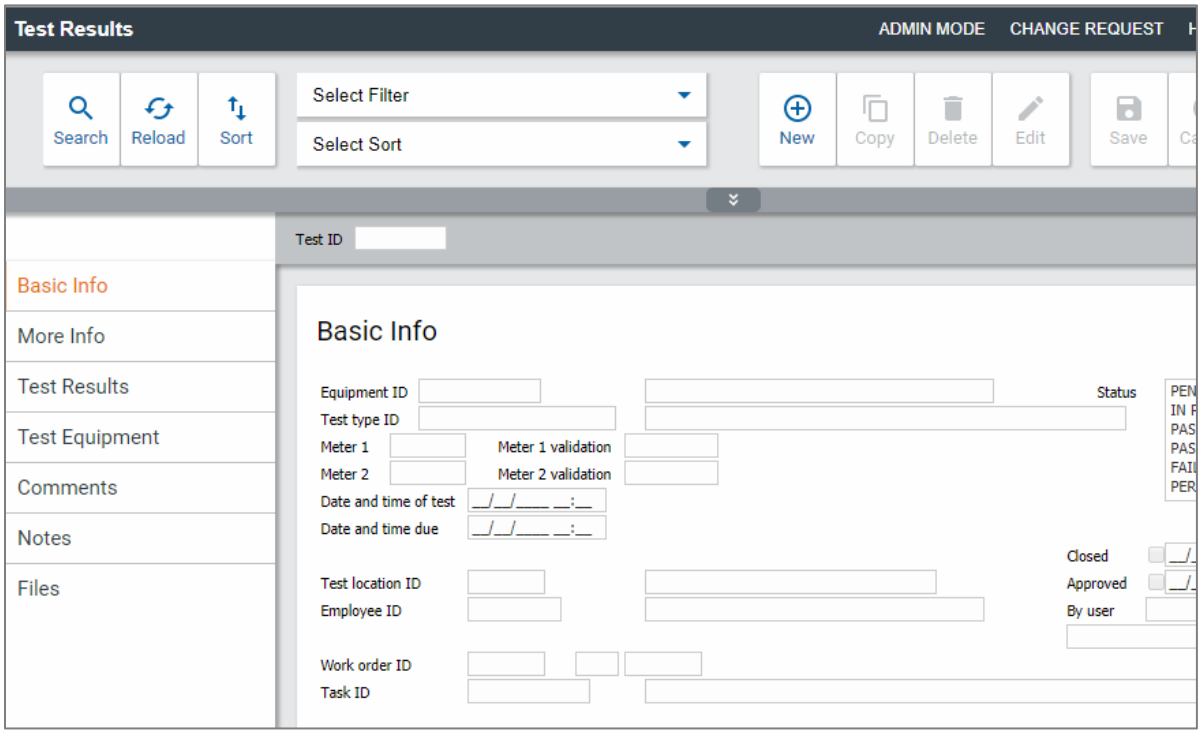
3. Create a **Test group ID**.

4. Select or add rows to the **Test types associated to test group** table.

5. Click **Save**.

# Creating Test Results

Use the Equipment Activity Test Results screen to assign specific attributes to an asset.



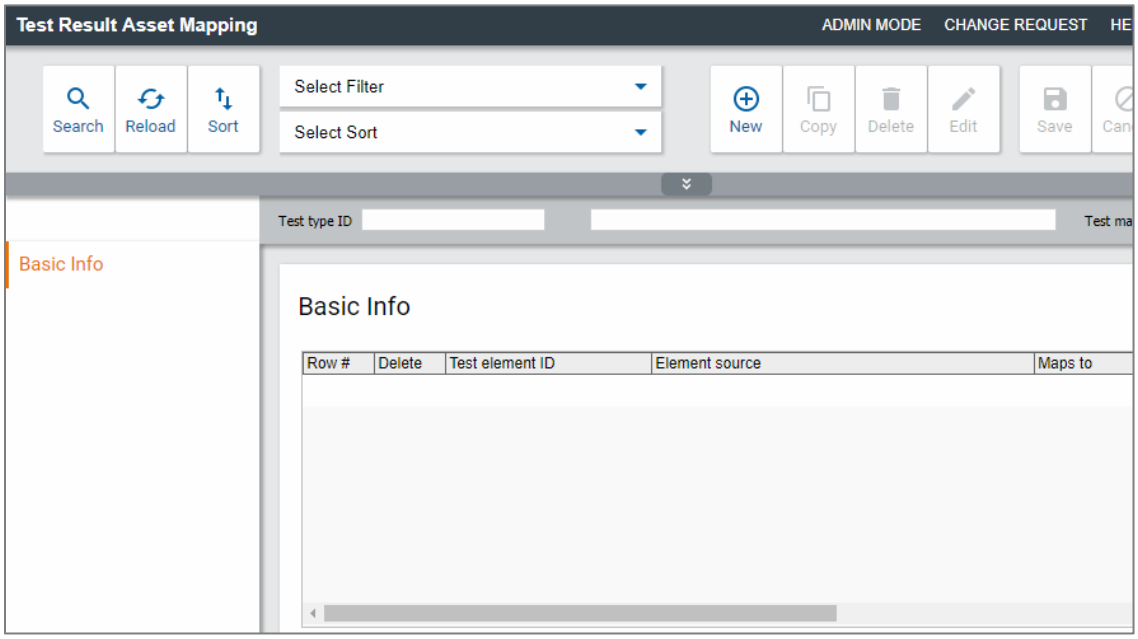

**To create a test result:**

1. Open the Test Results screen.
2. Click **New**.
3. Assign the appropriate **Test ID**.
4. On the **Basic Info** tab:
    i. Identify the **Test Type** you created for the asset.
    ii. Designate the marker, segment and offset information for the test result.
    iii. Identify the **Test Location ID** and **Employee ID** of the person conducting the test
5. On the Test Results tab, assign the **Numeric value found** or **Qualitative finding** for the test elements assigned.
6. Add any **Comments**, **Notes**, or **Files** that you would like to have attached to the test result.

7. Click **Save**. If the screen will not save, check to see that all required fields are filled-in, then try again.

## Configuring Mapping from Test Elements

The assets associated with test elements can be visually displayed on maps in the system. This is configured using the Test Result Asset Mapping screen.




**To configure elements to display on a map:**

1. Open the Test Result Asset Mapping screen
2. Click **New**.
3. Assign the appropriate **Test type ID**.
4. On the **Basic Info** tab, enter in the specific test elements you would like mapped by row.
5. Click **Save**.