

# User Guide

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# XFRACAS

VERSION 2021

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***ReliaSoft***

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# Getting Started

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## About XFRACAS

ReliaSoft XFRACAS by Hottinger Bruel & Kjaer Inc. is a highly configurable, web-based Failure Reporting, Analysis and Corrective Action System (FRACAS). Depending on how your implementation is configured, XFRACAS can include tools for incident/failure reporting, failure analysis on returned parts, part tracking for serialized systems, root cause analysis, team-based problem resolution and tracking of assigned actions. The specific features, field names and behaviors that are accessible to you will depend on the settings for your implementation.

This guide covers features that may be available to all XFRACAS users. If you have administrative responsibilities for your implementation, you may also need to consult the following guides:

- *Implementation Guide* - guidance for an IT admin to prepare the database and web server(s) and install the website. It also provides tips to help an application admin complete the initial configuration. [Online version](#) | [PDF version](#)
- *Admin Guide* - covers features that are available only to users with administrative permissions. [Online version](#) | [PDF version](#)

XFRACAS can also be integrated with other ReliaSoft applications, which provides intelligent integration between reliability program activities and tools while simultaneously facilitating effective information sharing and cooperation between engineering teams of any size. Other ReliaSoft software by Hottinger Bruel & Kjaer Inc. includes [Weibull++](#), [BlockSim](#), [Lambda Predict](#), [XFMEA](#), [RCM++](#), [MPC](#), and [SEP](#).

**Tip:** Click the **Print** icon to save any help topic as a PDF or to print it to a device from your browser.

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## Technical Support

The configurable settings for your XFRACAS implementation will be set and maintained by users with administrative permissions within XFRACAS. If you have questions about these settings, the About page in XFRACAS (**Options > Help > About**) displays the name and e-mail address for your primary administrative contact.

For organizations with an active maintenance agreement, we provide technical support for software-related issues via a network of regional offices and partners/distributors throughout the world. Visit <http://www.reliasoft.com/about/contact-us> to get contact details for technical support world-wide.

### When Requesting Tech Support

When you contact us to request technical support, please be prepared to provide the following information:

- Your phone number and e-mail address.
- The build version of your implementation (displayed on the About page).
- The name and version of your web browser.
- What you were doing when the problem occurred and exactly what happened. Please include the specific wording of any message(s) that appeared.

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**Note:** Technical support representatives are not reliability consultants. Their assistance is limited to technical issues that you may encounter with the software tools.

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# Accessing XFRACAS

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You must access XFRACAS from a computer that has been logged in to the network using a valid domain\username and password. In addition, you must have been granted access to XFRACAS by an application admin.

## Requesting Account Access

If you do not have permission to access XFRACAS, when you attempt to open a page, you'll see a message stating that your username is unknown.

- To request access, click **Request XFRACAS Account**. This opens the New User page, with your network login pre-populated. Enter additional information as appropriate; fields shown with red borders are required.
- To request access to multiple entities (business units), hold the **CTRL** key and click your selections.

When you choose **Options > Request Entity > Send**, an e-mail notice will be sent to the admin of each entity that you request access to. In addition, you will receive a confirmation e-mail.

**Tip:** If the XFRACAS Update in Progress error message displays when you attempt to access the website and you have reason to believe that no update is in progress (e.g., other users can access XFRACAS), verify that the domain part of your login is present (domain\username).

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## Conditions for Account Suspension

New in Version 2021, depending on the configurable settings for your XFRACAS implementation, your account access may be disabled after a period of inactivity (e.g., 30 days). In this case, you will receive an e-mail notifying you that you must log in within a specified number of days to maintain access.

If this feature is implemented, you will be required to accept the Terms of Use Agreement each time you log in.

## Optimum Browser Settings

### Supported Browsers and Requirements

XFRACAS is compatible with most commonly used browsers — including Google Chrome, Mozilla Firefox and Microsoft Internet Explorer (IE) — that support the following doctype:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

However, if you are using IE, version 11 is required; earlier versions are no longer supported.

If necessary, make the following changes to your browser's security and privacy settings for your website (e.g., <http://xfracas.reliasoft.com>) to ensure that XFRACAS functions correctly:

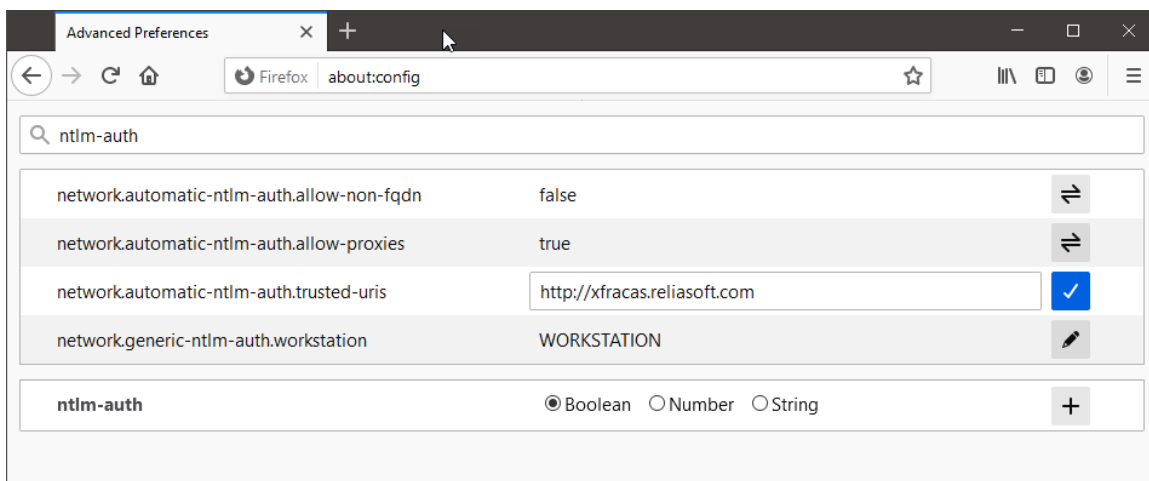
- Allow pop-up windows to display. Since most browsers now block pop-ups by default, you may need to change this setting. If you have a third-party ad blocker installed, you'll need to disable it for your XFRACAS website.
- Allow cookie data to be saved and read.

### Additional Settings for Firefox

Follow these instructions to use XFRACAS in Firefox without encountering security warnings and other messages.

**Note:** These instructions were prepared using Firefox 80. If you are using another version of the browser, the appearance of the windows may vary.

1. In Firefox, type **about:config** in the address bar and press **ENTER**. If you see a warning, click to continue.
2. In the **Search** field, type **ntlm-auth**.
3. Double-click **network.automatic-ntlm-auth.trusted-uris** (you can also click the **Edit** icon for this field).



4. Type the URL for the XFRACAS website (e.g., <http://xfracas.reliasoft.com>) in the text field and click the **Save** (check) icon.
5. Close the **Advanced Preferences** tab.


## User Information

Your user information is initially based on what you specify when requesting access to XFRACAS, or what an application admin enters when giving you access to XFRACAS. You can view or change this information by choosing **Options > Settings > User Information**.



Note that your user information is applied system-wide and is not entity specific.

At a minimum, you must supply a first name, last name and e-mail address. You must also specify a default entity, which is the entity that is selected by default as the current entity when you first access XFRACAS. The entity for subsequent screens is based on either the last screen or the entity of the record that you are viewing.

If desired, you can click the **Edit** icon, , to add an image that will be associated with your user account.

To save your changes, choose **Options > User Information > Save**.



# Working in XFRACAS

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## Entities

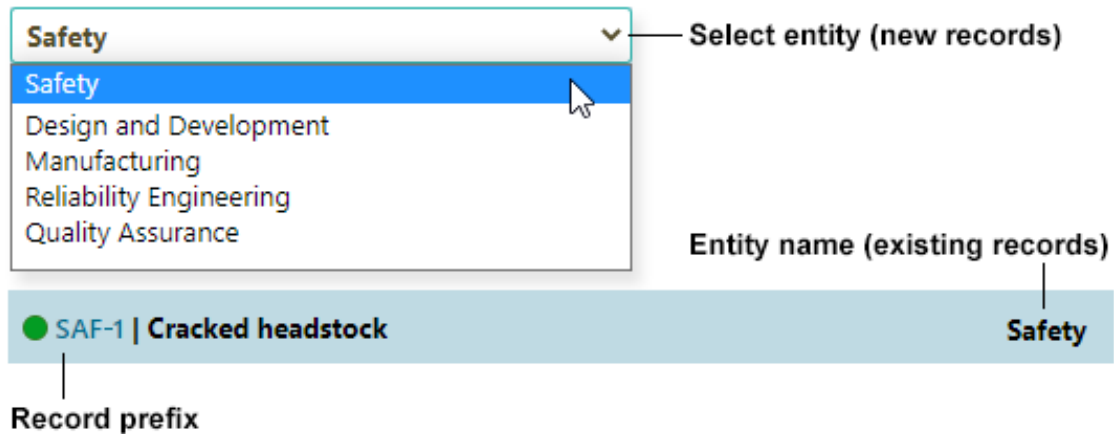
XFRACAS can be configured with a single entity (where all users share the same configuration settings and data) or with multiple entities (where each entity has its own separate permissions, settings and data).

If your implementation has more than one entity, your user account specifies which entit(ies) you can access, and which will be active by default each time you visit XFRACAS. Configurable settings (e.g., field names) and your personal permissions may differ in each entity that you use. Analysis data (e.g., system templates, serialized systems, incidents, etc.) is separate for each entity.

### Identifying the Entity

When applicable, a drop-down list at the top of the page allows you to select which entity is currently active. Remember that you cannot change the entity for a new system template, serialized system or record (e.g., incident, problem, etc.) after it is created.

When you are viewing a record that already belongs to a particular entity, the name of the entity will be displayed at the top of the page and the entity will also be reflected in the prefix for the record number.



## Requesting Access to an Entity

To request access to an entity, choose **Options > Settings > Request Entity Access**.



On the Request Entity Access page, the **Entities** field will display the entities that you do not already have access to. To request access to multiple entities, hold the **CTRL** key and click your selections.

To send your request to an application admin, choose **Options > Request Entity > Send**.



## Record Types

XFRACAS is highly configurable to fit your organization's needs, processes and terminology. Various types of records may be used in your implementation, depending on its configuration. If your implementation has more than one entity, these records will be managed separately in each.

- **Customer support records.** If you are tracking serialized systems, a customer support record (CSI) can be used to capture a detailed history for each piece of equipment, such as customer contact information, installation details, reported incidents, operating time and the current status of the system.

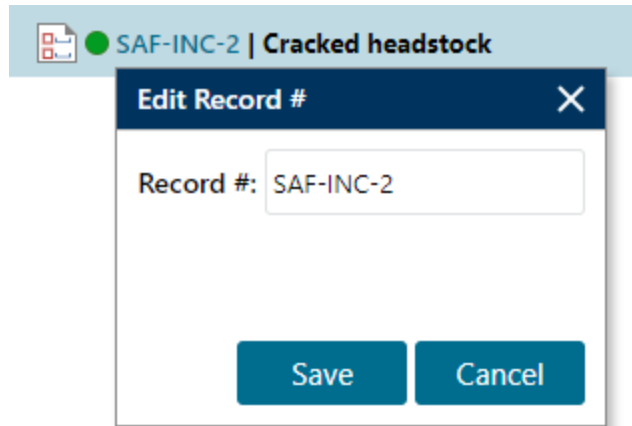
- **Incident records.** An incident captures information for a single occurrence of an issue (e.g., failure, planned downing event, customer request, etc.) and allows you to track how it is addressed.
- **Failure analysis record.** If parts were repaired or replaced during an incident, a failure analysis report can be used to capture the details of failure analysis and remanufacturing activities.
- **Problem records.** When multiple incidents are attributed to the same underlying issue, a problem (called "PRR in prior versions of XFRACAS) can be used to link all instances to a single report and facilitate a team-based approach to understand the root cause and take actions to prevent similar issues from recurring in the future.
- **Project records.** In much the same way that problems are used to manage related incident reports, projects can be used to manage related problems.
- **Action records.** Throughout XFRACAS, you can create actions that must be performed to address a specific incident, failure analysis report, problem, project or CSI.

### Changing Record Numbers

When you create a new record, XFRACAS automatically assigns it a number. This number includes a prefix that is configured by an admin user and typically corresponds to the entity and record type (e.g., "ENT-I-" for incidents, "ENT-P-" for problems, etc.).

Users with the "Manage Entities" permission can change this number for an existing record if needed.

1. Open the record in XFRACAS.
2. If you have the required permission, the record number, which appears near the top-left corner of the screen, will display as a hyperlink. Click this link.
3. In the **Edit Record #** dialog box, type the new record number and click **Save**.



The new record number must be unique throughout the database. Although it can be part of the auto-generated sequence, that's not a requirement.

- If you enter a record number that would otherwise be used in a future auto-generated sequence, the sequence will be updated so the next record uses the next value. For example, if the last auto-generated record number was ENT-I-305 and you change an existing record to ENT-I-307, then the next auto-generated record number would be ENT-I-308.
- Likewise, if there is a gap in the auto-generated sequence, you can use this feature to assign unused record numbers. For example, in the scenario described above, you could change another record to ENT-I-306.

**Tip:** Note that changing the record number may also change the name of the folder where your uploaded file attachments are stored. This applies if your implementation is configured to store attachments on a server rather than in the database. In this case, changing the record number will also change the name of the folder where the files that are attached to the record are stored.

## Fields and Lists

Your XFRACAS implementation has been customized by an application admin to capture information that is relevant to your organization's specific needs. Therefore, this guide may refer to fields and features that differ from those you'll see when working in a given entity. The fields that are available for each record type will depend on several factors:

- The configurable settings for the entity, which determine which fields are enabled, how they are named and how your organization uses them. For example, your organization may refer to problems as "corrective actions."
- Whether the record is new or existing.

Drop-down lists are one type of field that may be customized by an application admin. If an option within a drop-down list is enclosed within brackets [], it has been “retired,” indicating that it was in use at one time but has been discontinued. Retired list options may appear in existing records because XFRACAS stores the data associated with them; however, they will not be available when creating new records.

Brackets are also used in the **Owner** drop-down list in problems and projects to indicate that a user no longer has the "owner" designation.

The screenshot shows the 'Incident Disposition' form. At the top, there's a header 'Incident Disposition'. Below it, the 'Occurrence Date' is set to Feb 26, 2021, and the 'Time' is 10:46 AM. The 'State' is set to [Pending]. The 'Report Type' dropdown is open, showing options: Open, Under Review, Closed, and Closed - Insufficient Data. The 'Category' is set to [Pending]. The 'Responsible Part' is set to Fifth String Tuner: NE-04. A mouse cursor is pointing at the Responsible Part field.

## Security Levels

New in Version 2021, XFRACAS now supports the use of security levels to restrict specified users from accessing certain incident, problem, project and CSI records within an entity. These levels are defined by an application admin based on your organization’s security policies.

If this feature has been implemented for a given record type, then all records of that type will contain one or more “security level” drop-down lists. An application admin defines the names of these lists and determines where they appear in the record — e.g., in an incident, they may appear in the **System/Component Information**, **Incident Disposition**, **Incident Repair** and/or **Incident Details** sections.

- To assign a security level to a new or existing record, select it from the drop-down list. Once the record is saved, it can only be accessed by users who have been assigned this security level.
- To allow users to retain their access to an existing record, simply leave the security level unselected (this is the default behavior).

Note that action and failure analysis records inherit the security level of the parent record (e.g., an incident action can only be accessed by those who can view the parent incident).

## EXAMPLE

Let's assume that security levels have been defined for your company's three major geographic divisions — Eastern, Western and Central — for use in incidents. These levels appear in a drop-down list named **Regions**. In this case, selecting the **Eastern** option from the **Regions** drop-down will ensure that users from the other two divisions cannot access this record, nor can they access any actions or failure analysis records associated with the record.

## How Security Levels Affect What's Displayed

In most cases, you'll only see links to records that you can access based on your personal security settings. Clicking a link to a record that you cannot access will trigger an error message.

- **Reports** only include links to records that you can access (applies to standard reports as well as custom reports that are based on standard reports).

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**Note:** Reports are generated based on each user's security settings; therefore, two users running the same report will see a different set of records if their security settings differ.

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- **Charts** may include data for records that you cannot access, depending on the record type:
  - Incident, problem, project, and CSI charts are filtered to exclude any data you cannot access, but action and failure analysis charts will display aggregated data that includes records you do not have permission to view.
  - In either case, any records that you cannot access are *always excluded* from results when you drill down.
- **E-mail alerts** and the tasks list in the **XFRACAS portal** may contain links to records that you cannot access. Clicking one of these links .

In addition, certain fields will not be displayed if security levels are defined in the entity:

- The **Make Public** option, when you are saving reports and charts.
- The **Enter E-mail Address Manually** field in the Send E-mail utility.

## Associated Files


Security settings also determine which records can be linked to another record via the Attachments utility. The following restrictions apply when you select **XFRACAS ID** from the **Data Source Type** drop-down list in the **Associated Files** dialog:

- You can only associate records that you have permission to view; if you try to link to a record that you cannot access, an error message will appear.
- The **Incident Search** dialog will only display records that you can access.

## Home Tab


The **Home** tab of the ribbon contains the following commands:


### Portal


 **XFRACAS** opens the XFRACAS Portal page.

 **SEP** opens the SEP web portal, if it has been implemented.


### View


 **Reports** opens the Reports page, which allows you to generate results for a variety of pre-defined reports.


 **Charts** opens the Charts page, which allows you to generate results for a variety of pre-defined chart reports.


 **Dashboard** opens the XFRACAS Dashboard page, which displays a predefined set of reports and charts.

### Create

 **Incident** opens the Incident page to create a new incident.

 **Problem** opens the Problem page to create a new problem.






 **Project** opens the Project page to create a new project.

 **Customer Support** opens the CSI page to create a record that keeps track of information for a particular serialized system.






## Record Groups

When you are working with a record (e.g., incident, problem, etc.), the Home tab will also contain a group of commands appropriate to the record type.

When you are creating a record, the following commands may appear:

-  **Create** saves the new record once you have entered all required information. For incidents and CSIs, this command is available only when you are working with a single form, not when you are using the Wizard.
-  **Use Incident Wizard** switches to the Incident Wizard to guide you through the steps of creating the incident report. This command is available depending on the settings chosen by an application admin, and only when creating a new incident report.
-  **Use CSI Wizard** switches to the CSI Wizard to guide you through the steps of creating the CSI record. This command is available depending on the settings chosen by an application admin, and only when creating a new CSI record.
-  **Use Single Form** switches to the single form view of the Incident page. This command is available only when creating a new incident report.
-  **Use Single Form** switches to the single form view of the CSI page. This command is available only when creating a new CSI record.

When you are working with an existing record, the following commands may appear:

-  **Save** saves the current record.
-  **Completed** marks the current action as completed and saves it. This command is available only for actions.
-  **Reopen** opens a currently closed record. This command is available for incidents, problems, projects and actions, depending upon your permissions.
-  **Print Preview** allows you to view how the current record will appear on the printed page.
-  **Duplicate** creates a copy of the current record. This command is available only for incidents

and CSI records. Note that the copy is not automatically saved, but you can modify the new record and then choose **Home > [Incident/CSI] > Create** to save it.



**Export** exports the current record to a new \*.xml file.



**Create Linked Action** opens the Create Action utility, allowing you to create a new action associated with the current action. This command is available only for action records.



**E-mail URL** opens the Send E-mail utility, allowing you to send an e-mail message, including the URL of the current record, to selected system users. This command is available for all record types except actions.



**E-mail Team URL** opens the Send E-mail utility, allowing you to send an e-mail message, including the URL of the current record, to selected system users, with the team members for the record preselected in the utility. This command is available for incidents, problems and projects that have team members specified.



**Copy URL** displays the URL of the current record, allowing you to copy the URL to the clipboard for use in other locations.



**Delete** deletes the current record. This command is available for all record types, depending upon your permissions. *There is no undo for delete.*

### Portal Link



**Save/Update** saves changes to a new or existing link.



**Delete** deletes the current link. *There is no undo for delete.*

### Announcement



**Save/Update** saves changes to a new or existing announcement.



**Delete** deletes the current announcement. *There is no undo for delete.*

## Options Tab

The **Options** tab of the ribbon contains the following commands:

### Designers



**Report Builder** opens the Report Builder page, which allows you to create your own reports and charts with custom criteria and information.



**Dashboard Designer** opens the Dashboard Designer page, which allows you to change the content and arrangement of the reports and charts that appear on the Dashboard page.

### Settings



**Portal Preferences** opens the Portal Preferences page, which allows you configure the information shown on the XFRACAS Portal page.



**User Information** opens the User Information page, which allows you to specify the information about you used in the system.



**Request Entity Access** opens the Request Entity Access page, which allows you to request access to any of the entities within XFRACAS.

### Help



**Help** opens the online help topic for the current page.



**Contents** opens the online help file to its home page.



**Admin Contents** opens the administrative help file.




**New User Intro** opens a page with basic information about accessing the system.




**About** opens the About XFRACAS page, which provides licensing and version information for XFRACAS.

### Portal Preferences


If you are working on the XFRACAS Portal page:

 **Save** saves the changes you have made to the Portal preferences.

 **Load Application Defaults** returns to the default Portal preference settings.


### User Information

If you are working on the User Information page:

 **Save** saves the changes you have made to user information.

### Request Entity

If you are working on the Request Entity Access page:


 **Send** sends your request for entity access to an application admin.


### Report


If you are working on the Report Builder page:

 **Generate** generates the results for the Report Builder without saving the settings.

 **Save** saves the current Report Builder settings using the current report name.


 **Save As** saves the current Report Builder settings using a name, description and icon that you specify.


 **Part Search** allows you to search for a template part by part description.


 **Serialized Search** allows you to search for a serialized part by system serial number or sub-system serial number and then opens the system configuration in the [Serialized page](#).

## Dashboard

If you are working on the Dashboard Designer page:

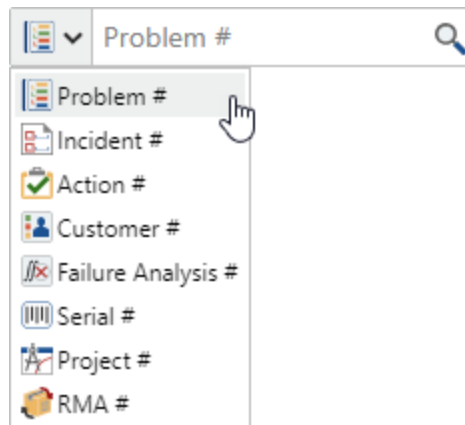
 **Generate** generates the reports specified in the Dashboard Designer without saving the layout settings.

 **Save** saves the current settings using the current layout name.

 **Save As** saves the current settings using a layout name that you specify.

## Quick Search

The Quick Search box, located in the top-right corner of a page, provides a quick way to open an existing incident, problem, action, project, failure analysis report or customer support record.



Select the type of record from the drop-down list and then type the relevant identifier:

- **Problem #, Incident #, Customer #, Failure Analysis # or Project #** - type the record's display ID with or without the entity prefix (e.g., ENT-I-301 or 301). If you do not include the entity prefix, it will search only within the current entity. If you include the prefix, it will search for an exact match in all entities that you have permission to access.
- **Action #** - type an action number, which is unique across all entities.

- **Serial Number #** - type the serial number of a serialized system that has a customer support record. If an exact match is not found, XFRACAS displays a list of all CSIs in the current entity.
- **RMA Number** - type the RMA number of a part that has a failure analysis record.

## XFRACAS Portal


The XFRACAS Portal displays announcements and tasks that are relevant to you. The display depends on your [Portal Preferences](#). If your implementation has more than one [entity](#), the display may also depend on which entity is currently selected from the list at the top of the page.


To access the portal, choose **Home > Portal > XFRACAS**.



### Announcements

For each announcement, an icon indicates whether it is public  or private .

 **Edit Announcements** opens a page where you can create, edit or delete announcements that you have permission to manage. (See [Announcements](#).)

 **Announcements History** displays a list of all your public and private announcements, including any that are "expired" (i.e., today's date does not fall in the range of dates when the announcement was configured to start and stop displaying).

### Tasks

The quantity in parentheses indicates the total possible number of items that could be displayed in your portal for each type of task — e.g., the total number of unclosed incidents or open problems that you own. Some or all of these items may be displayed in the tables; the actual number depends on the settings in your [Portal Preferences](#) page. To view all records in the [Report Results](#) page, click the quantity link.

---


**Tip:** If applicable, a label above the table also indicates how many of those tasks are "due" and their dates will be highlighted in red. A task is "due" if the date falls within the offset specified by an application admin for that type of record. For example, if the offset for incidents is 15 days, an incident will be "due" if today's date is => 15 days after the occurrence date.

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- **Open ReliaSoft Desktop Actions** - ReliaSoft desktop actions that are not completed and that you are responsible for (i.e., you are the Person Responsible). This type of task is available only if the database is used with ReliaSoft desktop applications and you have an active user account.
- **Uncompleted Actions** - XFRACAS actions that have not been completed and that you own (i.e., you are the assigned Owner).
- **Unclosed Incidents** - incidents that have not been closed and that you own.
- **Team Member Unclosed Incidents** - incidents that have not been closed and that you have been assigned to as a Team member.
- **Open Problems** - problems that have not been closed and that you own.
- **Team Member Open Problems** - problems that have not been closed and that you have been assigned to as a Team Member.
- **Problems to Review** - problems in which you are assigned to review and sign off on a step. (See Failure Review Boards.)
- **My Projects** - projects that have not been closed and that you own.
- **Team Member Projects** - projects that have not been closed and that you have been assigned to as a Team Member.

## Portal Preferences

Use the Portal Preferences page to customize which items are displayed in your XFRACAS Portal and Links panel.

If you have permission to edit portal preferences, you can click the  icon in the **Tasks** section of the portal or choose **Options > Settings > Portal Preferences**.



## Default vs. Saved Preferences

The default portal preferences are managed separately for each entity. If you have not saved changes to your own personal portal preferences, your portal will use the default settings for the entity that you are currently viewing, and those settings may differ for each entity.

Alternatively, if you choose to save your own personal portal preferences, they will be the same for any entity that you view. To do this, make the desired changes in the Portal Preferences page and then choose **Options > Portal Preferences > Save**.



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**Tip:** If you have the "Portal - Set Default Portal Preferences" permission for the entity that you are currently viewing, **Save as application default** will display at the top of the page. If this check box is selected when you click **Save**, the changes will be saved as the defaults for that entity and also saved as your own personal preferences for all entities.

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To return to using the defaults for each entity, choose **Options > Portal Preferences > Load Application Defaults**.



### Show All, None or Show Only

For links, announcements and each type of task, you can choose from the following options:

- **Show All** - displays all items of that type, and they will be sorted from the newest to the oldest date.
- **None** - the section will not display, even if there are items of that type.
- **Show Only** - displays no more than the specified quantity of items (from 1 - 99). You can choose whether to show items with the **Newest** or **Oldest** dates.

### Display Order

For each type of task, the **Display Order** sets the order in which that section will display on the portal page.

To hide sections for task types that do not contain any items, set **Display Empty Portal Sections** to "Yes."

### Display My Entities

The **Display My Entities** option is relevant if you have access to more than one entity.

- **Show All** - displays items from all entities that you have access to.
- **Show Current** - displays items only from the entity that is currently selected at the top of the page.

## Display My Report on Load

You have the option to run your own custom report when the XFRACAS Portal page loads. To enable this feature, set **Display My Report On Load** to "On" and use the drop-down to select any of the saved templates from your list of "My Reports."

The **Interval** field determines how frequently the report runs. If set to 0, the report will run each time you load the portal page. If the interval is greater than 0, the report will run only if it has been at least that many hours since the last time the report ran. For example, if you want the report to run no more than once a day, set the interval to 24 hours.

## Links Panel

The Links panel (displayed on the left side of most pages in XFRACAS) provides quick and convenient access to selected reports and charts and can include any uniform resource locator (URL) that can be accessed via a web browser.

This panel may contain personal links that are visible only to you as well as public links that are visible to all users in a specified entity.

To manage your links, click **Edit Links** in the upper right corner of the panel.



## Creating, Updating or Deleting a Link

- To create a new link, select the blank option in the **Select Link to Edit** list and then enter at least the required fields and click **Home > Portal Link > Save**.
- To edit an existing link, select it from the list, make the desired changes and click **Home > Portal Link > Update**.
- To delete an existing link, select it from the list and click **Home > Portal Link > Delete**.

## Link Properties

- **Title** - the anchor text that is visible in the page.
- **Type** - in addition to URL (which is always available), this list also includes any type of report or chart that you can view in the [Reports](#) and [Charts](#) pages (e.g., Standard Reports, My Reports, Public Reports, etc.). After you select the type, enter the **URL** or select a specific **Saved Report**.
- **Group** - the options depend on the entity's configurable settings. The quantity of links displayed in each group depends on the [Portal Preferences](#).
- **Display Order** - sets the display order within the selected group.
- **Start Displaying At** and **Stop Displaying After** - a date range when the link will be visible. If not specified, the link will be visible immediately and will remain visible unless it is manually deleted.
- **Display to Public** - if selected, the link will be visible to all users in the specified entit(ies). The ability to manage public links is available only to users with the "Portal - Create Public Links and Announcement" and "Portal - Modify Public Links and Announcements" permissions.
- **Owner** - the user who created the link.
- **Entities** - the entit(ies) where the link will be visible.

## Announcements

The Announcements section in your [XFRACAS Portal](#) may contain two types of announcements:



**Public** announcements are visible to all users in specified [entit\(ies\)](#).



**Private** announcements are visible only to you.

All XFRACAS users can create and manage their own private announcements. Only users with specific permissions are able to create and modify public announcements.

Depending on the [Portal Preferences](#), your portal may show some or all of your announcements, either from the entity that is currently selected or from all entities that you have access to.

Announcements may be configured to display only within a specified date range. If today's date does not fall within the specified range, the announcement will not show in your portal, but you can continue to access "expired" announcements via the Update Announcement and Announcement History pages.

## Create, Update or Stop Displaying an Announcement

- To manage your announcements, click **Edit Announcements** in your portal.



- To create a new announcement, select the blank option in the **Select Announcement to Edit** list then enter at least the required fields and click **Home > Announcement > Save**.
- To edit an existing announcement, select it from the list then make the desired changes and click **Home > Announcement > Update**.
- To stop displaying an announcement, select it from the list, specify a date in the **Stop Displaying After** field (< today's date) and click **Home > Announcement > Update**.

---

**Tip:** For users with the "Portal - Modify Public Links and Announcements" permission, you can permanently delete an announcement by selecting it from the list and clicking **Home > Announcement > Delete**.

---

## Announcement Properties

- **Title and Description** - text that is visible in the portal.
- **Display Order** - the sequence among all public and private announcements in your portal.
- **Start Displaying At** and **Stop Displaying After** - a date range when the announcement will be visible in your portal. If not specified, it will be visible immediately and will remain visible unless it is manually deleted.
- **Display to Public** - if selected, the announcement will be visible to all users in the specified entity(ies). Only users with the "Portal - Create Public Links and Announcements" permission can create public announcements.
- **Owner** - the user who created the announcement. Only users with the "Portal - Modify Public Links and Announcements" permission can edit a public announcement that was created by

another user.

- **Entities** - the entit(ies) where the announcement will be visible.

## Announcement History

To view a list of all your announcements, including those that have "expired," click **Announcements History** in your portal.



In the Announcement History page:

- If the image in the first column is a solid square, clicking it opens the page where you can view or edit the properties. If the image is an outline, you do not have permission to edit the properties.
- To sort by any of the columns, click the column header.

# Tracking Record Views and Changes

## Tracking Views

New in Version 2021, XFRACAS now allows you to generate reports showing who has viewed transactional records.

Your Reports page may already include links to reports that have been configured to display "view" information; if not, you can easily add this info to any standard incident, problem, project, CSI, action or failure analysis report as follows:

1. Open the Report Builder page (**Options > Designers > Report Builder**).
2. In the **Select Report** drop-down, choose **Standard Report** and one of the following record types:
  - **Incident**
  - **Problem**
  - **Project**
  - **CSI**

- **Action**
  - **Failure Analysis**
3. Configure the report as you normally would and use the **Additional Fields** drop-down list to add the **Viewed** and **Viewed By** fields. Be sure to enable the **Show** option for each.
  4. Click **Generate** to build the report. The “Viewed” and “Viewed By” columns should be populated for any record that has been opened at least once.
    - “Viewed” indicates when the record was viewed, in UTC date-time format.
    - “Viewed By” indicates who viewed the record, in last name / first name format.
  5. If desired, save the report for future use.

Note that the report may include multiple instances of the same record (one for each view).

## Getting Notified when Records Are Updated

New in Version 2021, XFRACAS now allows you to receive a daily e-mail digest containing a list of incident, problem, project and CSI records that have changed since the last digest was sent. This feature requires the XFRACAS Data Import Utility to be running (see [DIU Service](#) in the Admin help for more information).

To receive this digest, you’ll need to subscribe to notifications for each individual record you’d like to “follow.” You can do this by clicking the **Subscribe** icon in the title bar of the record's summary area.



The e-mail is sent only when at least one of these records has been updated since the last digest was sent. It will include links to view and unsubscribe from each record, as well as a link to unsubscribe from all records.

You can also unsubscribe directly from within the record by clicking the **Unsubscribe** icon.



---

**Note:** Separate digests are sent for each entity; therefore, if you have subscribed to records in multiple entities, may receive more than one digest.

---

## **A Note About Time Zones**

Depending on the configurable settings for the current entity, date fields may be displayed with associated time fields. If this is the case, the time fields include a time zone field. All times are saved in the database using Coordinated Universal Time (UTC), formerly known as Greenwich Mean Time (GMT) — the current time at 0° longitude. This allows users in various time zones to log and view events accurately and easily.

For example, if an incident is created in Tucson, Arizona, and later referenced in Kuala Lumpur, Malaysia, the 15-hour difference could cause confusion. The incident is created at 2:38 PM on March 9, 2017, in Tucson with an occurrence date of March 8, 2017 - 10:30 PM. These times are saved into the database as "2017-03-09 21:38" and "2017-03-09 05:30" respectively. Since Tucson is in time zone -7, 7 hours have been added to each date/time to get the UTC time. You can see that this changed the date as well as the time of the occurrence date. When redisplayed in Tucson, the date/times are adjusted by subtracting 7 hours.

If someone in Tucson ran a search for this incident, they could specify an occurrence date of March 8, 2017, with times between 10:00 PM and 11:00 PM. However, if someone in Kuala Lumpur ran the same search, their results would not include this incident because their local time is in time zone +8. They could get the desired result by simply setting the occurrence date time zone for the query to Tucson's -7 time zone. If the user in Kuala Lumpur were then to edit the incident, because all information is saved as UTC, the information would be just as easy to find again in Tucson.

To change the default time zone for your user account, choose **Options > Settings > User Information**.



# Common Utilities

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XFRACAS features several “utilities” that appear in one or more types of records and/or reports. Note that some of these utilities may not be visible to you, depending on your user permissions and the configurable settings for your organization’s XFRACAS implementation. In addition, their appearance may differ slightly depending on where you access them.




- **Attachments** - allows you to link files, text, a URL, or another record to the current record
- **Send E-mail Utility** - sends an e-mail that includes a link to the current record
- **Select Existing Utility** - allows you to reuse text from other records
- **Assign Team Members Utility** - allows you to assign users to a team
- **Status Fields** - allows you to document the progress of an issue or assignment
- **Part and Serial Number Selection Utilities** - allows you to choose parts for incidents and serialized systems for incident and customer support (CSI) records
- **Serialized Page** - displays serialized system configurations

## Attachments

An **Associated Files** field (aka "attachments table") enables you to conveniently link supporting files and references for an XFRACAS record. Depending on the configurable settings for the entity, this type of field may be available in incidents, problems, failure analysis reports, actions or customer support records.

Associated Files:

Att. Type	Date	File	Description
URL	08/2020/25 03:27 PM	ReliaSoft XFRACAS	XFRACAS web page

Associated Files

Data Source Type: XFRACAS ID

Name:

Description:

Section: Describe the Problem - Associated Files

XFRACAS Type:

Relationship Type:




Reciprocal Section:

XFRACAS ID:

Save

Cancel

Help

Use the icons on the right side of the table to add , edit  or remove  associated files. The properties depend on the **Data Source Type**. For all types, the **Name** is required and **Description** is optional. The **Section** drop-down list identifies which attachments table will show the attachment. If there are multiple tables in the same record, you can use this field to move the attachment to another section.

## Uploaded File

If the Uploaded File type is enabled for your implementation, you can use the **Associated File** field to browse for and upload a copy of a file. Depending on the configurable settings, the file will either be saved as a blob in the database or stored in a specified folder on the web server.

Note that if you import or export a record that has an uploaded file attachment, the XML file will contain the blob ID or the database path.

## URL


The URL type is always available. Use the **URL** field to type a uniform resource locator that can be opened via a web browser (e.g., <http://www.reliasoft.com>).

## Text

The Text type is always available. Use it to attach text notes or references for the record (similar to a list of citations in the bibliography of a report).

## XFRACAS Record

The XFRACAS Record type is always available. This creates either a one-way link or a two-way link to another XFRACAS record.

After you have selected the **XFRACAS Type** (incident, problem, failure analysis, action or customer support), you can specify the **XFRACAS ID** for an existing record of that type. To view a list of records of that type in the current entity, click **Find**, .

**Reciprocal Section** determines whether the link will be one-way or two-way. If **None**, the attachment will link only from the current record to the other record. If you specify a reciprocal section (i.e., select the name of an attachments table in the other record), the other record will also link back to the current record. The name and description will be the same for the links in both records. If you remove a reciprocal link from either record, it will be removed from both.

The optional **Relationship Type** field adds a text label in the attachment type column of the table. The options depend on the configurable settings for the current entity. If it is a reciprocal (two-way)

link, the current record will display the label you have selected (e.g., "Master") and the other record will display the corresponding label (e.g., "Sub").

Note that if you import or export a record that has an XFRACAS Record attachment, the XML file will contain the ID for the other record (one-way link) but it will not contain the reciprocal section (two-way link).

## Send E-mail Utility

The Send E-mail utility allows you to send an e-mail that includes a link to the current record.

### Open the Utility

To open this utility when you are working with an incident, failure analysis report, problem, project or CSI record, choose **Home > [Record Type] > E-mail URL** or, if team members have been added for the record, **Home > [Record Type] > E-mail Team URL**.



Clicking a user name in the **Team Members** field of the Incident, Problem and Project pages will also open this utility.

### Choose E-mail Address(es)

Choose the source for available e-mail addresses from the E-mail Address Source drop-down list. Options include:

- **XFRACAS User List**
- **Enter E-mail Address Manually** - to prevent unauthorized users from accessing the record, this option will not be available if security levels have been defined for the entity (see [Security Levels](#))
- **Team Members** - this option will be preselected if you opened the utility using the **E-mail Team URL** command; if you opened the utility by clicking a team member name, that name will be pre-selected

You may also be able to select users from a global address list from an Exchange server, depending on how the Exchange preferences are set up.

Send E-mail - Company Name Proprietary and Confidential Information

E-mail Problem Report Page Number PR1

From: NANCY RICCIO

E-mail Address Source:

XFRACAS User List

Jill Manager

Harry Technician

Bob Engineer

Joe Reliability

TO >

CC >

BCC >

TO:

CC:

BCC:

Message:

Include: ☒ Link ☐ Printer Friendly View

Send

Cancel

Help

When you are working with a user list, you can double-click a user in the list on the left to add them to the **To:** area on the right, which displays a list of the users who have been selected to receive the e-mail. At least one user is required in this recipient list in order to send the e-mail. You can also use the **TO >**, **CC >** and **BCC >** buttons to add the selected user(s) to the corresponding area on the right. Double-click a user in a recipient list to remove it from the list.

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## Enter Your Message

You can enter a message in the **Message** field at the bottom of the window. This message will appear in the body of the e-mail along with the link to the record and/or a printer-friendly view of the record, depending on your selection in the **Include** field.

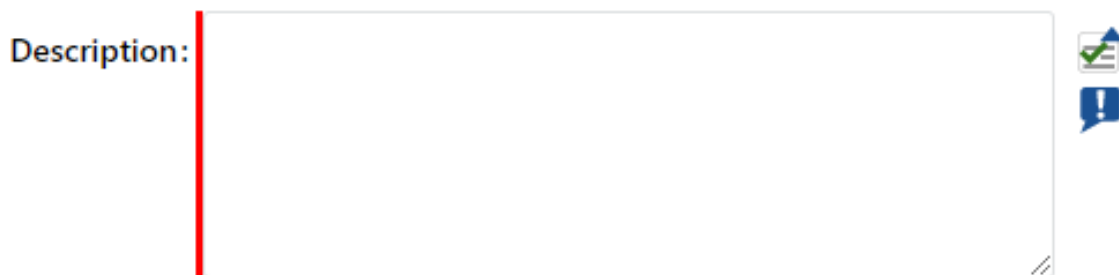
## Send the E-mail

Click **Send** to send the e-mail to the selected users.

## Select Existing Utility


The Select Existing utility allows you to find and reuse text from the same field in other existing records. This can help save time on data entry, ensure consistency and facilitate brainstorming.

This utility may be available if it has been enabled for a particular description or status field and if you have permission to use this feature for a particular record type.

A screenshot of a software interface showing a text input field labeled 'Description:'. A thick red vertical line is positioned to the left of the input field. To the right of the input field, there are two small icons: a green checkmark inside a square and a blue speech bubble with a white exclamation mark. The input field itself is empty and has a light gray border.


## Searching for Existing Text


1. Use the drop-down list in the **Search** area to specify how to match the specified keywords, and then type the keywords into the input box.
  - **=** returns descriptions where the exact string entered matches the whole field.
  - **Contains** returns descriptions that contain the exact string entered.
  - **Begins With** returns descriptions where the exact string entered appears at the start of the field.
  - **Ends With** returns descriptions where the exact string entered appears at the end of the field.
2. In the **Entities** area, select which entities you want to look in for the text.

3. Click the **Search** icon, , to display the matching results in the Text area.
4. Select the desired text, then click **OK**.

## Assign Team Members Utility

The Assign Team Members Utility will be displayed when you click the **Assign/Remove Members** icon for the **Team Members** field on the Incident, Problem or Project page.

Team Members:  

**Assign Members** 

**Team Role**

**User Groups**

**Users**  

Manager, Jane  
Engineer, Harry  
Technician, Bill  
Analyst, Bob

Add User(s)

**Group Members**  

Add Group Members

**Current Members**  

Remove Selected

Save

Cancel

You can assign users to the team individually, or in user groups. User groups can be defined by an application admin to provide a convenient way to add multiple users who commonly work together.

### To add an individual user to the team:

1. Select a role that the user will fulfill from the **Team Member Role** drop-down list.
2. Select the user from the **Users** list, which displays users that are not already on the team.
3. Click **Add Team Member**.

### To add a predefined group of users to the team:

1. Select the user group from the **User Groups** drop-down list. The members of the group, and the roles that they fulfill in that group, will be displayed in the **Group Members** area.
2. Click **Add Group Members**.

To remove a team member, select the user in the **Current Team Members** list and click **Remove Selected**.



3. Click **Save** to save the changes in the window.


Note that if the incident or problem displays the **Audience Restriction** field and the drop-down list is set to "Attorney/Client Privilege," you will not be able to save any changes to the team until a user is assigned to the legal role. To be eligible for this role, the user's account must be assigned to the "Legal Expert" category.


## Status Fields

A **Status** field allows users to add notes about the progress made for a particular issue or assignment, and also send e-mail notifications if applicable.

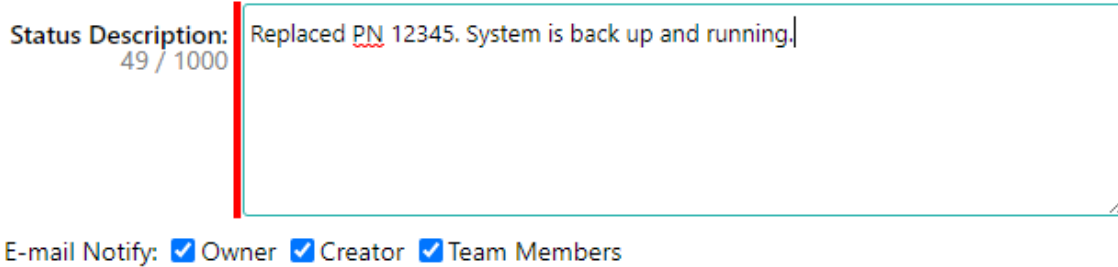
Depending on the configurable settings for an entity, these fields may appear in incidents, failure analysis reports, problems, actions, projects or CSIs. Within each status field, the notes/updates will be displayed in order based on the creation date (either ascending or descending, depending on the configurable preference).

Status of Troubleshooting:	Status Date	Written by	Description	 
	09/2020/29 09:00 AM	TECHNICIAN, BILL	Replaced PN12345; system is back up and running.	
	09/2020/25 09:58 AM	ENGINEER, JILL	Need to replace PN12345. Waiting for part.	
	09/2020/21 08:51 AM	TECHNICIAN, BILL	Added a temporary fix to stop the leak. Waiting for diagnostic to identify faulty parts.	

 **Add** creates a new note that will be added to the list.

 **Edit** modifies the note that is currently selected.

When you create a new status note or edit an existing one, the utility may include **E-mail Notify** check boxes that determine which user(s) will receive an e-mail notification when you click **Save**.



The screenshot shows a form with a 'Status Description' label and a text area. The text area contains the text 'Replaced PN 12345. System is back up and running.' with a cursor at the end. Below the text area is a red vertical line. To the right of the red line are three checkboxes, all of which are checked: 'Owner', 'Creator', and 'Team Members'.

Status Description: 49 / 1000 Replaced PN 12345. System is back up and running.

E-mail Notify: ☒ Owner ☒ Creator ☒ Team Members

The e-mail options depend on the record type (incident, problem, etc.) and the configurable settings for the entity. For each record type, an application admin can determine which check boxes are available, which check boxes are selected by default, and what information is included in the notification e-mails.

## Part and Serial Number Selection Utilities

XFRACAS provides utilities to help you choose serialized systems for incident and customer support (CSI) records. A similar utility allows you to select parts for part incidents.

Serial Number:  ...

Part Number:  ...

**Available Parts** ✕

Available Parts:  ▼

Serial Number:

Part Number:

## Serialized Incidents and CSI Records

You can choose a system based on its serial number or on a part.

### To choose a system from a list of serial numbers:

1. Leave both the **SerialNumber** and **Part Number** fields blank and click the **Find** icon, **...**, next to the **Serial Number** field.
2. In the dialog box that appears, choose a serial number from the **Available Parts** drop-down list, which contains all of the serialized systems that have been created for your entity.
3. Click **Select** to update the record.

### To choose a system from a list of parts:

1. Leave both the **SerialNumber** and **Part Number** fields blank and click the **Find** icon, **...**, next to the **Part Number** field.

2. In the dialog window that appears, choose a part from the **Available Parts** drop-down list, which contains all of the system templates (top-level parts) that have been created for your entity.
  - If you select a part that is associated with more than one serialized system, you will be provided with a list of systems to choose from. In this case, click **Select** to close the dialog box and then click **Select** again to update the record.
  - If you select a part that is not associated with a serialized system, XFRACAS will indicate this. In this case, click **Cancel**.

### To choose a system if you know some or all of a serial or part number:

Type the entire serial or part number, or just a portion of this number, in the appropriate field and then click the **Find** button.

- If only one match is found, both the serial and part number will be updated automatically in the record.
- If multiple matches are found, you will be provided with a list of systems to choose from. In this case, click **Select** to update the record.

## Part Incidents

### To choose a part from a list of all parts in the entity:

1. Leave the **Part Number** field blank and click the **Find** icon, **...**.
2. In the dialog box that appears, choose a part number from the **Available Part Numbers** list.


---

**Note:** The **Available Part Numbers** utility displays the first 1,000 parts in your entity.

---

3. If necessary, use the **Filter** tool to find the part:
  - a. Type the part number or name, or a portion of either, in the **Part** field, to search all available parts.
  - b. Click the **Filter** button or press Enter.
  - c. Choose one of the matching parts from the list.
4. Click **Select** to update the record.

### To choose a part if you know some or all of its name or number:

Type the part name or number, or a portion of either, in the **Part Number** field and then click the **Find** icon, .

- If only one match is found, the part number and name will be updated automatically.
- If multiple matches are found, you will be provided with a list of parts to choose from. In this case, choose the appropriate part and click **Select** to update the record.

## Serialized Page

The Serialized page allows you to view serialized system configurations. You can open the Serialized page in several ways:

- Click the **System Configuration** link in the summary area at the top of the [Incident page](#) for a serialized incident.
- Click the **System Configuration** link in the summary area at the top of the [CSI page](#).
- Choose **Options > Report > Serialized Search** when working with the [Report Builder](#) then choose the system that you want to view.



## System Configuration

The configuration for the selected system appears in the left panel. The part number, part description, version and serial number for each part in the configuration are displayed.

Serialized

Manufacturing

Find part on system...

Top Level Assembly: TLA SN:1

Sub Assembly 1: SA1 SN:1

Sub Assembly 1 Component 1: SA1C1 SN:1

Sub Assembly 1 Component 2: SA1C2 SN:1

Sub Assembly 2: SA2 SN:1

Sub Assembly 2 Component 1: SA2C1 SN:1

Sub Assembly 2 Component 2: SA2C2 SN:1

Information

Serial Number1

Build Date04/25/2017 01:41 PM

Retired Date

Lot Code

Manufacturing Code

Starting Age (Run Hours)0

Starting Age (Number of Starts)

Starting Age (kW Run Hours)

Serial HID7

Part NumberTLA

Part NameTop Level Assembly

Part Version


HID38

Part ID36

Level1

System Parts7

2 Children

- To hide or display the parts below a part in the hierarchy, click plus (+) or minus (-).
- To locate a specific part, click the **Find part on system** link at the top of the hierarchy to search by part number, part description or serial number.
  - If a part in the system configuration has been replaced, it will appear at the bottom of the hierarchy, with the retired date next to it.
  - Retired parts are indicated by .
- To view another serialized system, choose **Home > Serialized > Serialized Search**. In the Find System utility that appears, you can search by the system serial number or subsystem serial number.

Part Details

When you select a part, its details appear in the **Information** panel on the right side of the page.

New in Version 2021, these details now include accumulated hours and other key information for parts that have been repaired or replaced. This is especially helpful for tracking these parts across systems when reusing them. The following information appears for each repair/replace occurrence:

- The part disposition
- Up to three time metrics — e.g., run hours, number of starts, kW run hours, etc. — depending on the configurable settings for the entity
- A link to the incident where the part was repaired or replaced

**^ Information**

<b>Serial Number</b>	3
<b>Build Date</b>	04/25/2017 01:43 PM
<b>Retired Date</b>	04/25/2017 02:34 PM
<b>Lot Code</b>	
<b>Manufacturing Code</b>	
<b>Starting Age (Run Hours)</b>	
<b>Starting Age (Number of Starts)</b>	
<b>Starting Age (kW Run Hours)</b>	
<b>Serial HID</b>	21
<b>Part Disposition</b>	Send to Engineering (AD-I-1 / 500.00 / 3.00 / 500.00)

---

<b>Part Number</b>	SA1C1
<b>Part Name</b>	Sub Assembly 1 Component 1
<b>Part Version</b>	
<b>HID</b>	41
<b>Part ID</b>	39
<b>Level</b>	3
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---

0 Children

# Incidents

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---

Use the Incident page to record and view information for a single occurrence of an issue (e.g., failure, planned downing event, customer request, etc.).

If you have permissions to create a new incident, choose **Home > Create > Incident**.



If the incident wizard is enabled for the current entity, the page will either display all fields in a single form or a wizard that prompts you to enter data one step at a time. To toggle the display, choose **Use Incident Wizard**, , or **Use Single Form**, .

After you have entered all required fields (highlighted with red boxes), choose **Home > Incident > Create** to save the new record.



---

**Note:** New in Version 2021, you can subscribe to receive e-mail notifications whenever an incident, problem, project or CSI record is updated. See [Getting Notified when Records Are Updated](#) for more information.

---

## Entity

If your implementation has more than one entity, the fields and options may be configured differently in each. When applicable, a drop-down list at the top of the page allows you to select which entity is currently active before you create a new record.

## Incident Type

Depending on the settings for the current entity, you may choose from up to three incident types.

---

- **Serialized Incident** - an incident for a specific serialized system.
- **Part Incident** - an incident that is tied only to a part number, not a specific serialized system.
- **Simple Incident** - an incident that is not tied to any particular serialized system or part number.

## Areas and Fields

The fields in the page depend on the incident type and the configurable settings for the entity. The following topics discuss some types of fields that may be used in each area of the page.

- **Incident Summary area** - a summary of key details for an existing incident.
- **System/Component Information area** - in a serialized incident or part incident, information about the system or part that the incident applies to. (The area will also appear if there are custom details within this section.)
- **Incident Disposition area** - information about the incident that occurred or the issue that may need to be addressed.
- **Incident Repair Information area** - information about what was done to resolve the issue, including details for any parts that were repaired, replaced, removed and/or found to be failed.

If an application admin has configured additional fields to meet your organization's specific needs, they may be integrated into the areas mentioned above or grouped together in a separate **Incident Details** area at the bottom of the page.

## Serial Number and/or Part Number


In a serialized incident or part incident, there are multiple ways to specify the system or part that the incident pertains to. (See [Part and Serial Number Selection Utilities](#).)


If the incident is not related to a specific system or part, you can leave the fields blank. Alternatively, you can hide the "System/Component Information" area by selecting "Simple Incident" for the incident type.

If you choose to specify this info, it cannot be changed after the incident is saved.

## Responsible Part(s)

The **Responsible Part** field identifies the part(s) that caused the incident to occur. This field uses the system template(s) defined for the current entity.

If the settings for the current entity allow you to select multiple parts, click the **Edit** icon, , to view the tree. If the entity is configured to require a single responsible part, you will just see a drop-down list of parts that have an owner.

Click the **History** icon, , to view a list of any changes to the responsible part that have been saved for the incident. (This field is required and cannot be disabled or hidden.)

## Incident Owner and Creator

Users who have the required permission can set or modify the incident owner and creator fields using the drop-down list.

If you create a new incident without selecting the owner or creator, these fields will be set automatically when you save the record:

- **Owner** will be set to the owner of the first responsible part that has a part owner.
- **Creator** will be set to the user who created the incident.

Depending on the configurable settings for the entity, the incident owner may receive e-mail notifications when the incident is created, when actions are created for the incident, etc.

## Team Members

If enabled for the current entity, the **Team Members** field identifies the users who will be working on the issue, and their roles on the team. This field is not displayed until the record is created. (See [Assign Team Members Utility](#).)


Team Members:				+
<b>User</b>	<b>Team Role</b>	<b>User</b>	<b>Team Role</b>	
ENGINEER, JILL TECHNICIAN, BILL	Team Member Team Member	MANAGER, JIM	Team Leader	



You can click the link for any team member's name to send an e-mail regarding the record. (See [Send E-Mail Utility](#).) Depending on the configurable settings for the entity, team members may also receive e-mails when a status update is added or modified. (See ["Status Updates."](#))





**Tip:** If the **Audience Restriction** field is enabled for the entity and you select "Attorney/Client Privilege," the record will be visible only to the owner and team members. You will also be prompted to select a user for the "Legal" role on the team.

## Actions

An **Actions** field contains a list of specific assignments that need to be tracked and completed. If enabled for the entity, this type of field is not displayed until the record is created.



Click **Create New Action**, , to add a new assignment for the current incident. (See [Actions](#).)

The table displays the actions that have already been assigned. Click the action number link to open the action window, or click the expand icon, , to show more of the details in the table. Click  to view the list of actions in a report grid that you can filter, sort, export to Excel, etc.

Actions: 	Action Number	Short Description	Due Date	Owner	
	<a href="#">196</a>	First action that needs to be perfo...	<a href="#">10/04/2020</a>	MANAGER, JIM	
	<a href="#">197</a>	Second action that needs to be perf...	<a href="#">10/04/2020</a>	TECHNICIAN, BOB	




## Status Updates

If enabled for the current entity, a **Status** field allows users to add notes about the progress made for the incident, and also send e-mail notifications if applicable. This type of field is not displayed until the record is created. (See [Status Fields](#).)

Status of Troubleshooting:	Status Date	Written by	Description	
	09/2020/29 09:00 AM	TECHNICIAN, BILL	Replaced PN12345; system is back up and running.	
	09/2020/25 09:58 AM	ENGINEER, JILL	Need to replace PN12345. Waiting for part.	
	09/2020/21 08:51 AM	TECHNICIAN, BILL	Added a temporary fix to stop the leak. Waiting for diagnostic to identify faulty parts.	

## Associated Files or Links

If enabled for the current entity, an **Associated Files** field allows users to upload file attachments, links to files in another location (e.g., a document management website) or link to another record in XFRACAS. This type of field is not displayed until the record is created. (See [Attachments](#).)

Associated Files:	Att. Type	Date	File	Description	
	Uploaded File	09/2020/25 09:57 AM	<a href="#">Part Information</a>	Information about the part	
	URL	09/2020/25 09:58 AM	<a href="#">ACME Corporation</a>	Distributor website	
	Problem(Master)	09/2020/25 10:13 AM	<a href="#">Associated Problem</a>	Associated Problem	

## Repairing or Replacing Parts

The **Repair or Replace Parts** feature allows you to list all the parts that were repaired, replaced, removed or found to be failed due to the incident (if any). If you are extracting data to Weibull++, this is used to obtain failure and suspension times based on part number. (See [Repair or Replace Parts Utility](#).)

Add a part to the list

View or edit the full configuration

Repair or Replace Parts, Add / Modify Parts

View existing FA report

Original Part SN	Original Part Name	Orig Part #	Rev	Failure Analysis Report	Replacement Part SN	Rpl Part #	Rev
	Failure Type	Part Disposition	Run Hrs				
	Return Type	RMA Number - Rcvd	SO Number		Starting Age		
SN-HBSs	Hand Brake Subsystem		N/A		N/A	BR1	N/A
	Primary Failure	Scrap	9,000.00	FAR2			
	Component Failure	RMA-12345 - N/A	SO7776		N/A		
N/A	Hand Brake Subsystem	BR1	N/A		N/A	BR1	N/A
	Primary Suspension	Send to Engineering	0.00	New			
	N/A	N/A - N/A	N/A		N/A		


Delete this part

Modify selected details


Create new FA report

## Assigning an Incident to a Problem

The **Assigned to Problem #** field in the incident summary links to any [problems](#) that the incident is associated with.

 **Assigned to Problem#**  
REL-48 REL-49 REL-50 REL-62 REL-64


## New Problems

Click **Create New Problem**, , to create a new problem record and automatically assign the incident at the same time.

Depending on the configurable settings for the entity, certain fields from the incident may be used to automatically populate fields in the new problem. These fields include:

- The responsible part, which may be transferred to the problem's **Part Category Code** field. Note that this field can only contain a single part; therefore, if the incident has multiple responsible parts, only the first one will be transferred.
- The incident's title, which may be transferred to the problem's **Title** field.

## Existing Problems

Click **Assign/Remove Problem**, , to assign the incident to an existing problem or change the problem(s) that the incident is currently assigned to.

---

**Note:** New in Version 2021, you can now assign large groups of incidents to a new or existing problem via an incident report or chart. See [Associating Multiple Incidents to Problems from Reports and Charts](#) to learn more about this feature.

---

## Adding or Editing a Failure Analysis Report (if Applicable)

You can use the Initial Failure Analysis field in the incident to record a summary of the analysis that was performed in the field to determine which parts to repair or replace. In addition, if you want to create a more detailed failure analysis report for a particular part after it is returned, click the **New** link in the table in the Incident page. If a report already exists for a part, the link will display the record ID instead.

## Closing an Incident

Depending on the settings for the current entity, the incident's **State** field may contain one or multiple options to indicate that an incident is closed (e.g., "Closed," "Closed - Insufficient Data," etc.).

- Only users who have certain permissions can close an incident.
- You may not be able to close an incident until all associated actions are completed and/or all associated failure analysis reports are closed.
- The incident may be "read-only" after it is closed. When that preference is enabled, only users with specific permissions will be able to re-open a closed incident.

---

**Tip:** If the incident pertains to a serialized system that you are also tracking via the [Customer Support page](#), we recommend to update the **System Status** (e.g., "Running," "Down - Waiting on Part," etc.) before you close the incident. The system status displayed in the CSI page will be based on all incidents reported for that serialized system.

---

## Incident Summary Area

The **Incident Summary** area of the [Incident page](#) provides a quick at-a-glance summary of key details for an existing incident. This area is not displayed until the record is created.

- **Assign to Problem #** - links to the problem(s), if any, that the incident is assigned to. (See "[Assigning an Incident to a Problem](#).")
- **State** - the current state of the incident (e.g., "Open," "Closed," etc.).
- **Occurrence Date** and **Reporting Date** - the date when the incident occurred and the date when the record was created.
- **Owner** - the user who has primary responsibility for the incident.
- **Creator, Reporting Org** - the user who created the incident and the organization specified in that person's user account (e.g., "Engineering," "Product Safety," etc.).
- **Category** - the category assigned to the incident.
- **Responsible Part** - the generic template part(s) that the incident pertains to.
- **Last Updated By** and **Last Updated** - the user who saved the last change for the incident, and the date/time (if the preference is enabled for the current entity).

If the incident was reported for a specific serialized system:

- **System Configuration** - links to the full record of assemblies and parts that may be tracked for the system. (See [Serialized page](#).)


- **System Status** - the current operational status of the system (e.g., "Running," "Down - Waiting on Part," etc.)
- **Time Metrics** - (e.g., "Run Hrs / Starts / kW Hours") - up to three time/usage metrics that were reported for the system at the time of the incident. Click the link to view a history of all saved time/usage reports for that system.
- **Customer Support #** - links to the [customer support information \(CSI\)](#) for the system, if applicable.
- **Unit Location** - the location of the system at the time of the incident.
- **Distributor and ASP** - the distributor and authorized service provider that are currently assigned in the CSI record for the system, if applicable. Click the links to view the contact details.
- **ASP Field Service Tech** - the technician assigned to the incident. Click the link to view the contact details.
- **Response Time** - the number of hours between the Occurrence Date and the Service Response Date. This is only displayed if the Service Response Date is enabled for the entity.
- **Downtime** - the number of hours between the Occurrence Date and the Completed Date.

## System/Component Information Area

The **System/Component Information** area of the [Incident page](#) is displayed only if the incident type is "Serialized Incident" or "Part Incident" or if there are details within this section.

**Serial Number, Part Number and Version** - the specific serialized system or part that the incident pertains to. (See [Part and Serial Number Selection Utilities](#).)


If you choose to specify this info, it cannot be changed after the incident is saved.

- **System Status** - the current operational status of the system (e.g., "Running," "Down - Waiting on Parts," etc.). This may change over time as you take steps to address the incident. Click the **History** icon, , to view a list of all system statuses saved for the incident. This field is always shown for serialized incidents. An application admin can choose whether to show it for part incidents.
- **Time Metrics** - (e.g., "System Hours," "Number of Starts" and "kW Run Hours"). You can report up to three time/usage metrics for the system at the time of the incident. Depending on the settings for the current entity, these may be populated or calculated automatically based on other available information.

- **Unit Location** - the location of the system at the time of the incident.
  - If this field is enabled for the current entity and you have permission, you can select from a list of locations predefined by an application admin.
  - If you don't specify a location and a customer support information (CSI) record is available for the system, the same location for the CSI will be assigned to the incident upon save. In addition, the Incident Occurrence Date must be after the commission date on the CSI and before the decommission date.
- **Under Warranty** - if a CSI record is available for the system, this field specifies whether the system was under warranty at the time of the incident. If you have permission to override the automatic warranty determination, this will be a radio button that you can change if appropriate.
- **System Down Event** - whether the incident caused system downtime. If a CSI record is available for the system, this will be used to calculate the estimated hours (i.e., total possible usage minus the downtime).

## Incident Disposition Area

The **Incident Disposition** area of the Incident page contains information about the incident that occurred or the issue that may need to be addressed.


- **Title and Description** - a description of the incident is always required. If enabled for the current entity, you can also specify a short title.
- **Occurrence Date** - the date/time when the incident occurred. (This field is required and cannot be disabled or hidden.)
- **State** - the current state of the incident (e.g., "Open," "Under Review," "Closed," etc.). This may change over time as you proceed to review and address the incident. Click the **History** icon, , to view a list of all states that have been saved for the incident. (This field is required and cannot be disabled or hidden.)

Depending on the configurable settings for the entity, there may be special conditions for the state(s) that indicate the incident is closed. (See "Closing an Incident.")

- **Report Type** - how the incident was observed or reported (e.g., "Internal Testing," "Planned Field Event," etc.). (This field is required and cannot be disabled or hidden.)
- **Incident Category** - for the purpose of reliability data analysis, some categories may be "chargeable" (e.g., "Component Failure," "Production Error," etc.) and others may be "non-

chargeable" (e.g., "Customer Information Request"). (See [Repair or Replace Parts Utility](#).) (This field is required and cannot be disabled or hidden.)

- **Responsible Part** - generic template part(s) that the incident pertains to. (See "[Responsible Part\(s\)](#).") This field is required and cannot be disabled or hidden.



Click the **History** icon, , to view a list of any changes to the responsible part that have been saved for the incident.

- **Owner and Creator** - if you do not specify the owner and creator, they will be set automatically upon save. (See "[Incident Owner and Creator](#).")
- **Team Members** - the users who will be working on the incident, and their roles on the team. (See "[Team Members](#).")
- **Actions** - the specific assignments that need to be tracked and completed in order to address the incident. (See "[Actions](#).")
- **Failure Mode** - if enabled for the current entity, the failure mode and root cause responsible for the incident.
- **Potential Criticality** and **Actual Criticality** - if enabled for the current entity, criticality metrics are calculated based on the selections in the drop-down lists (e.g., schedule, cost, etc.) and the formulas specified by a system administrator. (See [Configuring Criticality Metrics](#) in the admin documentation.)

## Incident Repair Information Area

The **Incident Repair Information** area of the [Incident page](#) contains information about what was done to resolve the issue, including details for any parts that were repaired, replaced, removed and/or found to be failed.

- **Service Response Date** - the date/time when someone first responded to the incident.
- **ASP Field Service Tech** - the technician who performed the repairs. If this field is enabled for the entity, you can select from a list of contacts predefined by an application admin.
- **Status of Troubleshooting** - notes about the progress made to address the incident. (See [Status Fields](#).)
- **Resolution** - describes how the incident was addressed.
- **Completed Date** - the date/time when the incident was resolved.

- **Repair Duration** - the time (in hours) to complete the repair. If you are extracting data to Weibull++, this field will be extracted to the StateTimeRestore column and can be used to fit a distribution for the time-to-repair.
- **Repair or Replace Parts** - identifies the parts that were repaired, replaced, removed or found to be failed due to the incident (if any). If you are extracting data to Weibull++, this is used to obtain failure and suspension times based on part number.
  - Click **Repair or Replace Parts** to add a part to the list. (See [Repair or Replace Parts Utility](#).)
  - For serialized incidents, and only if you have permission to edit serialized part information, click **Add/Modify Parts** to view or modify the full serialized configuration for the system. *Please consult the admin help for more information.*
  - Click the links in the table to edit the return type, part disposition, sales order number (SO number), etc.
  - If you want to add a detailed [failure analysis report](#) for the part, click the **New** link in the **Failure Analysis Report** column. If a report already exists, click the record ID to view or edit it.
  - If you have permission to delete a repair/replace part row, click **Delete**, , to remove the row.
  - For simple and part incidents— and only if you have permission to duplicate a repair/replace part row — click **Duplicate**, , to create a new row in the table that is identical to the existing one.

---

**Note:** New in Version 2021, you can now edit time/usage data (e.g., “Run Hours,” “Number of Starts” or “kw Run Hours”) by clicking the links within the Repair or Replace Parts table. This feature allows you to update both calculated or manually entered values; you can also delete a previously entered manual value so that XFRACAS will calculate time/usage for the part based on the values for the system.

---

[Add a part to the list](#)  
[Repair or Replace Parts, Add / Modify Parts](#)

[View or edit the full configuration](#)

[View existing FA report](#)

Original Part SN	Original Part Name	Orig Part #	Rev	Failure Analysis Report	Replacement Part SN	Rpl Part #	Rev
	Failure Type	Part Disposition	Run Hrs		Starting Age		
	Return Type	RMA Number - Rcvd	SO Number				
	Hand Brake Subsystem		N/A				
SN-HBSs	Primary Failure	Scrap	9,000.00	<a href="#">FAR2</a>	N/A	BR1	N/A
	Component Failure	RMA-12345 - N/A	SO7776		N/A		
N/A	Hand Brake Subsystem	BR1	N/A		N/A		
	Primary Suspension	Send to Engineering	0.00	<a href="#">New</a>		BR1	N/A
	N/A	N/A - N/A	N/A		N/A		

[Delete this part](#)
[Modify selected details](#)
[Create new FA report](#)

- **Incident Failure Analysis** - describes any failure analysis that was performed.
- **Associated Files** - if enabled for the current entity, any links or file attachments associated with the incident. (See "[Associated Files or Links](#).")

## Associating Multiple Incidents to Problems from Reports and Charts


New in Version 2021, XFRACAS now allows you to assign large groups of incidents to new or existing problem(s).

**Note:** The instructions for doing this in individual records are covered in "[Assigning an Incident to a Problem](#)" and "[Associated Incidents and Projects](#)."

- To use these features, you'll need the **Incident/Problem - Allow Incident/Problem Association** user permission.
- In addition, to create a new problem using incidents in a report, you'll also need the **Problem - Create Problems** user permission.

## Incident Reports

To create a new problem from an incident report:

1. Generate a standard incident report (or a report that is based on a standard incident report) that contains the incidents you wish to assign to a problem. (See [Reports](#) and [Report Builder](#).)
2. Click the **Create Problem** icon, , in the ribbon area of the report. This opens a new Problem page.
3. Complete the first section (first step) of the problem and click **Create**.


All of the incidents in the report will now be associated to this new problem.

---

**Note:** Applying filters in the report view will not affect the number of incidents that are assigned to the problem.

---

To associate incidents to one or more existing problems from an incident report:

1. Generate a report that contains the incidents you wish to associate to one or more problems.
2. Click the **Assign/Remove Problems** icon, . This opens the **Assign Problems to Incidents** dialog, which lists all of the problems that the incidents can be assigned to.
3. Select any or all of the problems and click **Save**.

All of the incidents from the report will now be associated to the selected problems.

## Incident Charts

You can also use charts as a source for creating new problems or associating groups of incidents to one or more existing problems.

1. In an incident chart, drill down by clicking on a bar, data point or pie slice.
2. In the **Custom Chart Drill Down** dialog, select the **Data Table** option to display a report that contains the records used in the bar, data point or pie slice.
3. Follow the steps for creating a new problem or associating incidents to existing problem(s).

# Repair or Replace Parts Utility

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## Using the Repair or Replace Parts Utility

The Repair or Replace Parts utility allows you to record information about a part that was repaired, replaced, removed or found to be failed due to the incident. The information that it captures can be used for reliability analysis in Weibull++.

The utility can be used for both serialized and non-serialized systems. For serialized incidents, it implements and tracks changes to the system configuration. For part and simple incidents, its applications are limited since it cannot capture information about a non-serialized part's history.

However, it is useful in manufacturing environments, before serial numbers have been assigned, as well as in cases where tracking individual parts is impractical due to the large number of units in the field. In these cases, the utility allows you to record run times for parts that failed during testing and/or investigate failure modes for a particular lot.

---

## Selecting a Part and Viewing Its Details

To open the Repair or Replace Parts utility, click the **Repair or Replace Parts** link that appears in the Incident Repair Information Area after you create an incident.

---

**Note:** This link will only be available if enabled for the entity.

---

Next, find and select the part you want to repair, replace, remove or mark as failed. The information displayed in the utility's left panel depends on the type of incident.

### Serialized incidents

The Repair or Replace Parts utility shows the current system configuration — all parts that reside on the system, along with parts that have been removed. Removal dates are enclosed in brackets (e.g., [04/11/2017]).

New in Version 2021, the utility now shows accumulated hours and other details that allow you to track repaired/replaced parts across systems. The following information appears for each repair/replace occurrence of the selected part:

- The part disposition
- Up to three time metrics — e.g., run hours, number of starts, kW run hours, etc. — depending on the configurable settings for the entity
- A link to the incident where the part was repaired or replaced

### Part Incidents

For part incidents, the display depends on what has been specified in the incident's **Part Number** field (System/Component Information Area):

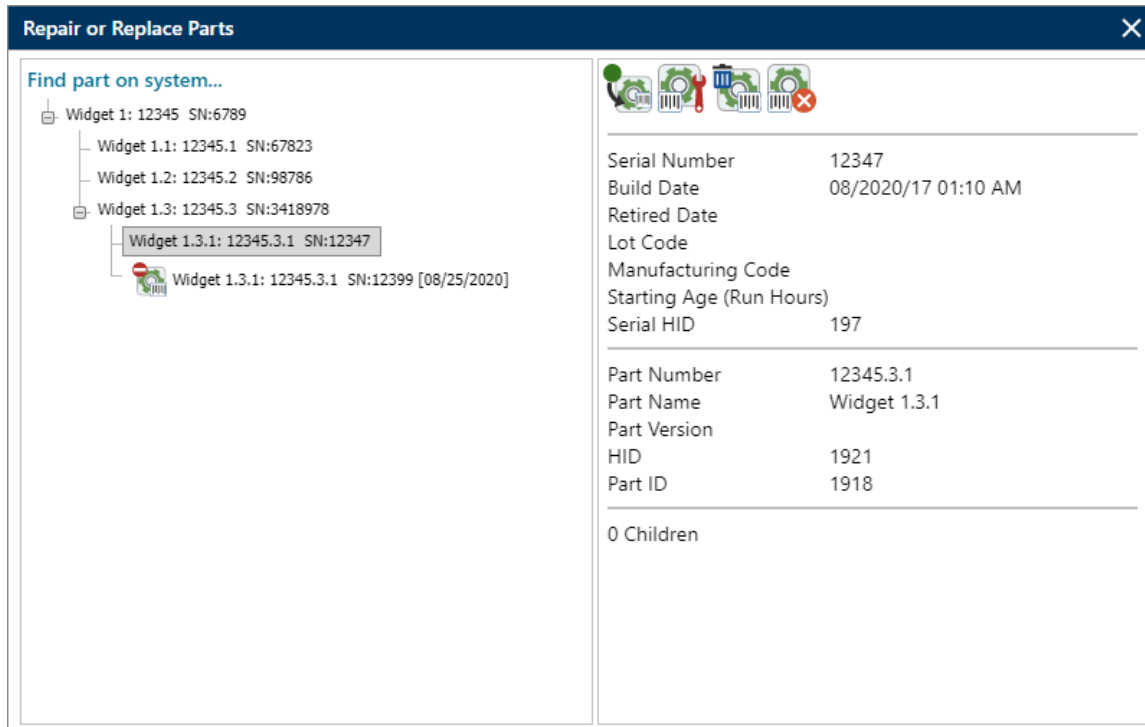
- If the **Part Number** is for a system template (i.e., a top-level part), the left panel shows this template. In this case, you can only repair / replace parts from that template.
- If it is for a lower-level part, the left panel is blank. In this case, you must click the **Find Template** icon to select a template that contains the part.

## Simple Incidents

For simple incidents, you must click the **Find Template** icon to select the template that contains the part. Once you select a part, the right panel shows details for that part.

### EXAMPLE

In the image below, Part A (SN:555555) was replaced on April 11th with a new part of the same type (SN:888888). The right panel shows the details for the selected part, Part C (SN:777777).



## Replacing a Part

The Replace Part Utility allows you to replace one part with another.



### Open the Replace Part Utility

1. Click the **Repair or Replace Parts** link.
2. In the Repair or Replace Parts utility, select the part you wish to replace.
3. Click the **Replace Part** icon to open the Replace Part Utility, where you'll enter details for both the "old" part (the one you are replacing) and the "new" (replacement) part.

## Assign a Failure Type and Disposition

The part's **failure type**, together with the incident category, determines how data will be extracted for use in reliability analyses. Like an incident category, a failure type may be “chargeable” (e.g., a Primary Failure) or “non-chargeable” (e.g., a Primary Suspension or Collateral Failure). The combination of the incident category and failure type determines whether the incident is treated as a failure (F) or suspension (S) for that specific part number.

- If both the incident category and failure type are chargeable, it is considered a failure.
- If either or both incident category and failure type are non-chargeable, it is considered a suspension

An application admin determines which failure types are available for your XFRACAS implementation and whether these types are chargeable or non-chargeable. The following options are some examples of how your organization may define failure types:

- **Primary Failure** - applies when the part fails and must be repaired, replaced or removed.
- **Primary Suspension** - applies if you removed the part before it failed (for an upgrade, maintenance, use in a different system, etc.)
- **Collateral Failure** - indicates that the part failed as a direct result of the primary failure — e.g., a hose breaks (primary failure) and leaks fluid on a circuit board (collateral failure).
- **Collateral Suspension** - indicates that the part was removed due to the removal or repair of a part that did not fail — e.g., in the course of upgrading a circuit board (primary suspension), you strip a screw (collateral suspension).

**Disposition** indicates what you did with the part that was removed from the system (e.g., “Send to Engineering,” “Scrap,” “Return to Supplier,” etc.).

## Specify a Replacement Part

You can specify a brand new replacement part or, if you are working in a serialized system, a used part that already exists in the entity.

### New Parts

If you specify a new replacement part that is not in the current template (i.e., you’re providing a new part number), it will be added to the template; otherwise, the current template remains unaffected. In either case, if you are replacing a serialized part, it will be inserted into the current serialized system.

### Used Parts (Serialized Systems Only)

You can also specify a used part — one that was previously removed from another serialized system — as the replacement. This inserts the used part into the current system. When you extract data to Weibull++ for reliability analysis, the part's time/usage history will be calculated based on its prior accumulated (starting) age, plus any additional run time before the next failure. (See "[If Applicable, Record Time/Usage](#).")

In addition, you have the option of replacing a part (e.g., a part on "System A") with one that you are simultaneously removing from another serialized system (e.g., "System B") by specifying its name, part number and serial number. However, this will not record time/usage for the replacement part on System B at the time of its removal. Instead, we recommend removing the part with the Remove Part Utility before using it as a replacement in another system. This two-step process will ensure that the part's entire time/usage history can be captured from System B for reliability analyses.

---

**Note:** To use a replacement part that's not already on the current template, you'll need the "Incident - Allow Serialized System Modifications" user permission.

---

### Indicate Whether to Include Child Parts (Serialized Systems Only)

On a serialized system, if you are replacing an assembly that contains child parts, you may be able to save time by using the **Copy all children of replaced part** option.

---

**Note:** This option applies to new replacement parts only (see "[Specify a Replacement Part](#)"). If you are replacing a part with an existing (used) part, its children will be included (with their serial numbers, if applicable) regardless of whether you enable this option.

---

- Enable **Copy all children of replaced part** when you want the new assembly to match the configuration of the old one, with the same part number and children. You can only enter a serial number for the entire assembly; to enter serial numbers for child parts, use the **Add/Modify Parts** link (this requires the "Incident - Edit Serialized Part Information" user permission).
- *Do not* enable this option if the replacement part has different children; instead, use **Add/Modify Parts** to manually add them. (This may apply if the template contains more than one instance of the same part — e.g., three power supplies with different designs or options.)

## If Applicable, Record Time/Usage

If the time/usage data (e.g., “Run Hours,” “Number of Starts” or “kw Run Hours”) for the part you are replacing differs from the time/usage data for the system, you can enter it here; otherwise, this will be set automatically based on the part’s starting age on the system and the time/usage metric(s) specified in the System/Component Information area of the Incident page.

If the replacement part is used (and therefore has already accumulated age), you can enter its **Starting Age** (“Run Hours,” “Number of Starts” or “kw Run Hours”).

If you extract data for a used part to Weibull++ for reliability analysis, its time/usage will be calculated as follows:

$$100 \text{ hours (starting age)} + 200 \text{ hours (additional run time on system before the next failure)} = 300 \text{ hours}$$

## Repairing, Removing or Marking a Part as Failed

### Repairing a Part

Use **Repair Part** to indicate that the part was restored and remains in the system.



The Repair Part Utility only requires you to specify a failure type, but you can also record time/usage data (“Run Hours”). (See “If Applicable, Record Time/Usage.”)

XFRACAS assumes that parts are repaired to “good as new” condition (0 run time hours).

### Removing a Part

Use **Remove Part** to indicate that a part, either failed or functional, was removed from the system.



This utility is useful for non-repairable systems and cases where repairing or replacing the part is not required or not feasible. If the part is serialized, it can be removed for use in another system. (See Repair or Replace Parts Utility.)

In addition to the failure type (required), you also have the option of entering time/usage data if it differs from that of the system. (See “If Applicable, Record Time/Usage.”)

**Note:** To remove a part because a configuration was entered incorrectly, use the **System > Serialized** page — not this utility.

---

## Marking a Part as Failed

For serialized incidents, you can use **Mark Part as Failed** to indicate that the part was found to be failed but you don't yet know how to record it.



Marking a part as failed prohibits others from using it in another incident until it is repaired, replaced or removed. If another user attempts to do so, a warning appears indicating that the system configuration must first be updated. When information becomes available, you can remove this restriction as follows:

1. Click the **Repair or Replace Parts** link.
2. Find the part in the system configuration (left pane) and select it. In the right pane, “Part Failed - Waiting for Replacement” will appear in red.
3. Click the appropriate icon to replace, repair or remove the part and update the system configuration.



# Failure Analysis Reports

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Use the Failure Analysis page to record the findings from a detailed failure analysis on a part that has been repaired or replaced during an incident.

To create a new failure analysis report, click the **New** link in the Replaced/Repaired Part(s) table in the **Incident Repair Information** area of the Incident page.

After you have entered the required fields (highlighted with red boxes), choose **Home > Failure Analysis > Create** to create the new record.



The fields that appear on this page may differ from those described below (see Fields and Lists), which are used in typical XFRACAS implementations.

## Failure Type

The **Failure Type** drop-down list contains the same options that were available in the incident's Repair or Replace Parts window. Together with the incident category, this field determines whether the failure will be treated as "chargeable" or "non-chargeable" in reliability analysis.

If you change the failure type in the failure analysis page for a repaired/replaced part, it will also be updated in the incident. (See "[Assign a Failure Type and Disposition](#).")

## Associated Problem

A failure analysis report is always linked to the incident in which the part was repaired or replaced. In addition, that incident may be associated to one or multiple problems, and each of those problems can be associated to a project.

Failure analysis reports are not automatically associated to all the problems that the linked incident is associated to. Use the **Associated Problem** field if you wish to create an association to one of those problems. If a failure analysis report is directly associated to a problem, it can be tracked in the project(s) that the problem is associated to.

## Status Updates


A **Status** field allows users to add notes about the progress made, and also send e-mail notifications if applicable. If enabled for the entity, this field is not displayed until the record is created. (See [Status Fields](#).)

## Associated Files or Links

An **Associated Files** field allows users to upload file attachments, link to files in another location (e.g., a document management website) or link to another record in XFRACAS. If enabled for the entity, this type of field is not displayed until the record is created. (See [Attachments](#).)

## Actions

An **Actions** field contains a list of specific assignments that need to be tracked and completed. If enabled for the entity, this type of field is not displayed until the record is created.

Click **Create New Action**, , to add a new assignment. (See [Actions](#).)

## Technician Name

The **Technician Name** fields allow you to specify the user(s) who performed various tasks in the failure analysis. These drop-down lists show users who have the "FA Engineer" category for the current entity.

## Test Duration

In the ATP/Burn-in Area, the **Test Duration** fields allow you to specify the length of the test in hours or portions of an hour (e.g., 1 indicates 1 hour and .25 indicates 15 minutes).

## Closing a Failure Analysis Report

A failure analysis report is considered closed when the **FA Status** field has been set to "Closed." This may be a requirement before closing the associated incident.

- Any user who can edit the failure analysis can also close it.
- The record remains editable after it is closed.



# Problems

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---

Use the Problem page (called "PRR" in previous versions) to record and view information for an issue that requires a team-based approach to understand the root cause and take actions to prevent similar issues from occurring again in the future.

If you have permissions to create a new problem, choose **Home > Create > Problem**.



After you have entered the required fields (highlighted with red boxes), choose **Home > Problem > Create** to save the new record.



---

**Note:** New in Version 2021, you can subscribe to receive e-mail notifications whenever an incident, problem, project or CSI record is updated. See [Getting Notified when Records Are Updated](#) for more information.

---

## Entity

If your implementation has more than one entity, the fields and options may be configured differently in each. A drop-down list at the top of the page allows you to select which entity is currently active before you create a new record.

## 4 to 8 Steps

XFRACAS can be configured to support any problem resolution methodology from 4 to 8 steps (e.g., 8D, Six Sigma DMAIC, etc.). The areas and fields depend on the configurable settings for the entity. Some or all of the following steps may be enabled for your implementation.

- Establish the Team (required)
- Describe the Problem (required)
- Implement and Verify Containment Actions
- Identify and Verify Root Cause
- Choose and Verify Permanent Corrective Actions (required)
- Implement Permanent Corrective Actions
- Prevent Recurrence (required)
- Congratulate the Team

## Completing Each Problem Step

The bar(s) for completed steps are green. The bar for the current step is red.

To complete a given step, the **Completed By** and the **Completed Date** fields must be filled out, and the record must be saved.

Depending on the configurable settings, you may also be required to complete all actions associated with the step (Closure Restriction Level 3).

In addition, any of the steps 2 through 8 may allow or require review and sign-off by a Failure Review Board (FRB). (See [Failure Review Boards](#).)

## Owner and Creator

### Owner

If you have the required permission, you can use the **Owner** drop-down list to set or change a problem's owner. The contents of this list depend on the settings for users in the entity:

- For new problems, the list will only contain you (the problem creator) plus any users who have been designated as a "Problem Owner" by an application admin.
- If you are not a designated "Problem Owner," your name will appear in brackets.
- If you don't have permission to set or change the owner, XFRACAS will automatically assign you as the owner for any problems that you create.
- For existing problems, the owner's name will appear in brackets if they no longer have the "Problem Owner" designation. In this case, if another user is ever assigned as owner, the original owner's name will be removed from the list.

Depending on the configurable settings for the entity, the owner may receive e-mail notifications when actions are created for the record.

### Creator

By default, XFRACAS automatically assigns you (the logged-in user) as creator. If you have the required permission, you can select a different creator from the **Creator** drop-down list.

## Team Members

A **Team Members** field identifies the users who will be working on the issue, and their roles on the team. If enabled for the entity, this field is not displayed until the record is created. (See [Assign Team Members Utility](#).)

Team Members:	<u>User</u>	<u>Team Role</u>	<u>User</u>	<u>Team Role</u>	+
	ENGINEER, JILL	Team Member	MANAGER, JIM	Team Leader	
	TECHNICIAN, BILL	Team Member			

You can click the link for any team member's name to send an e-mail regarding the record. Depending on the configurable settings, team members may also receive e-mails when a status update is added or modified.

---

**Tip:** If the **Audience Restriction** field is enabled for the entity and you select "Attorney/Client Privilege," the record will be visible only to the owner and team members. You will also be prompted to select a user for the "Legal" role on the team.

---

## Associated Incidents and Projects

Sometimes multiple incident reports can be attributed to the same underlying problem. If enabled for the current entity, **Associated Incident Reports** shows a list of chargeable and non-chargeable incidents that are associated with the problem.

To update this list, click **Assign/Remove Incidents**. In the Assign Incidents to Problem window, click **Filter** to display a list of incidents that match the specified criteria. There is a check box in the row for each incident. If the check box is selected when you click **Save**, the incident will be associated with the problem.

---

**Tip:** You can also assign groups of incidents to a problem directly from reports and charts. See [Associating Multiple Incidents to Problems from Reports and Charts](#).

---

## Actions

An **Actions** field contains a list of specific assignments that need to be tracked and completed. Depending on the configurable settings, there may be separate actions tables in different areas of the page. This type of field is not displayed until the record is created.

Click **Create New Action**, , to create a new assignment. (See [Actions](#).)

## Status Updates

A **Status** field allows users to add notes about the progress, and also send e-mail notifications if applicable. Depending on the configurable settings, there may be zero, one or multiple status fields in different areas. This type of field is not displayed until the record is created. (See [Status Fields](#).)

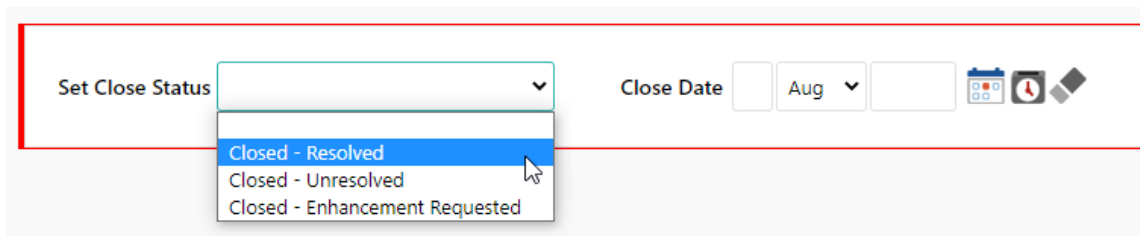
## Associated Files or Links

An **Associated Files** field allows users to upload file attachments, link to files in another location (e.g., a document management website) or link to another record in XFRACAS. Depending on the configurable settings, there may be zero, one or multiple attachment fields in different areas. This type of field is not displayed until the record is created. (See [Attachments](#).)

## Closing a Problem

Before you can close a problem, all of the steps must be completed first. In addition, you'll need the "Problem - Close Problem" permission, along with the ability to edit the problem. Depending on the settings for the entity, you may not be able to close the record until all of the incidents associated with the problem have been closed and/or all of the actions for the problem have been completed.

Once you complete the final step of the problem and save the record, the **Set Close Status** and **Close Date** fields will appear, assuming you have the required permissions.



The screenshot shows a user interface for closing a problem. It features two main fields: 'Set Close Status' and 'Close Date'. The 'Set Close Status' field is a dropdown menu that is currently open, displaying three options: 'Closed - Resolved' (which is highlighted in blue), 'Closed - Unresolved', and 'Closed - Enhancement Requested'. A mouse cursor is pointing at the 'Closed - Resolved' option. The 'Close Date' field consists of a text input showing 'Aug', a dropdown arrow, and a calendar icon. To the right of the date field are two small icons: a clock and a diamond.

To close the problem:

- Select an option from the **Set Close Status** drop-down list. The available options will depend on the configurable settings for the entity.
- Specify a closure date. If you select a close status without specifying a date, the current date will be applied. If you have the "Problem - Open a Closed Problem" permission, you can change this date if needed.

## Failure Review Boards

Depending on the configurable settings for the entity, any of the steps 2 through 8 in the [Problem](#) page may allow or require review and sign-off by a Failure Review Board (FRB).

### Review a Step Assigned to You

If your name is in the list, you can select the **Yes** or **No** option to indicate your approval or dis-approval of the decision to close the current step.

FRB Approved By:	Reviewer Name	Category	Sign-off Date
<a href="#">Edit Reviewer List</a>	ENGINEER, JILL	D2 Approver	N/A
	TECHNICIAN, BILL	D2 Approver	N/A
	MANAGER, JIM	D2 Approver	Sign off: <input checked="" type="radio"/> Yes <input type="radio"/> No

If you reject closure, you will be prompted to specify the reason and a "Rejected" label will be displayed. Any user can point to or click this label to see the reason specified.

### Assign Reviewers to a Step

If you have permission to assign or remove members of the FRB, click the **Edit Reviewer List** link.

---

**Tip:** If FRB approval is configured to display for a step, the link will become active immediately after you complete the **Completed By** and **Completed Date** fields. If you assign at least one reviewer at that point (before saving the record), the link will remain active until all assigned reviewers have signed off.

---

- The **Available Reviewers List** (left) shows XFRACAS users who belong to the approver category for this step. In addition, you can use the drop-down list to select users who belong to other user categories that are eligible to be FRB reviewers.
- The **Selected Reviewers List** (right) shows the users who are assigned to the FRB for this step of this problem. If they have been assigned to both the "Default Problem Reviewer" category and the approver category for this step, they appear in this list by default.

You can double-click a name in one list to move it to the other list or use the arrow buttons. To select multiple users, hold down the **CTRL** key and click the names.

Depending on the configurable settings, reviewers may be required to sign off in the order in which they are listed. To move a reviewer up or down in the list, select the name and click (+) or (-).

If you remove a reviewer who has already been saved for the step, you will be prompted to provide a reason. Click **View Reviewer History** to see a list of all reviewers who have been removed.



# Projects

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You can use the Projects page to manage related problems in much the same way that you use the Problem page to manage related incidents.

If you have permission to create a new project, choose **Home > Create > Project**.



After you have entered the required fields (highlighted with red boxes), choose **Home > Project > Create** to save the new record.



**Note:** New in Version 2021, you can subscribe to receive e-mail notifications whenever an incident, problem, project or CSI record is updated. See [Getting Notified when Records Are Updated](#) for more information.

---

## Entity

If your implementation has more than one entity, the fields and options may be configured differently in each. A drop-down list at the top of the page allows you to select which entity is currently active before you create a new record.

## Owner and Creator

### Owner

XFRACAS automatically assigns you as the owner for any projects that you create. The contents of the **Owner** drop-down list depend on the settings for each user in the entity:

- For new projects, the list will only contain you (the project creator) plus any users who have been designated as a “Project Owner” by an application admin. If you are not a designated “Project Owner,” your name will appear in brackets.
- For existing projects, the owner’s name will appear in brackets if they no longer have the “Project Owner” designation. In this case, if another user is ever assigned as owner, the original owner’s name will be removed from the list.

Depending on the configurable settings for the entity, the owner may receive e-mail notifications when actions are created for the record.

### Creator

For new projects, XFRACAS automatically assigns you (the logged-in user) as creator. If you have the required permission, you can use the **Creator** drop-down list (in new and existing projects) to set or change the project’s creator. This list contains:

- Users who currently have the “Project Owner” designation.
- Users who have been assigned as creator but no longer have the “Project Owner” designation. In this case, their names will be enclosed in brackets.

## Assigning a Team

A **Team Members** field identifies the users who will be working on the issue and their roles on the team. If enabled for the entity, this field is not displayed until the record is created. (See [Assign Team Members Utility](#).)

Team Members:		<u>User</u>	<u>Team Role</u>	<u>User</u>	<u>Team Role</u>
		ENGINEER, JILL	Team Member	MANAGER, JIM	Team Leader
		TECHNICIAN, BILL	Team Member		



You can click the link for any team member's name to send an e-mail regarding the record. Depending on the configurable settings, team members may also receive e-mails when a status update is added or modified.

## Associated Problems

The **Associated Data** area links to the [problem reports](#) that are relevant for this project. To add or remove problems, click **Create New Problem** or **Assign/Remove Problems**.

In the list of problems:

- Status shows the problem step (e.g., Describe the Problem, Prevent Recurrence, etc.) that needs to be completed next.
- **# of IRs** shows the quantity of incidents associated to the problem. Click the link to see a list of those incidents.
- **Last Occurrence** shows the occurrence date for the most recent incident associated to the problem.
- **Cpt. Date** shows the closure date for the problem.

If applicable, this area also displays:


- [Incidents](#) that are associated to a problem that is associated to the project. Click **Hide/Display Associated Incidents** to toggle between showing either the quantity of open and closed incidents or a full list of the incidents.
- [Failure analysis reports](#) that are associated to a problem that is associated to the project. Note that XFRACAS does not assume that all failure analysis reports linked to an incident that is associated to a problem are also associated with that problem. Rather, in order to specifically associate a failure analysis report to a problem, you must use the **Associated Problem** field in the Failure Analysis page.

## Associated Files or Links

An **Associated Files** field allows users to upload file attachments, link to files in another location (e.g., a document management website) or link to another record in XFRACAS. If enabled for the entity, this type of field is not displayed until the record is created. (See [Attachments](#).)

## Actions

An **Actions** field contains a list of specific assignments that need to be tracked and completed for the project. If enabled for the entity, this type of field is not displayed until the record is created.

Click **Create New Action**, , to add a new assignment. (See [Actions](#).)

## Status Updates

A **Status** field allows users to add notes about the progress made, and also send e-mail notifications if applicable. If enabled for the entity, this field is not displayed until the record is created. (See [Status Fields](#).)

## Closing a Project

A project is considered closed when the **Actual Completion Date** field has been filled in. Depending on the settings chosen by an application admin, a project may not be able to be closed until all problems associated with the project are closed and/or all actions for the project completed.

# Actions

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Throughout XFRACAS, an **Actions** field contains a list of specific assignments that need to be tracked and completed. For incidents, failure analysis reports, CSIs and projects, there can be a single actions field in each type of record. For problems, there can be separate actions fields for different aspects of the problem resolution process (description, containment, root cause analysis, etc.).

## Actions Fields

For all fields of this type, the table shows actions that have been assigned for the current record. Click the action number link to open the action window, or click the **Expand** icon, ▼, to show more of the details in the table. Click 🔍 to view the list of actions in a report grid that you can filter, sort, export to Excel, etc.

To add a new assignment, click **Create New Action** +.

Actions: 🔍	Action Number	Short Description	Due Date	Owner	+
▼	196	First action that needs to be perfo...	10/04/2020	MANAGER, JIM	
▼	197	Second action that needs to be perf...	10/04/2020	TECHNICIAN, BOB	

## Action Properties

The fields and features depend on the type of action and the configurable settings for the entity. Some of the properties in a typical implementation include:

- **Associated [Incident/Problem/Project/CSI/Failure Analysis]** - the display ID of the record that the action is associated with (e.g., ENT-I-101 or ENT-PB-15). If you replace this with the identifier for another record of the same type, it will move the action to the other record. For example, you can move an incident action from one incident to another; but you cannot move an incident action to a problem, project, CSI or failure analysis report.
- **Owner** - the user who is assigned to perform the action. If the entity is configured to send e-mail notifications to action owners, changing the owner will send an e-mail to the new owner and to the previous owner.
- **Category** - this drop-down will always have a main category. Depending on the configurable settings, it may also have sub-categories.
  - The main category indicates the field where the action is displayed (e.g., in an incident, in the Description step for a problem, etc.). For incidents, failure analysis reports, CSIs and projects, this can't be changed. For problems, changing the main category moves the action into table in another section of the page.
  - If sub-categories are used for your implementation, you can select from any of the pre-defined options.
- **Due Date** - the date when the action is due.
- **Completed** - selecting the check box marks the action as closed, with today's date as the Completed Date.
- **Result** - a description of the results from the action performed. This field must be populated in order to mark the action as completed.

## Create a Linked Action

Depending on how you opened the record, the action properties may be displayed in a popup window or in a page. If you are viewing the action in a page, and if the action properties include an **Associated Files** field (see [Attachments](#)), the **Home > Action > Create Linked Action** command will be available.



This command creates a new action that has a reciprocal (two-way) link to the current action. Both actions will be associated with the current record (i.e., they will appear in the same Actions field) and both actions will have a link to the other action.

## Closing an Action

Any user who can edit an action can also close it.

To close an action, make sure a **Description** and **Result** have been entered (at a minimum) and select the **Completed** check box. The **Completion Date** is populated automatically.

The action is “read-only” after it is closed. Only users with certain permissions can re-open a closed action.



# Customer Support

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If you are tracking particular serialized systems, use the Customer Support (CSI) page to capture a detailed history for each piece of equipment. This history may include customer contact information, installation details, reported incidents, operating time and the current status of the system.

## Creating CSI Records

If you have permissions to create a new customer support record, choose **Home > Create > Customer Support**.



If the CSI wizard is enabled, the page will either display all fields in a single form or a wizard that prompts you to enter data one step at a time. To toggle the display, choose **Use CSI Wizard**  or **Use Single Form** .

After you have entered all required fields (highlighted with red boxes), choose **Home > CSI > Create** to save the new record.



---

**Note:** New in Version 2021, you can subscribe to receive e-mail notifications whenever an incident, problem, project or CSI record is updated. See [Getting Notified when Records Are Updated](#) for more information.

---

## CSI Records and Entities

If your implementation has more than one entity, the fields and options may be configured differently in each. When applicable, a drop-down list at the top of the page allows you to select which entity is currently active before you create a new record.

## Areas and Fields

The fields that are displayed on the CSI page depend on the configurable settings for the entity. They are organized as follows:

- **Customer Support Summary** - unit commissioning information that has been defined for the current CSI. This summary is displayed after the CSI record has been created. (See [Customer Support Summary Area](#).)
- **Customer/Location Information** - information about the customer who owns the unit and the location where it is installed. (See [Customer/Location Information Area](#).)
- **Warranty Information** - initial and extended warranty information for the unit. (See [Warranty Information Area](#).)
- **Incident History** - table listing the incidents, if any, that have been reported for the serialized system. Click **Create Incident** to create a new record, or click a record ID to view the full details for that incident.
- **Installation Details** - information about the specific installation of the serialized unit. (See [Installation Details Area](#).)

- **Replaced Parts** - table showing the parts that were replaced in the last 90 days (or another time frame, depending on the configurable settings). The Replaced Parts table will only be visible if parts have been replaced.
- **Accessories** - If enabled for the current entity, an **Accessories** field allows you to specify additional parts that were installed with this particular serialized system. The drop-down list shows the accessory parts that have been defined in all the customer support records in the current entity. To define a new accessory part, click **Add +**.

## Closing a CSI Record

A CSI record is effectively "closed" when its Decommission Date is set.

## Customer Support Summary Area

The **Customer Support Summary** area of the [CSI page](#) displays the unit commissioning information that has been defined for the customer support record. This area is not displayed until the record is created.

---

**Note:** The fields that are available in this area may differ from those described below. See [Fields and Lists](#) for more information.

---

- **Time Metrics Field** displays up to three types of time measurements that have been reported for the unit at the time of the incident. Note that an application admin maintains the time metric field names. Therefore, the name of the Time Metrics field used in your implementation may be different and, depending on the configurable settings for the current entity, this field may display one, two or three time metrics. The default is **Run Hrs/Starts**, which displays the total system hours and the number of starts that have been reported for the unit at the time of the incident. You can click the **Add** icon, **+**, to add a report on system hours and/or starts. You can click the link to display the System Run Hours utility, which displays a summary of all system hours and number of starts reports that have been made for the unit. System hours reports that were made manually (i.e., that are not from an incident) can be deleted from this table.
- **System Status** displays the current operational status of the unit based on the highest status code for all the incidents associated with the serialized system. The rankings of the status codes are determined by an application admin. If multiple incident reports apply to the system, the overall system status is determined by the system status with the highest precedence. For example, let us say that the list of available statuses contains (in order of increasing precedence):

- Available
- Idle
- Running - Needs Service
- Down - Waiting on Service

If two incident reports apply to the system — one with a status of Running - Needs Service and one with a status of Down - Waiting on Service — the overall system status would be Down - Waiting on Service. Once the service is applied to that incident, the system status would change to Running - Needs Service.

- **System Configuration** provides a link to the [Serialized page](#) for the unit.
- **MTBF/MTBFE** displays the mean time between failures (based on reported hours and based on estimated system hours) for the system, assuming a constant failure rate.
- **MTBCF/MTBCFE** displays the mean time between chargeable incidents, or failures (based on reported hours and based on estimated system hours), for the system, assuming a constant failure rate.
- **MTBNCF/MTBNCFE** displays the mean time between non-chargeable incidents, or suspensions (based on reported hours and based on estimated system hours), for the system, assuming a constant failure rate.
- **MTBI/MTBIE** displays the mean time between incidents (based on reported hours and based on estimated system hours) for the system, assuming a constant failure rate.
- **Chargeable Incidents** displays the total number of chargeable incidents (failures) for the system.
- **Non Chargeable Incidents** displays the total number of non-chargeable incidents (suspensions) for the system.
- **Under Warranty** displays an indication of whether or not the unit is currently under warranty and, if applicable, the expiration date of the warranty period.
- **Operational Availability** displays the percentage of total time during which the system was not down. Total time is the time from when the unit was commissioned, shipped or built. Downtime is the time between occurrence dates and repair dates for all incidents on the system. If the System Down Event incident detail is available in the current entity, only incidents for which that detail is checked count toward downtime; otherwise, all incidents are considered. Note that if no repair date is given for an incident, the system is considered to be down from the occurrence date on.



## Customer/Location Information Area

The **Customer/Location Information** area of the [CSI page](#) allows you to view and maintain information about the customer who owns the unit and the location where it is installed.

---

**Note:** The fields that are available in this area may differ from those described below. See [Fields and Lists](#) for more information.

---

- **Unit Owner** displays the owner of the unit. You can choose an existing company from the drop-down list. Users with specific permissions can add a new unit owner to the list by clicking the **Add** icon, . In the Company page that appears, type the name and information for the new unit owner and click **Save**. The Company page will close and the **Unit Owner** field will display the new unit owner. Authorized users can also click the **Edit** icon, , to edit the selected unit owner in the Company page.

The available options for the **Category** field will vary and are maintained by an application admin.

- **Location** displays the location of the unit. You can choose an existing location from the drop-down list; the available locations are based on the selected unit owner. The address, city, state, zip code and country associated with the location will be displayed in the corresponding fields. Users with specific permissions can add a new location to the list or edit the selected location in the Location page.

The **City**, **State** and **Country** fields are drop-down lists that you can choose from. You can also add, edit or delete cities, states or countries in these lists using the **Add**, **Edit** or **Delete** icons.

- **Contact Name** displays the name of the primary customer contact to communicate with regarding the unit. You can choose an existing contact from the drop-down list. The e-mail, phone and fax associated with the contact will be displayed in the corresponding fields. Users with specific permissions can add a new contact to the list or edit the selected contact in the Contact page.
- **Contact Area**
  - In the **Company** field, you can choose a company or click the **Add** icon to add a new company to the list. The Company page will appear. Once you have entered the company information, click **Save** to save it and return to the Contact page.

- In the **Location** field, you can choose a location from the list, click the **Add** icon or choose a location from the list and edit it by clicking the **Edit** icon. The Location page will appear. Once you have entered the location information, click **Save** to save it and return to the Contact page.
- The available options for the **Category** field will vary and are maintained by an application admin.
- The **Associated Systems** link runs a report showing the CSI records associated with the currently selected contact. This link will appear only when you are editing an existing contact and when the contact is associated with commissioned serialized systems.

---

**Note:** The Company and Contact pages are also available by double-clicking a company or contact record from within report results.

---

## Warranty Information Area

The **Warranty Information** area of the CSI page allows you to view and maintain the initial and extended warranty information for the unit. This area is not displayed until the record is created.

---

**Note:** The fields that are available in this area may differ from those described below. See Fields and Lists for more information.

---

- **Initial Warranty** allows you to enter the warranty period (in months) from the date of shipment or delivery (depending on your selection from the **Warranty Type** drop-down menu) and from the date of commission for the current serialized unit. Select a warranty type of **To End User** to specify the warranty period from the date of delivery or select **To Distributor** to specify the warranty period from the date of shipment.
- **Months from Shipment/Delivery** displays the default number of months for the warranty period from the date of shipment or date of delivery (depending on the selected initial warranty months) as specified in the administrative preferences. In cases of extended warranty or other non-typical situations, you can change these quantities as applicable.
- **Months from Commission** displays the default number of months for the warranty period from the date of commissioning, as specified in the administrative preferences. In cases of extended warranty or other non-typical situations, you can change these quantities as applicable.
- To save **Extended Warranty** information, you must provide a purchase date.




## Installation Details Area

The **Installation Details** area of the [CSI page](#) allows you to maintain information about the specific installation of the serialized unit.

---

**Note:** The fields that are available in this area may differ from those described below. See [Fields and Lists](#) for more information.

---

- **Distributor** displays the name of the distributor for the unit. This field is available only when you are viewing an existing customer support record. Users with specific permissions can add a distributor to the list by clicking the **Add** icon, . In the Company page that appears, type the name and information for the new distributor and click **Save**. The Company page will close and the **Distributor** field will display the new distributor. Authorized users can also click the **Edit** icon, , to edit the selected distributor in the Company page.
- **ASP** displays the company name of the authorized service provider who performed the installation/commissioning. Users with specific permissions can add an ASP company to the list or edit the selected ASP company in the Company page. Please note that if an ASP company is not selected, the **ASP Field Service Tech** drop-down list will be empty since the available ASP technicians are dependent upon the selected ASP company.
- **ASP Field Service Tech** displays the name of the authorized service provider's technician who performed the installation/commissioning. Users with specific permissions can edit the selected ASP technician in the Contacts page. Please note that this drop-down list may not display all ASP technicians, depending on the settings chosen by an application admin. In addition, if an ASP company is not selected, this list will be empty since the available ASP technicians are dependent upon the selected ASP company.
- **Status** displays the status of the actions taken to resolve the issue. To create a new status, click the **Add** icon, . The [Status utility](#) will appear, allowing you to enter comments about the troubleshooting process.



# Reports and Charts

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# Reports


To access XFRACAS reports, choose **Home > View > Reports**.





---


**Note:** Reports only contain links to records that you have permission to view based on your security settings. If another user who has different security settings runs the same report, it will yield different results. See [Security Levels](#) for more information.

---


 **Watched Reports** are reports of any type (standard, public, etc.) that you have selected to "watch." (See [Watched Reports and Charts](#).)

 **Standard Reports** are included by default with XFRACAS.

 **My Reports** have been customized and saved via the [Report Builder](#) for your personal use. This may include reports that you saved for yourself or reports that another user saved for you or for a security group that you belong to.

 **Public Reports** have been customized and saved via the Report Builder for all users to view.

 **Custom Reports** are created by ReliaSoft for use in the current entity.

 **Administrator Reports** provide information that is of interest to application admins.*Please consult the admin help for more information.*

## Grouping Results

To group results, click the column name and drag it into the grouping bar at the top of the results table. You can drag multiple columns into the grouping bar; their order determines how the records are sorted. For example, this picture shows grouped by responsible part and then by state.

Results based on the following qualifier(s):  
Entity = RELIASOFT MODEL DATABASE

39 match(es) found  
Report Generated: 08/2020/26 12:59 PM

State Responsible Part

Incident Number	Occurrence Date	Action Count	Assigned To Problem
REL-207	11/2019/14 09:27 AM	0	Yes
REL-207	11/2019/14 09:27 AM	0	Yes
REL-207	11/2019/14 09:27 AM	0	Yes
REL-207	11/2019/14 09:27 AM	0	Yes
REL-207	11/2019/14 09:27 AM	0	Yes
REL-209	11/2019/14 09:49 AM	0	Yes
REL-209	11/2019/14 09:49 AM	0	Yes
REL-209	11/2019/14 09:49 AM	0	Yes

State: Closed

Responsible Part: Aircraft

Responsible Part: 1: Ice maker

Responsible Part: 1: Shaft

Responsible Part: 7073027: Towershaft

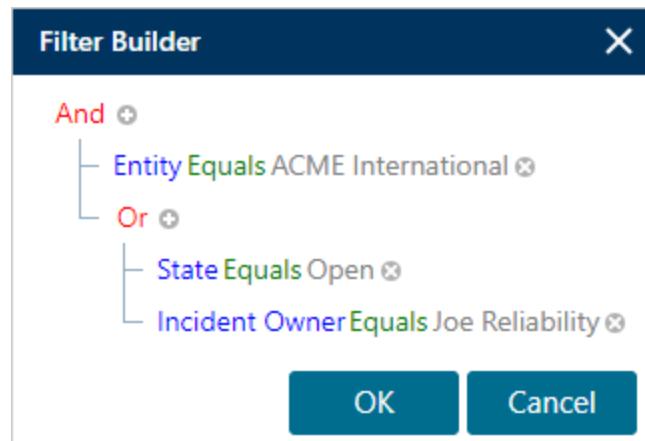
Responsible Part: 7076027: ATS,PMA, Hyd Pump, Ball Bearing

## Filtering Results


When filters are applied, the current criteria will appear at the bottom of the results table. Clear the check box to remove the filter. There are two ways to apply filters:


- Type in the search field(s) directly below the column name(s).
- Click the **Create Filter** link at the bottom of the results to open the Filter Builder. In this utility, each group is headed by a logical operator in red (and, or, not or, not and) that applies to the conditions under it. Click the red link to select the operator, add a sub-group, add a condition or remove the operator. Each condition is made up of a property in blue, a relational operator in green (equals, contains, is not blank, etc.) and a value in gray.


Click the blue or green link to select the property or operator. Click the gray link to type the value.




## Report Results Toolbar


 **Show Field Chooser** allows you to hide or display columns by dragging the column header into or out of the pop-up.


 **Export** sends the current report to the file format specified in the drop-down list (\*.pdf, \*.xls, \*.xlsx, \*.rtf or \*.csv).

 **Watch** adds the report to your personal list of watched reports.

 **E-mail Report** sends the results in an e-mail message. You must have the appropriate permission in the entity to use this feature.

**SQL Show SQL Statement** displays the SQL statement that was used to generate the results. You must have the appropriate permission in the entity to use this feature.

 **Print Preview** is available for reports containing incident, problem, project, CSI or failure analysis records. This convenient feature saves time by eliminating the need to open each record within a report to create a printer-friendly view. Instead, it generates a single-page view of the first 500 records that you have permission to access and renders the same content, in the same format, as the **Print Preview** for individual records. In printed report output, each record starts on a new page. (See the note below.)

 **Create New Problem** is available for incident reports. It allows you to create a new problem with all of the incidents in the report associated to that problem.



**Assign / Remove Problems** is available for incident reports. It allows you to associate all of the incidents in the report with one or more existing problems.

---

**Note:** Some print previews may take a long time to generate, depending on your available browser, computer and server resources, among other factors. In certain cases, you may experience time-outs. If you encounter issues when generating a print preview, try reducing the number of records by modifying the criteria specified in the [Report Builder](#).

---

## Report Builder

Use the Report Builder to design the reports and charts that will be available in the [Reports page](#) and the [Charts page](#). You can save reports that are visible only to you or shared with a specific user or group. If you have the required permissions, you can also modify the built-in "Standard" reports or save new "Public" reports that are visible to all users in the entity.

To access the page, choose **Options > Designers > Report Builder**.



Use the **Select Report** drop-down lists to select a report/chart to create or modify. For example:

- To create a new report, select an existing one that is similar. Apply your changes and click **Save As**. You will be prompted to specify a name, description and other details. (See [Saving Reports and Charts](#).)
- To modify a report that already exists, select that report. Apply your changes and click **Save** (or **Save As** if you want to be prompted to change the name, description or other details).

To preview the results, save the report and then choose **Options > Report > Generate**.





---

**Note:** Reports only contain links to records that you have permission to view based on your security settings. If another user who has different security settings runs the same report, it will yield different results. See [Security Levels](#) for more information.



---





## Reloading Defaults and Deleting Saved Reports

For predefined report types (Standard Reports, Chart Reports, Administrator Reports), you can click  to reload the last saved settings. If the saved settings differ from the default for that type of report, you can also click  to restore the application defaults.

Select Report: Standard Reports  Incident   
































**Note:** The default Standard and Chart Reports can be modified by users with the "Report Builder - Set Application Default" permission.





For reports that were created by users (My Reports, My Chart Reports, Public Reports, Public Chart Reports, Custom SQL Statements), you can click  to reload the last saved settings or  to delete the report.

Select Report: My Chart Reports  Public Chart   

## Filter Criteria and Fields to Display

The table contains a row for each field that will be displayed in the results and/or used as a filter.




Filter Criteria and Fields to Display							
Field	Show	Order	Criterion 1	&/Or	Criterion 2	Filter Group	
Entity	<input type="checkbox"/>		= Safety	   =	 1		
Incident Number	<input checked="" type="checkbox"/>	1	=	   =	 1		
State	<input checked="" type="checkbox"/>	3	= Open	   =	 1		
Responsible Part	<input checked="" type="checkbox"/>	4	=	   =	 1		
Category	<input checked="" type="checkbox"/>	5	=	   =	 1		
Creator	<input checked="" type="checkbox"/>	6	=	   =	 1		
Incident Owner	<input checked="" type="checkbox"/>	7	=	   =	 1		
Description	<input checked="" type="checkbox"/>	8	!> Crack	   !>	Split		

Additional Fields: Action Count   Add field  Boolean operator  Set operator and arguments










Clear filter criteria  
Remove field

- To add a field, choose it from the **Additional Fields** drop-down list and click **Add Field** .

**Note:** The maximum number of columns that a report can include is determined by an application admin.

- To remove a field, click the **Remove Field** icon, , in that row.
- When building a report, use the check box in the **Show** column to show or hide the field in the results. If the field is shown, enter a value in the **Order** column to specify the location of the column in the results. Numbers that are skipped are ignored.
- In the **Criterion** columns, click **Add Filter Criteria**, , to specify the operator and argument (s) for each field. (Alternatively, you can click the operator icon on the left to open the same window.) If more than one criterion is specified for the same field, click inside the **&/Or** column to toggle between AND (**&**) and OR (**|**). To clear all filter criteria for a field, click **Clear Values**, .
- To apply the criteria in groups (e.g., results can match criteria 1 and 2 OR criteria 3 and 4), use the **Filter Group** column to define the groups, and then use the **Filter Groups Criteria** section to define the operator that will be applied between groups. (See the recommendations under "[Filter Criteria Groups](#)" below).

These are based on standard SQL operators and commands. Note that not all operators apply to all data types.

OPERATOR		FILTERS BY FIELDS THAT...
	Equals	Are an exact match to the specified value
	Greater than	Are greater than (but not equal to) the specified value
	Contains	Match the specified value (word or phrase), which may be preceded and/or followed by other values
	Does not contain	Do not a match the specified value, which may be preceded and/or followed by other values
	Begins with	Begin with the specified value
	Ends with	End with the specified value
	Greater than or equal to	Are greater than or equal to the specified value
	Less than	Are less than (but not equal to) the specified value
	Less than or equal to	Are less than or equal to the specified value

≠	Not equal to	Are not an exact match to the specified value
∅	Empty	Do not contain a value (i.e., are null)
○	Not empty	Contain a value (i.e., are not null)
∈	IN	Match any of multiple specified values (shorthand for multiple OR conditions, frequently used for lists)
∉	Not IN	Do not match any of multiple specified values

---

### Creating Date Filters

If you are building a report or chart and using date fields, you can define filter criteria based on the current day, a specific date, or a standard period — week, month, quarter or year (this or next). In addition, you can define filter criteria based on a specified number of days in the past or future with records for the current day included, if desired.

In the Report Builder's Filter pop-up window:

1. Choose the **Number of Days** option from the **Specify Date** drop-down list.
2. Choose **Last** or **Next** from the new drop-down list that appears and enter the number of days.
3. If applicable, enable the **Include today** check box.

---

**Note:** New in Version 2021, if history logging is enabled for your XFRACAS implementation, you can use the **Historical Reporting Date** field to generate a report that shows a historical “snapshot” of your data at a specified point in time. (See [Viewing Historical Data](#) for more information.)

---

### Part Details and Serialized Details

When applicable, report results can include information about the particular template part or serialized system that each incident or problem pertains to:

- For incidents, the report can include fields from the **System/Component Information Area** as well as any configurable fields for the template part or serialized system.
- For problems, the report can include the "Part Category" as well as any configurable fields for the specified part.

In the Report Builder's **Additional Fields** list, these fields are identified with the prefix "Part Detail" (for template parts) or "Serialized Detail" (for serialized systems).

### Print Preview Links

A **Print Preview** field is a link to a customized presentation of the data for a particular record. If an administrator has configured this type of field in the page for a given record type, you can include those links in your report. The report results will show the same link that is displayed in the record. Since every record will have the same link, the criterion columns will not be available for this type of field.

### Filter Criteria Groups

If you have specified more than one **Filter Group** in the table, you can toggle between AND (&) and OR ( | ) to specify the operator that will be applied between groups.

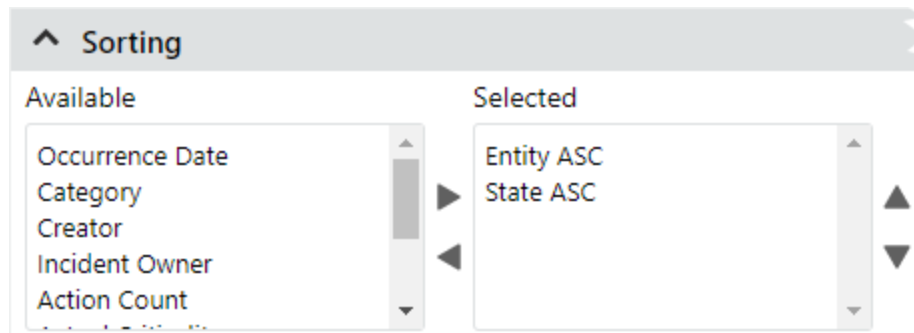
In the following example, the results will include records that match all of the criteria in the first group (AND operators for all fields in Group 1) or the single criterion in the second group (OR operator between Groups 1 and 2).

The screenshot shows a user interface titled "Filter Criteria Groups". It contains two columns, "Group 1" and "Group 2", separated by a vertical line. Group 1 contains a list of criteria: "Entity AND", "Incident Number AND", "Occurrence Date AND", "State AND", and "Responsible Part AND". Group 2 contains a single criterion: "Incident Owner". The interface uses a light gray color scheme with blue text for the criteria.

### Sorting

When you are building a report, this area specifies how the results will be sorted when they are generated. The results will be sorted by each field in the **Selected** list, successively.

Select a field and click ► or ◀ to move it from one list to the other. Double-click a field in the Selected list to toggle between ascending (ASC) and descending (DESC) order.



Users can also change the sort order after the report is generated. (See [Reports](#).)

## Output

When you are building a report, you can choose whether the results will be displayed in HTML, XML or XSLT.

- **HTML Table** - If you choose this default, the results will be displayed in a tabular format and you can specify the number of records shown per page.
- **XSLT** - If you choose **XSLT**, you can either specify an \*.xslt style sheet (Extensible Stylesheet Language Transformation) or leave the **XSLT File** field blank.
  - If you specify an \*.xslt style sheet, it will be used to customize the presentation of your results. (See [Working with XSLT Files](#).)
  - If you do not specify a style sheet, the **XSLT** option will generate XML data for external use in your own custom XSLT output, in a custom application or in a tool such as Power BI or Excel. (See [Using Reports as Web Data Sources](#).) This feature allows you to extend the reporting capabilities of XFRACAS.

## Charts

To access XFRACAS chart reports, choose **Home > View > Charts**.



---

**Note:** Reports only contain links to records that you have permission to view based on your security settings. If another user who has different security settings runs the same report, it will yield different results. See [Security Levels](#) for more information.

---



**Watched Chart** are charts of any type (standard, public, etc.) that you have selected to "watch." (See [Watched Reports and Charts](#).)



**Chart Reports** are included by default with XFRACAS.



**My Chart Reports** have been customized and saved via the [Report Builder](#) for your personal use. This may include reports that you saved for yourself or reports that another user saved for you personally or a security group that you belong to.



**Public Chart Reports** have been customized and saved via the Report Builder for all users to view.

## Chart Results Toolbar



**Report Builder** opens the [Report Builder](#) where you can define a new chart.



**Data Table** displays a tabular report of the data.



**Export** sends the current chart to the file format specified in the drop-down list (\*.xls, \*.xlsx, \*.png, \*.jpeg, \*.bmp, \*.tiff or \*.gif).



**Watch** adds the chart to your personal list of watched charts.

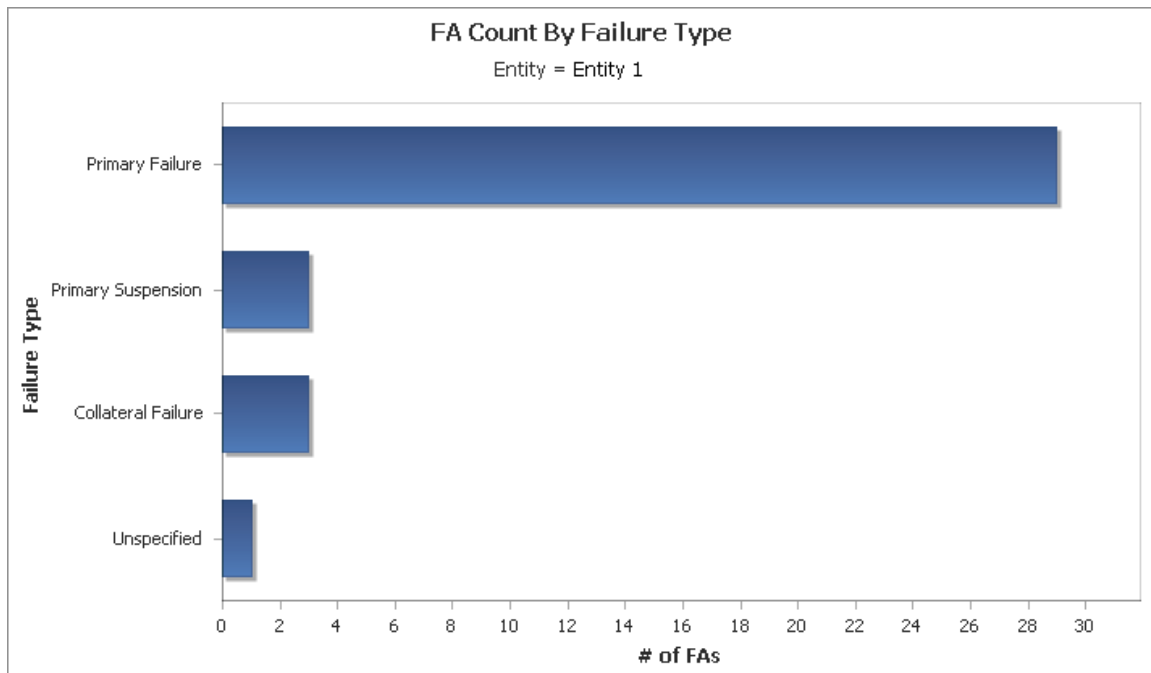


**Refresh** reloads the last saved settings.

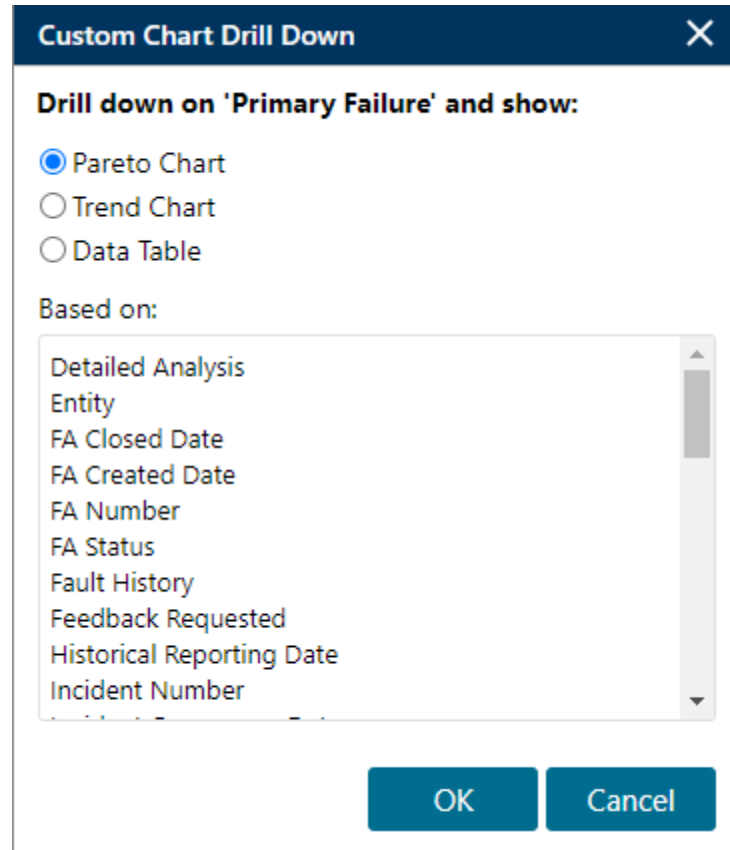
## Drilling Down

To drill down in a chart, simply double-click the bar, slice or point of interest then use the Custom Chart Drill Down window to specify your preference.

For example, this pareto chart displays a count of failure analysis reports broken down by failure type:



Double-clicking the Primary Failure bar provides the following options:



The image shows a 'Custom Chart Drill Down' dialog box. It has a title bar with a close button (X). The main content area is titled 'Drill down on 'Primary Failure' and show:'. Below this title, there are three radio button options: 'Pareto Chart' (which is selected), 'Trend Chart', and 'Data Table'. Below these options is a section labeled 'Based on:' followed by a list box containing the following items: 'Detailed Analysis', 'Entity', 'FA Closed Date', 'FA Created Date', 'FA Number', 'FA Status', 'Fault History', 'Feedback Requested', 'Historical Reporting Date', and 'Incident Number'. At the bottom of the dialog box are two buttons: 'OK' and 'Cancel'.

**Custom Chart Drill Down**

**Drill down on 'Primary Failure' and show:**

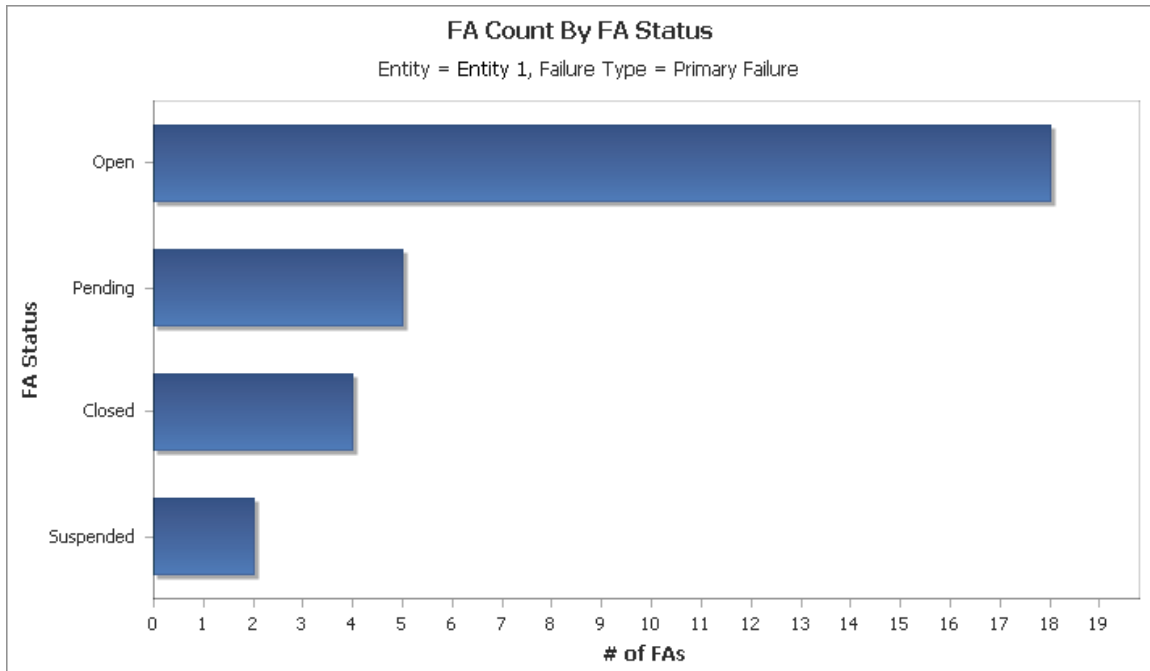
☒ Pareto Chart  
☐ Trend Chart  
☐ Data Table

Based on:

- Detailed Analysis
- Entity
- FA Closed Date
- FA Created Date
- FA Number
- FA Status
- Fault History
- Feedback Requested
- Historical Reporting Date
- Incident Number

OK Cancel

Selecting an option opens a chart in a new window. For example:



## Chart Control and Appearance

### Chart Control

When you are building a chart, the following settings on the Report Builder page specify how the data will be presented.

- **Analysis Type** - you can select Pareto (e.g., bar chart, pie chart, scatter chart, etc.) or Trend Analysis (e.g. line chart).
- **X-Axis** and **Y-Axis** specify the data displayed in the chart. This is always a count of the number of records that have the same value for the field selected as the Y-axis (e.g., incidents by responsible part, actions by type, etc.).

---

**Tip:** The Y-Axis list excludes some types of fields that are not relevant for this type of chart (e.g., descriptions, check boxes, accessories, companies, trees, part details, etc.).

In addition, it is not recommended to select fields that show counts obtained from the query (e.g., Action Count, Status Count, Chargeable Incident Count, etc.). In such cases, the chart will show a separate bar or slice for each record and increment any duplicate counts (e.g., 2, 2 [1], 2[2], etc.).

---

- **Number of Records to Display**

- For pareto analyses, you can display the records that either have the most number of matches to the criteria or the least number of matches to the criteria.
- For trend analyses, you can display the records that either have the most recent dates that match the criteria or the oldest dates that match the criteria.

- **Chart Options**

- For pareto analyses, you can show the **Average Line**.
- For trend analyses, you can show the **Average Line** or the **Trend Line**. The Trend Line shows a smoothed-out curve that follows the data. This an Exponentially Weighted Moving Average (EWMA) line, which is calculated using a cubic B-spline (CBS) process to smooth out the line, with a correction factor of 0.5.

## Chart Appearance

These settings are applied when the chart is first generated and can be changed later.

- **Chart Type** - for Pareto analysis, select bar, line, area, step, pie or scatter. Trend charts can only display as a line chart.
- **Kind** - 2-dimensional or 3-dimensional
- **Appearance** - the background color scheme
- **Palette** - the colors used for chart elements

In the following example, these settings will generate a horizontal bar chart that shows the 20 dates on which the greatest number of incidents were created along with a line showing the average number of incidents created daily.

^ Chart Control

Analysis Type: Pareto

X-Axis: Count

Number of Records to Display: Most 24

Y-Axis: Created Date

Chart Options: ☒ Average Line

^ Chart Appearance

Chart Type: Horizontal Bar Chart

Appearance: Default

Kind: 2D

Palette: Default

## Saving Reports and Charts

When applicable, you can use the Save Report window on the [Report Builder page](#) to enter or change the **Report Name**, **Report Description** and **Report Icon**.

Depending on your permissions, you may also be able to select:

- **Save report for another user** or **Save report for a security group** - makes the report available to a selected user or to all users in a selected security group. Only the specified user(s) will be able to view and edit the report, and it will show under "My Reports" or "My Charts."

---

**Tip:** If you create a report for another user, or for a security group that you don't belong to, you will not be able to access it again after the save. If you need to be able to edit the report again in the future, it is recommended to make sure you belong to the security group or save your own personal copy that you can modify and share again if needed.

---

- **Save as application default** - saves the current settings as the application default for this type of report, replacing the prior default. You cannot undo this action.
- **Make Public** - makes the report available to all users in the current entity. Any user in the entity will be able to view and edit the report, and it will show under "Public Reports" or "Public Chart Reports."

---

**Note:** This option will not appear if security levels have been implemented for the entity (see [Security Levels](#)).

---

- **Add RDW Data Source** - makes the report available to the Reliability Data Warehouse (RDW) in Weibull++.
  - You can then use the RDW to create custom dashboards for the data that will be visible in ReliaSoft desktop applications and the SEP web portal. (See "[Connect to XFRACAS Report](#)" in the Weibull++ documentation.)
  - Within XFRACAS, these reports are not visible in the Reports page, but they can be accessed for subsequent editing under "RDW Data Sources" in the Report Builder.

## Working with XSLT Files

The **Display Format** drop-down in the [Report Builder](#) contains an **XSLT** option that allows you to apply your own custom formatting to your XML output. If you choose this option, you can specify an existing style sheet or upload a new one.

When creating a new \*.xslt style sheet, you may be able to save time by downloading the following example file and adapting it to suit your needs:

[XFRACASXSLT\\_simpleIncident\\_example.xslt](#)

This example file generates a simple table and contains the following code, which illustrates how to apply a green background and bold text to any cells containing a value of "Open":

```
<xsl:for-each select="Incidents/Incident">
  <tr>
    <xsl:for-each select="*[not(local-name() = '' or local-
name() = 'NULL')]">
      <xsl:if test="(current()='Open')"> <td class="pfvvalue"
align="middle" style="background-color:#c4df9b; font-
weight: bold;"><xsl:value-of select ="current()"/></t-
d></xsl:if>
      <xsl:if test="not(current()='Open')"> <td class-
s="pfvvalue" align="middle"><xsl:value-of select ="cu-
rrent()"/></td></xsl:if>
    </xsl:for-each>
  </tr>
</xsl:for-each>
```

Note that this example can be adapted to other types of records, such as problems.

## Using Reports as Web Data Sources

If you have specialized reporting requirements that are not directly supported in XFRACAS, you can create a data link for use in external applications such as Power BI and Excel.

You'll need the following permission for this task: **Report Builder - Access Report Builder**

1. In **Options > Report Builder**, create a custom report with XSLT selected as the display format in the Output section.
2. In **Home > Reports**, click the link to the report you just created. This should open a new tab that displays the report data in XML format.
3. In the address bar of the new tab, copy the URL.

To use the data in Power BI, Excel, etc., choose the **Web** option when specifying a data source and paste the URL into the application.

## Viewing Historical Data

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**Note:** This feature is only available if history logging has been enabled for your XFRACAS implementation. Contact your application admin for more information.

---

New in Version 2021, XFRACAS now allows you to view a historical “snapshot” of your data at a specified point in time. This feature is available for the following predefined Standard Reports and Chart Reports that ship with XFRACAS, as well as any saved reports that are based on these report types:

- Incident
- Problem
- Project
- CSI
- Action
- Failure Analysis
- Repaired/Replaced Part

To create a historical report,

1. Use the Report Builder to create a predefined standard report.
2. Add the **Historical Reporting Date** field to your report.
3. When you configure your filter criteria for this field, use the **Equals** operator (**=**). In the **Filter: Historical Reporting Date** dialog, select **Specific Date** and specify a date and time. The

generated report will show data as it appeared on that date / time.

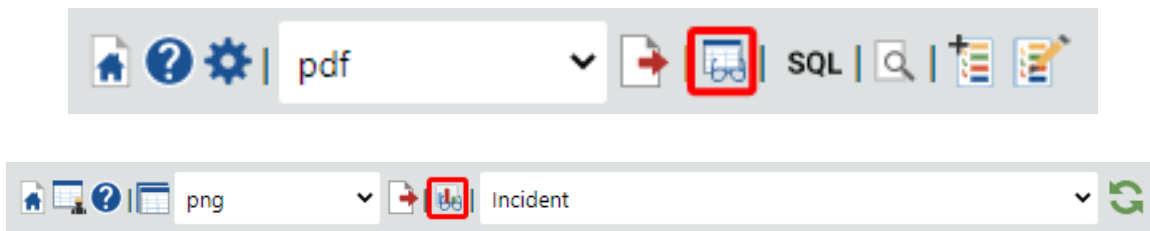
4. Save the report, if desired, for future use.

## Watched Reports and Charts

The watch feature provides a quick and convenient way to access the reports and charts that you frequently use. If you are watching at least one report, a **Watched Reports** group will display at the top of the Reports page. Likewise, if you are watching at least one chart, a **Watched Charts** group will display at the top of the Charts page.

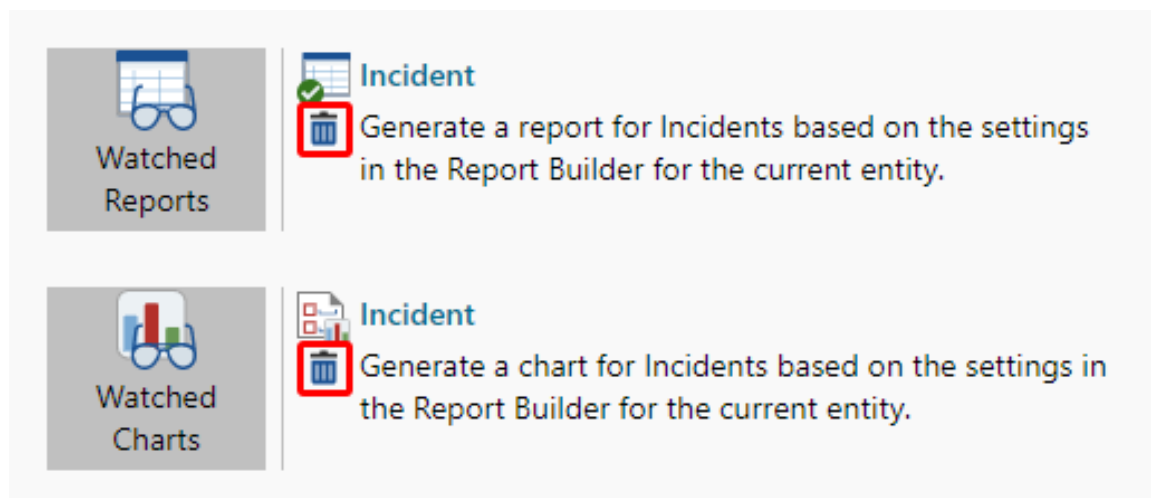
### Watch

To start watching a report or chart, open the results page and click the **Watch** icon on the toolbar. The icon will be disabled if you are already watching that report/chart. The icon will not display if it is not possible to generate the exact same report again in the future (e.g., because the query criteria are not saved with a template).



### Delete Watch

To stop watching a report, go to the Watched Reports/Watched Charts group and click the **Delete watch** icon next to the report.



**Note:** If you have a SEP web portal that is linked to XFRACAS, a watch will be created automatically in SEP for any reports or charts that you choose to watch in XFRACAS. However, the watches are not synchronized after the original creation. If you later delete the watch in XFRACAS, it will not change the watch in SEP. Likewise, if you later delete or rename the watch in SEP, it will not change the original watch in XFRACAS.


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## Dashboard and Designer

Use the Dashboard to view multiple reports and charts simultaneously in a side-by-side format.

To access the Dashboard, choose **Home > View > Dashboard**.



Use the **Select Layout** list at the top of the page to select which saved dashboard to view. Click  to refresh the layout.


Click the **Zoom** icon, , at the upper right corner of the report to open a new browser with all capabilities of that report type (e.g., chart reports have drill-down functionality; text reports can be sorted, grouped, etc.).

### Using the Dashboard Designer

If you have the required permission, you can use the Dashboard Designer to create and save dashboard layouts. To access the Dashboard Designer, choose **Options > Designers > Dashboard Designer**.



Use the **Select a Dashboard Layout** list to specify which type of layout you want to create or modify. For example:

- To create a new layout, select an existing one that is similar. Apply your changes and click **Save As**. You will be prompted to specify the name and other details. (See "[Save Dashboard Layout Window](#)" below.)
- To modify an existing layout, select it, apply your changes and **Save** (or click **Save As** if you also want to be prompted to change the name or other details).
- If you have made changes to your personal default layout, you can click  to restore the application default.

**Note:** The application default dashboard can be modified by users with the "Dashboard Designer - Set Application Default" permission.

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If you want to preview the results based on the current settings, choose **Options > Dashboard > Generate**.



## Save Dashboard Layout Window

When applicable, you can use the Save Dashboard Layout window to enter or change the **Dashboard Layout Name**.

Depending on your permissions, you may also be able to select:

- **Save report for another user** or **Save report for a security group** - makes the layout available to a selected user or to all users in a selected security group. Only the specified user(s) will be able to view and edit the layout.
- **Save as application default** - saves the current settings as the application default dashboard, replacing the prior default. You cannot undo this action.
- **Make Public** - makes the layout available to all users in the current entity. Any user in the entity will be able to view and edit the layout.

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**Note:** This option will not appear if security levels have been implemented for the entity (see [Security Levels](#)).

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## Text Search Tips

Keep the following hints in mind to improve the effectiveness of your searches.

- Searches return items that contain any of the words that you type in the text search field. Search for a few words (keywords) specifically related to what you are trying to find. Avoid searching for common words like "and", "the", "with", etc.
- Search for more specific or less common words. For example, instead of searching for "vegetable", you might want to search for "tomato".

- Searches are not sensitive to case. If you search for "fuel processor", the utility will return items that contain either "Fuel" or "Processor" or any capitalized variant.
- Words with hyphens such as "e-mail" or "e-commerce" differ from words without hyphens ("email" or "ecommerce") and must be searched separately.
- The following "wildcard" characters can help you refine your text search:
  - Use a space before and after a word if you only want the search to return that exact match. For example, if you enter " fault " (with a space before and after the word), the search will only return the word "fault" and not "faulty" or "faults", etc.
  - Use an underscore "\_" to search for words that contain any letter in addition to the entered letters. For example, if you enter "\_ean", the search will return any words that contain four letters with the last letters being
  - Use an underscore alone in any text field to search for records in which that field is not blank.
  - Use brackets "[]" to search for words that contain any letters within a specified range or set. For example, if you enter a range of letters, such as "[a-p]
  - Use brackets with a caret "[^]" to search for words that contain any letters except those within a specified range or set. For example, if you enter a range of letters, such as "[^a-p]

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