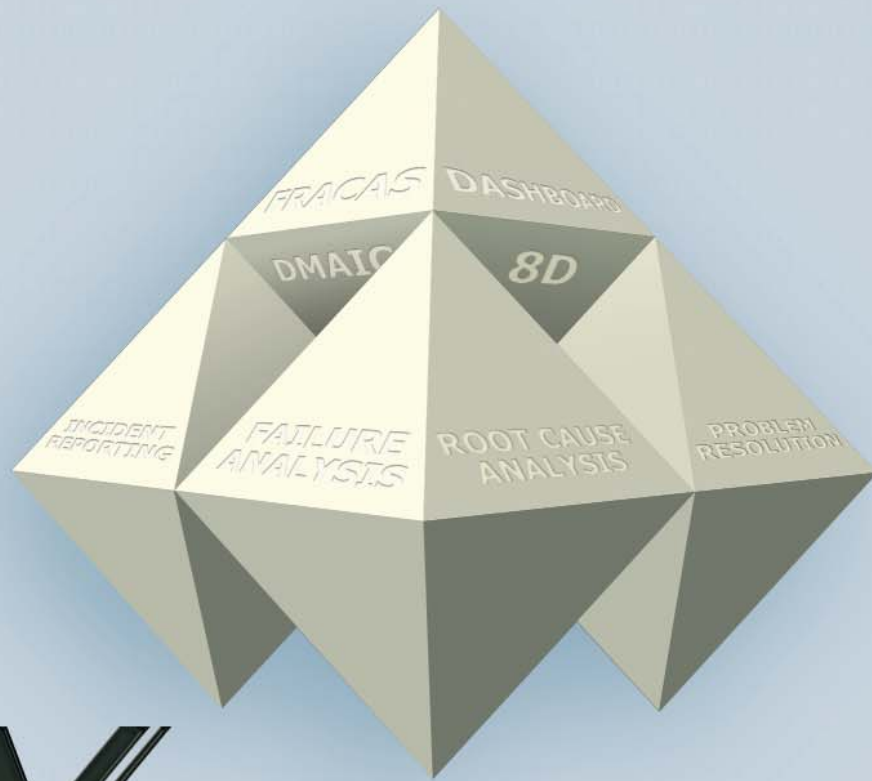


ReliaSoft[®]

Presents...

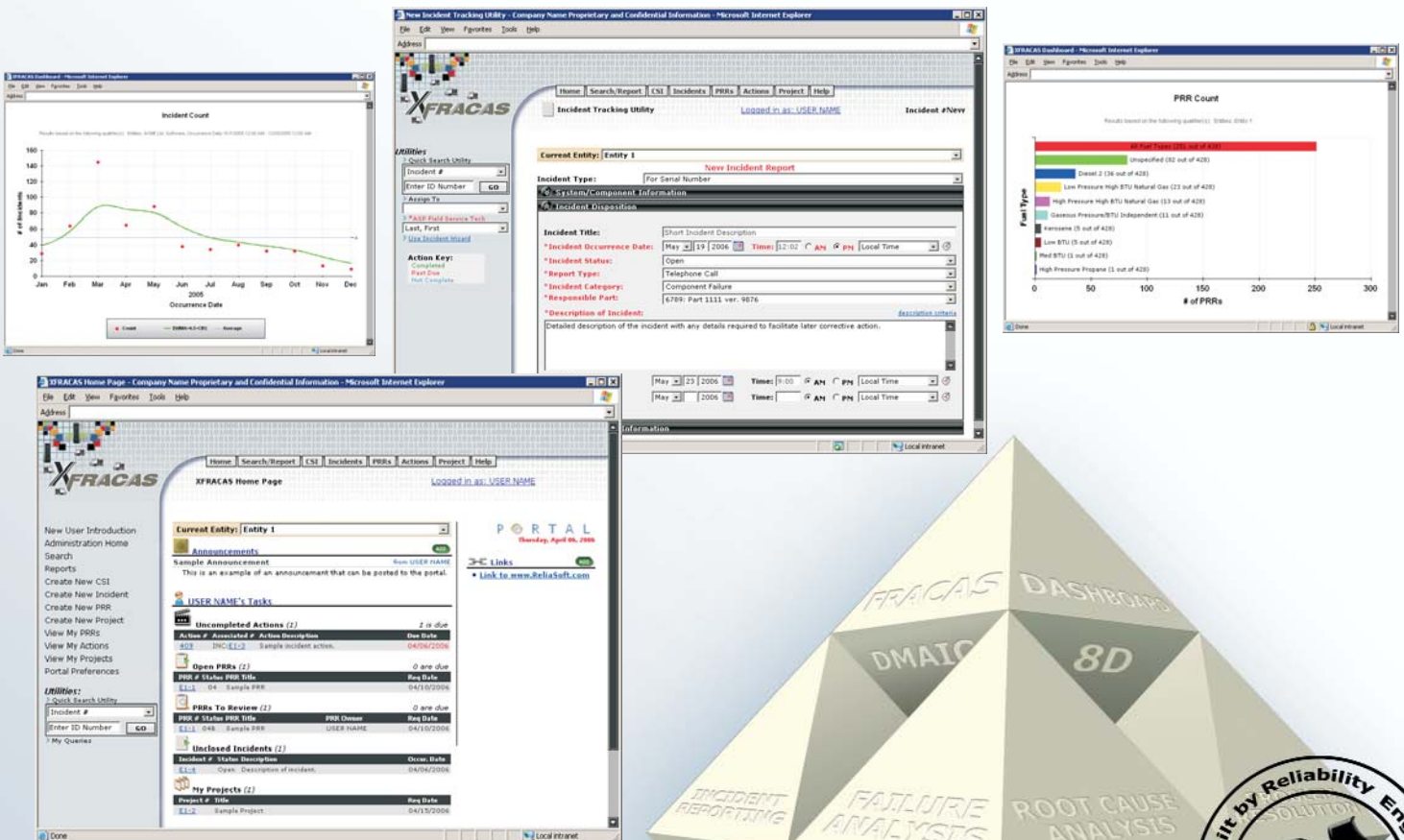


X FRACAS

XFRACAS

A WEB-BASED FRACAS
AND MUCH, MUCH MORE...SM

ReliaSoft's XFRACAS is a Web-based, closed-loop, incident (failure) reporting, analysis and corrective action system (FRACA/FRACAS) designed for the acquisition, management and analysis of product reliability, quality and safety data from multiple sources, along with the management of problem resolution activities. Formerly known as the "Quality Tracking and Management System" (QTMS), the next generation XFRACAS system is more powerful and flexible than ever!



ReliaSoft[®]



ReliaSoft's Web-based **XFRACAS** system supports the entire incident management process, from the initial development stages to complete tracking of fielded units. The system allows you to track issues for serialized systems, generic system configurations or even processes. It includes complete support for FRACAS or DRACAS activities and a configurable array of problem resolution processes (from 4 to 8 steps), such as 8D problem resolution, Six Sigma DMAIC, and others.

The only truly Web-based, closed-loop, user-configurable, enterprise-wide FRACAS in a box!

XFRACAS Provides a Full Set of FRACAS and Related Tools

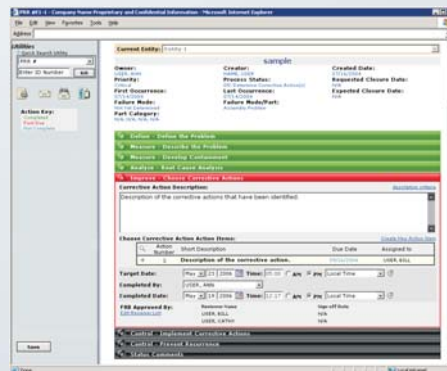
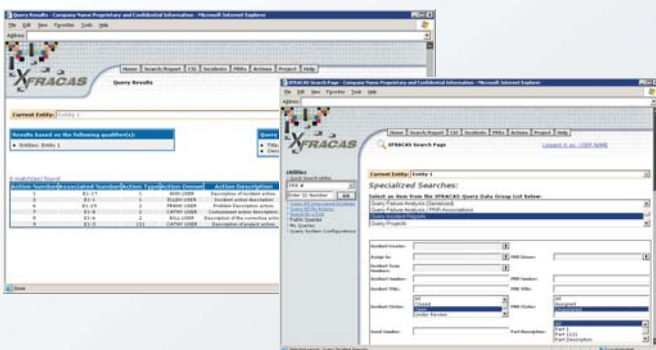
XFRACAS provides all of the tools that your organization will need to troubleshoot issues as they occur in the lab or in the field, capture the data required for important reliability, quality, safety and other analyses, work as a team to resolve underlying problems and build a "knowledge base" of lessons learned that will be instrumental to future troubleshooting and development efforts. The **XFRACAS** tool set includes:

- **Incident Reporting** - When users report failures, suggestions, customer requests, or other issues, **XFRACAS** captures the details required to understand and address the issue.
- **Customer Support** - When serialized system tracking is employed and incidents are reported through customer care channels, the system maintains customer contact information, incident history, system configuration and other details required to provide effective customer support.
- **System Configuration Management and Part Tracking** - When applicable, **XFRACAS** can track system configurations from the original Bill of Materials (BOM) through part repairs and replacements, to detailed failure analysis and remanufacturing of parts.
- **Problem Resolution** - When incident reports signal an underlying problem that needs to be resolved, **XFRACAS** provides a flexible framework to support team-based problem resolution.
- **Workflow Management** - When corrective actions are required, the system makes it easy to track and manage the workflow, including a personalized portal for each user, automated e-mail notifications and reports/charts to track action status.
- **Queries, Reports, Plots and Analyses** - When you're ready to put your data to work, the system's Search, Report, Dashboard and Analysis features provide powerful and flexible ways to extract, analyze and present the information.

XFRACAS employs a flexible approach in which incident reports can be addressed individually and/or assigned to a Problem Resolution Report (PRR) designed to coordinate and track team-based problem resolution efforts.

XFRACAS is Web-based and Highly Configurable

The system's Web-based user interface allows for easy access, collaboration and deployment for multiple sites, suppliers and dealers. The system is configurable, flexible and scalable to fit your organization's particular products/process and to grow with your needs. **XFRACAS** provides extensive configuration utilities that allow you to control the look and feel of user interfaces, including the ability to select which features will be enabled, specify what each field will be called, choose which optional fields will be displayed in the interface, set the options available in pre-defined lookup lists, establish specific permissions based on user and "entity" (e.g. Product Line or business unit), and much more...



Implementation benefits include:

- ◆ Addresses data capture and management deficiencies to provide timely and accurate product reliability, quality and safety data.
- ◆ Streamlines incident reporting and problem resolution activities.
- ◆ Provides a closed-loop system for managing corrective actions.
- ◆ Contributes to design improvements, faster product release, better service and enhanced customer satisfaction.
- ◆ Generates financial rewards through better product designs, enhanced control of product warranties and more efficient customer support.
- ◆ And more...

- Troubleshoot the current issue
- Capture the data required for important analyses
- Resolve the underlying problem
- Build a "knowledge base" of lessons learned



Users Report Issues from Multiple Locations

Since the **XFRACAS** system is Web-based, it is easy to deploy throughout the organization and even to outside locations (suppliers, dealers, etc.) if desired. It is easy for users at multiple locations to report failures, incidents, issues and/or suggestions and to view information reported by other users.

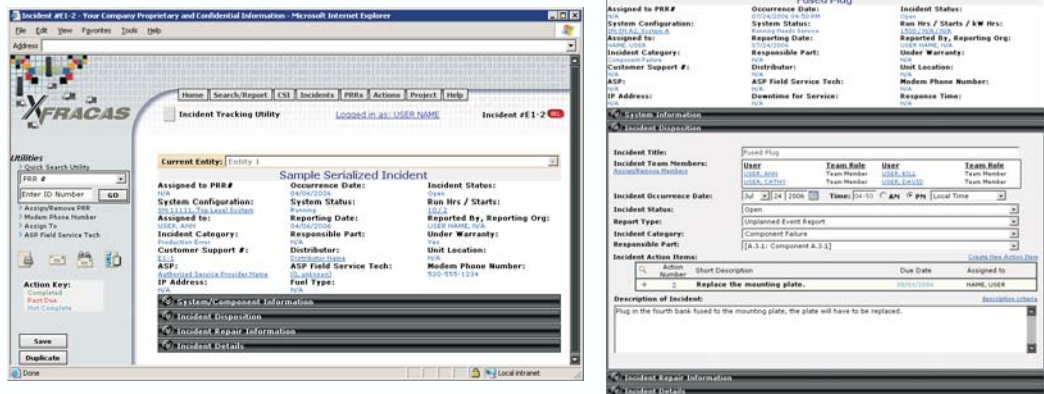
XFRACAS also makes it easy to import incident information from another data source (such as a legacy system, the supplier's FRACAS system, etc.) using a "flat file" import template (Microsoft Excel®).

Sufficient Detail to Understand and Address the Issue

The Incident Report has been designed to allow the organization to capture sufficient detail to understand (categorize and quantify) and address the issue, such as:

- Incident description
- Date/time of the incident and accumulated service, if applicable
- Operating environment
- Fault code(s)
- Troubleshooting efforts and incident resolution
- Is the incident a "failure" that should be considered in reliability analyses?
- Priority and/or status
- And much more...

To customize the system to meet your organization's particular needs, you can configure the Incident Reporting interface (and all other system interfaces) to use familiar terminology, choose whether optional fields will be captured, set the options available in predefined lists, add new data capture fields and specify their location in the interface, and much more. **No custom programming required!**



Automatically Assign the Incident to the Person Responsible

The system can be configured to automatically assign a new incident for follow-up by the person who is responsible for the part (or area) that the issue relates to. If desired, the system also sends notification e-mails to the responsible person and others who are affected by the issue. Users can also monitor incidents of interest from their configurable personalized "portals."

Integration with FMEAs

The data from your FRACAS system can be a valuable input to your organization's FMEAs by identifying new failure modes and allowing you to estimate the frequency with which a problem occurs in the field. For incidents with an associated Failure Analysis record, **XFRACAS** allows you to "categorize" the incident with the Function > Failure > Effect > Cause that will "map" the event to a new or existing FMEA. You can import this information from **XFRACAS** directly into ReliaSoft's **Xfmea** or **RCM++** software.

**Users at multiple locations report failures, incidents, issues and/or suggestions...
... and view information reported by other users**

An incident can be flagged to indicate that it is a "failure" to be considered in reliability analyses

Incidents can be addressed individually and also assigned to PRRs for team-based problem resolution if identified as part of a larger problem



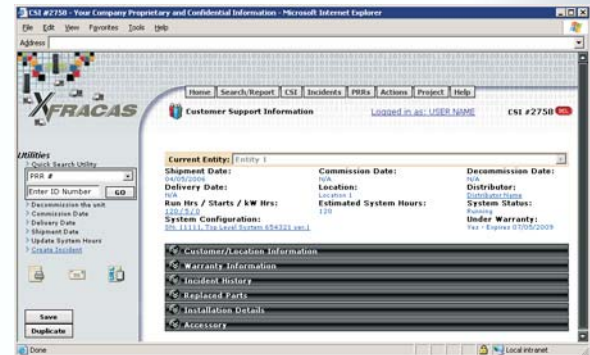
Customer Support Activities

When serialized system tracking is employed, XFRACAS provides a complete array of resources necessary to provide effective customer support. This includes:

- Customer name and contact details
- Terms of any applicable Warranty agreements
- Installation details, such as operating environment, technician, etc.
- History of communications
- Exact system configuration and record of all replaced parts
- History of reported incidents
- And much more...

Full history of customer issues and troubleshooting

By providing easy access to detailed information about the particular customer/unit and other reported incidents that may be similar to your customer's current concern, XFRACAS will help you to provide more efficient and more effective customer support while capturing the valuable data you will need for reliability, quality and safety analyses as well as improvements to the design.



System Configuration Management and Part Tracking

XFRACAS supports complete system configuration management and part tracking from the original Bill of Materials (BOM), through part repairs and replacements, to detailed failure analysis and remanufacturing of parts. The system allows you to:

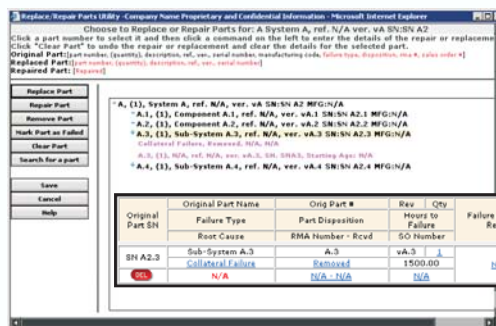
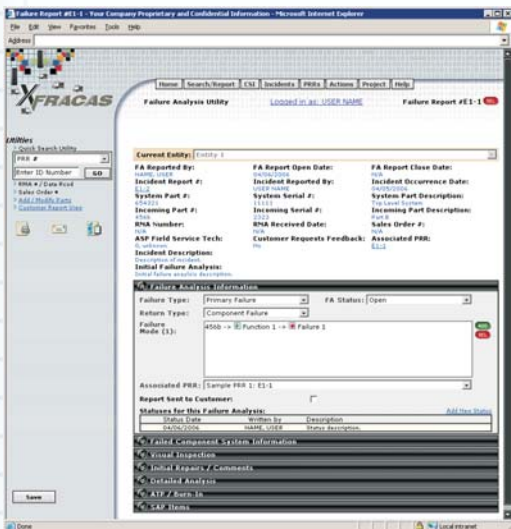
- Use a flexible hierarchical structure to fully define the system configurations that you will be tracking (with or without serial numbers)
- Record the details for the installation (commissioning) of a specific unit
- Record the details for every part repair/replacement entered via the system
- Track the status of replaced parts as they are repaired/remanufactured and returned to the supply chain
- Track the system configuration of a specific unit as it changes over time
- Import system configuration information from an outside data source using a predefined import template (Microsoft Excel®)

Track the configuration of a serialized system from commissioning through repairs to retirement

Detailed Failure Analysis

XFRACAS can also be configured to capture the details of Failure Analysis investigations performed for returned parts. This gives a complete record of the organization's response to a particular failure and provides valuable information for troubleshooting, reliability analysis and other efforts.

Track failure analysis and/or part remanufacturing





Team-based problem resolution

Use the PRR to Resolve the Underlying Problem

Although XFRACAS provides the tools necessary to address and “close the loop” on each incident independently, a team-based problem resolution approach can be more efficient and effective when individual incident reports signal an underlying problem that needs to be resolved. XFRACAS provides a flexible framework for this via the Problem Resolution Report (PRR) interface.

With the PRR approach, you can assign multiple incidents to a single PRR. Resolving the underlying problem addresses all related incidents and improves the design and/or the process to prevent similar problems from occurring in the future.

Configure the Problem Resolution Method - 4 to 8 Steps

You can configure XFRACAS to support any problem resolution methodology, from 4 to 8 steps, such as the four step DCOV process, the five step Six Sigma DMAIC process or the eight step 8 Disciplines (8D) method. For example:

Four Step DCOV Process

- D - Define
- C - Characterize
- O - Optimize
- V - Verify

Five Step Six Sigma DMAIC Process

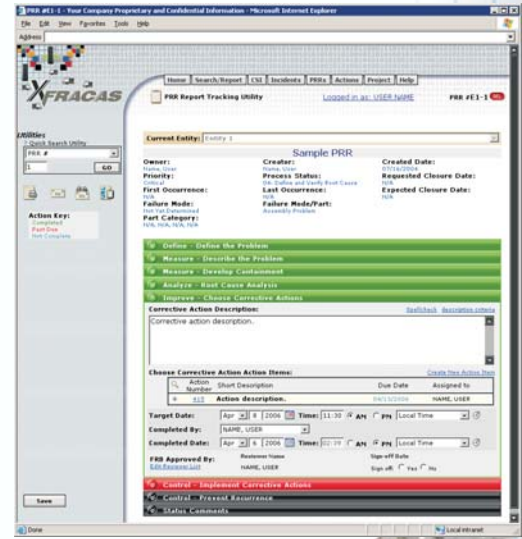
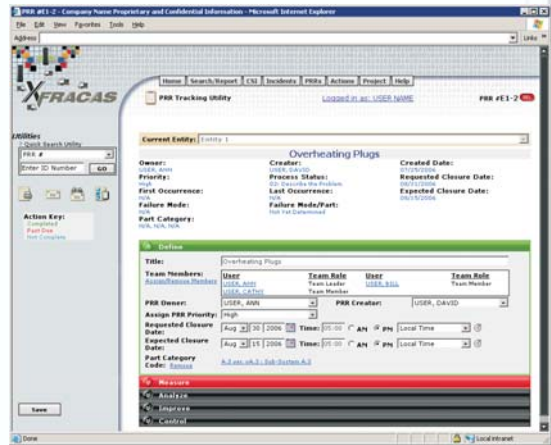
- D - Define
- M - Measure
- A - Analyze
- I - Improve
- C - Control

Eight Step 8 Disciplines (8D) Process

- D1 - Establish the Team
- D2 - Describe the Problem
- D3 - Contain the Problem
- D4 - Identify, Define, Describe and Verify the Root Cause of the Problem
- D5 - Choose Corrective Actions
- D6 - Implement/Validate the Permanent Corrective Actions
- D7 - Prevent Recurrence
- D8 - Reward the Team

Configure the problem resolution methodology from 4 to 8 steps

Track and manage issues from the initial report, through troubleshooting and problem resolution, to final review and approval



Whichever problem resolution method you employ, XFRACAS provides all of the tools that you will need to track and manage the activities required to develop an effective solution!

Enforce Oversight for Important Issues (Review Board)

The PRR Interface allows you to mark stages in the problem resolution process when review and approval are required (for example, from a Failure Review Board). XFRACAS provides the tools required to track and follow up on these issues to ensure that the organization maintains proper oversight to confirm that problems are being addressed appropriately.



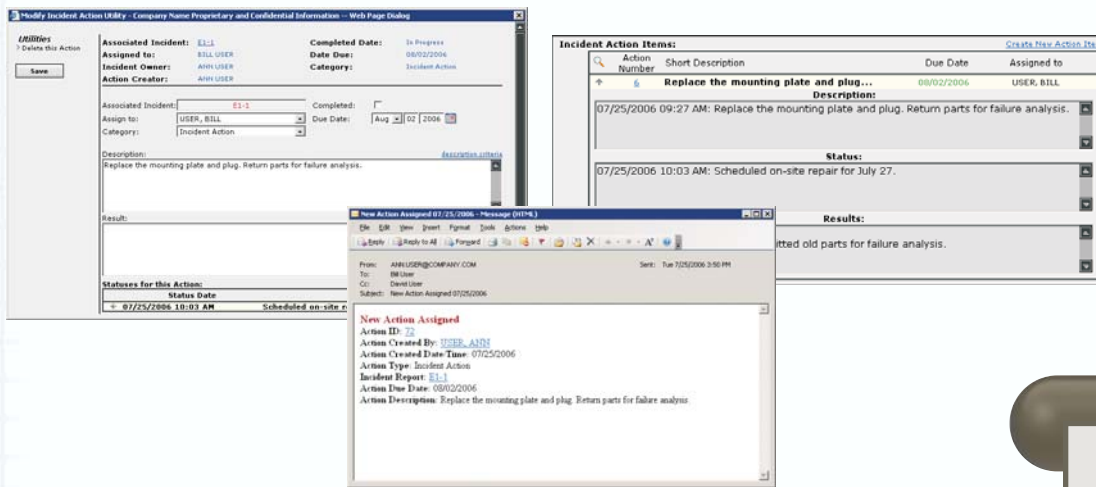
Close the Loop on Corrective Actions

XFRACAS provides the ability to manage resources and problem resolution by assigning actions to specific personnel and tracking the progress of resolution activities. This includes:

- Detailed action definition, including the person responsible, due date/completion date, category, status updates, actions taken, etc.
- Automated e-mail notifications to alert responsible personnel of required actions and upcoming due dates
- Ability to track the progress and completion of assigned actions
- Assign other individuals or groups to be notified about progress for a particular action and/or to review and approve the actions taken

The ability to assign and track Actions for Incidents, PRRs and/or Projects provides a great deal of flexibility for coordinating and tracking progress to resolve issues.

Automated e-mail notifications for corrective actions



Use "Projects" to Track and Manage Related PRRs

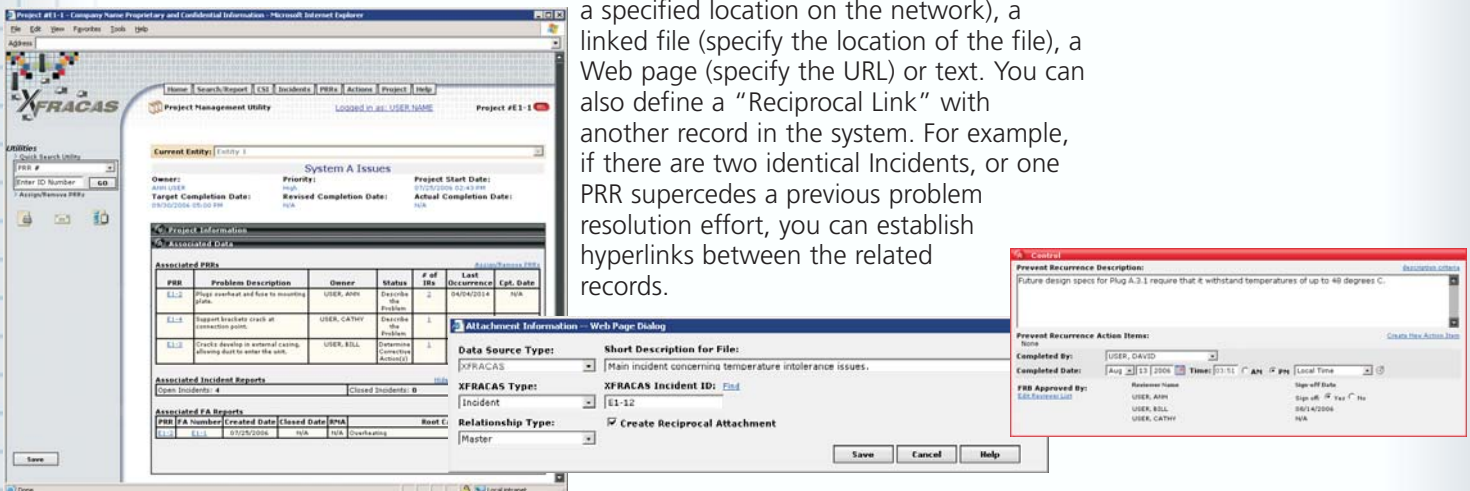
The "Project" feature allows you to track and manage multiple PRRs together in order to effectively manage all of the issues associated with a given project. This provides easy access to high-level statistics for the associated Incidents and PRRs, such as the number of issues that are open (not resolved), how long the issue has been in the system, who is responsible for following up on the issue, etc.

Flexible Attachments Feature Provides Added Dimension

The flexible Attachments feature adds dimension to Incidents, PRRs, etc. by allowing you to attach supplementary documents or link specific system records. You can attach an uploaded file (upload the file to the XFRACAS database or to a specified location on the network), a linked file (specify the location of the file), a Web page (specify the URL) or text. You can also define a "Reciprocal Link" with another record in the system. For example, if there are two identical Incidents, or one PRR supercedes a previous problem resolution effort, you can establish hyperlinks between the related records.

Attach supplementary documents

Establish links between related records within the system





Personalized portal provides quick access to system information of interest to you

Easy Access to Incidents, PRRs, Actions

XFRACAS provides a personalized "portal" for each user (based on login) that displays system-wide messages and links. The portal allows the user to access system tools (based on permission) and also provides an at-a-glance view of all the issues the user needs to work on, including:

- Incidents that you need to review
- Actions assigned to you that need to be completed
- Problems that you need to work on
- Issues that you need to review and sign off on
- Projects that you are involved with

It is easy to configure your portal to meet your particular display preferences, including the useful option to schedule a report to run automatically each time you log in to the system! The portal also makes it easy for users to automatically update their own contact information via the system.



Extensive customization options to configure the interface and manage user access

Customize the System to Meet Specific Needs

The extensive ability to configure the system to meet the organization's specific needs is one of the greatest strengths of **XFRACAS**. Configuration options include:

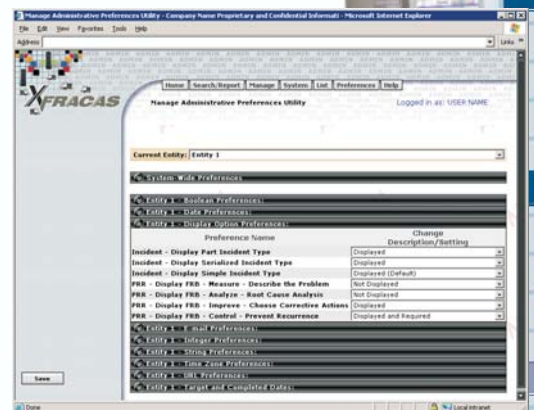
- You can determine what the system's predefined fields will be called and, for optional fields, choose whether they will be included in the interface.
- You can create your own custom fields by selecting the type (e.g. input box, file attachment, drop-down menu, hierarchical tree, yes/no response, etc.), the name of the field and its position in the interface.
- You can determine the options that will be available in predefined menus and lists. If desired, these settings can be imported from Excel®.
- And much more...

These configuration options can be applied the same for the entire system or you can specify different options for different entities (e.g. product lines, business units, etc.). To save configuration time, **XFRACAS** allows you to use the configuration (or a portion of the configuration) for an existing entity as the "template" for a new entity. This allows you to deploy the system to users with different requirements with minimal effort and cost.

Flexible Options to Manage System Users and Permissions

XFRACAS provides a flexible array of options for managing user accounts and assigning access permissions. This includes:

- Administrators can save time by importing user account information from a "flat file" template (Microsoft Excel®) or from the Active Directory® on the organization's network.
- An extensive array of "permissions" allows you to provide the exact level of access that is appropriate for each user. The User Groups feature allows you to easily apply a predefined set of permissions to each new user account.
- User accounts can have different permissions for different entities that are tracked within the system. For example, a user may have the ability to create PRRs for one product line but is only able to create Incidents for other product lines.
- And much more...



Import user account information from Excel® or Active Directory®



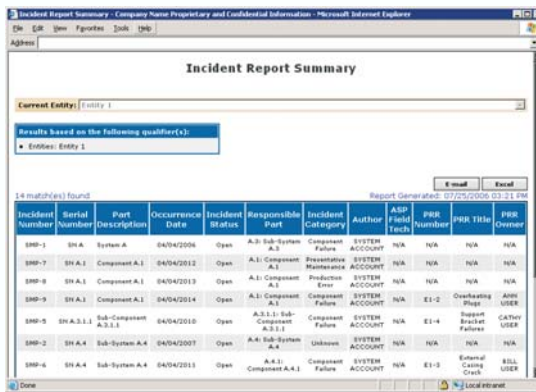
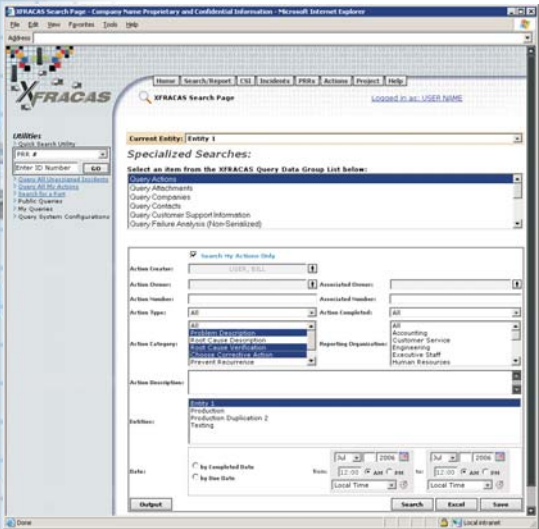
My Search Page and My Reports Page

XFRACAS provides a powerful and highly flexible search interface that allows you to search for records based on any of their properties. You can specify what fields will be included in the results and how the information will be sorted. In addition, the XFRACAS Report interface allows you to generate summary reports that can be printed from your Web browser, saved as an Excel® spreadsheet and/or copied to another application for further analysis.

The system comes with predefined searches and reports for commonly requested information (e.g. Query Unassigned Incidents, Query All My Actions, Open PRR Report Summary, etc.) and allows you to save and re-use your own custom searches/reports. Users with appropriate permissions can even share their custom queries with all system users.

Search the system for specific information and export query results to Excel®

Save and re-use Searches and Reports



Dashboard charts present information graphically and allow you to drill down to greater levels of detail

My Dashboard Page

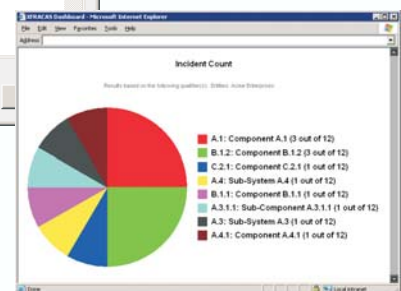
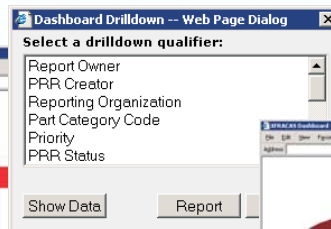
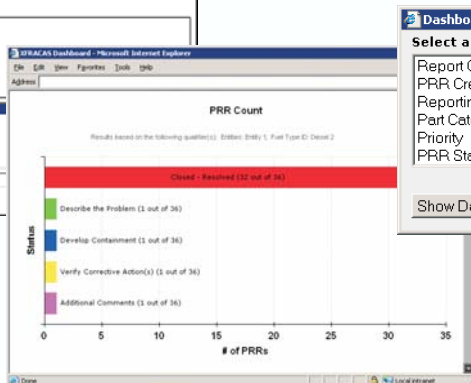
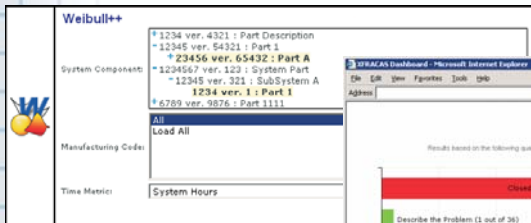
The XFRACAS Dashboard interface allows you to specify a data set (for example, chargeable incidents for a particular component in a particular time frame) and automatically generate a variety of graphical charts (line charts, bar charts, pie charts, etc.). For many charts, you can even drill down within the chart to greater levels of detail. The charts are highly configurable and designed to provide the flexibility that you need to effectively turn your data into usable information to support decision-making.

My Analysis Page

XFRACAS also makes it easy to extract and export data for analysis with ReliaSoft's powerful statistical software tools, Weibull++ and RGA PRO. The system automatically "processes" the raw data in the system to a usable format for statistical analysis (e.g. determine times-to-failure and suspensions for a Weibull++ analysis based on available incident report data).

Extract and export data for analysis with ReliaSoft's Weibull++ or RGA PRO

Also supports import/export with Xfmea and RCM++





Detailed user documentation in printed manual and on-line help files

Comprehensive Documentation

ReliaSoft's XFRACAS comes with complete and detailed printed product documentation and on-line help files, as well as an implementation guide designed to get you up and running the minute the system is installed.



Total Customer Support

ReliaSoft is totally committed to providing you with immediate support to answer any questions you might have and/or to assist you with any problems that may arise. Support options include free telephone, fax and e-mail support as well as free minor version product updates.

What are the System Requirements?

XFRACAS has been designed as a Web-based system to serve the needs of large organizations. It is based on the Windows DNA (Distributed InterNet Applications) architecture, which is n-tier, scalable, distributable, robust and able to be deployed across multiple servers or on a single computer.

- **Server:** Windows NT 4.0, 2000 or 2003; SQL Server 7.0, SQL Server 2000, SQL Server 2005 or Oracle 9i and Microsoft IIS 4.0, 5.0 or 6.0, MTS or COM+
- **Clients:** Internet Explorer 5.5 or greater; Excel 95 or greater for data output

More details are available on the Web: <http://XFRACAS.ReliaSoft.com/architecture.htm>

How much does ReliaSoft's XFRACAS cost and how do I order it?

Please contact ReliaSoft (1.888.886.0410 or +1.520.886.0410 or Sales@ReliaSoft.com) for a detailed quotation to meet your organization's specific needs.

Can I get training in the use of the system, FRACAS methodologies and other reliability engineering topics?

ReliaSoft's training seminars provide instruction in reliability engineering principles and theory as well as the ReliaSoft software tools designed to put that theory into practice. A course on XFRACAS and FRACAS methodologies is available. For complete details, see <http://Seminars.ReliaSoft.com>.

What other reliability software is available from ReliaSoft?

ReliaSoft's reliability analysis software products have become the industry standard for complete reliability analysis and are used worldwide by most manufacturers with an active quality/reliability engineering program. Complete product details are available on the Web at <http://www.ReliaSoft.com>.

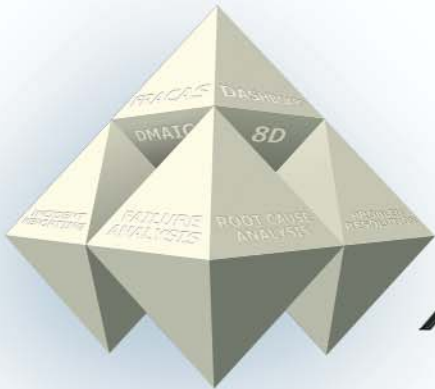
- ◆ **Weibull++** for life data analysis
- ◆ **ALTA** for quantitative accelerated life testing (QALT) data analysis
- ◆ **RGA** for reliability growth analysis
- ◆ **BlockSim** for system reliability, maintainability, availability and related analyses using Reliability Block Diagrams (RBDs) or Fault Tree Analysis
- ◆ **RENO** for visual stochastic event simulation
- ◆ **Xfmea** for failure modes, effects and criticality analysis (FMEA/FMECA)
- ◆ **RCM++** for reliability centered maintenance (RCM) analysis
- ◆ **MPC 3** for MSG-3 aircraft systems and powerplant analysis and reporting
- ◆ **Lambda Predict** for standards based reliability prediction analysis

Free comprehensive technical support via phone, fax or e-mail

Truly Web-based System

Works with SQL Server® or ORACLE® database

ReliaSoft®

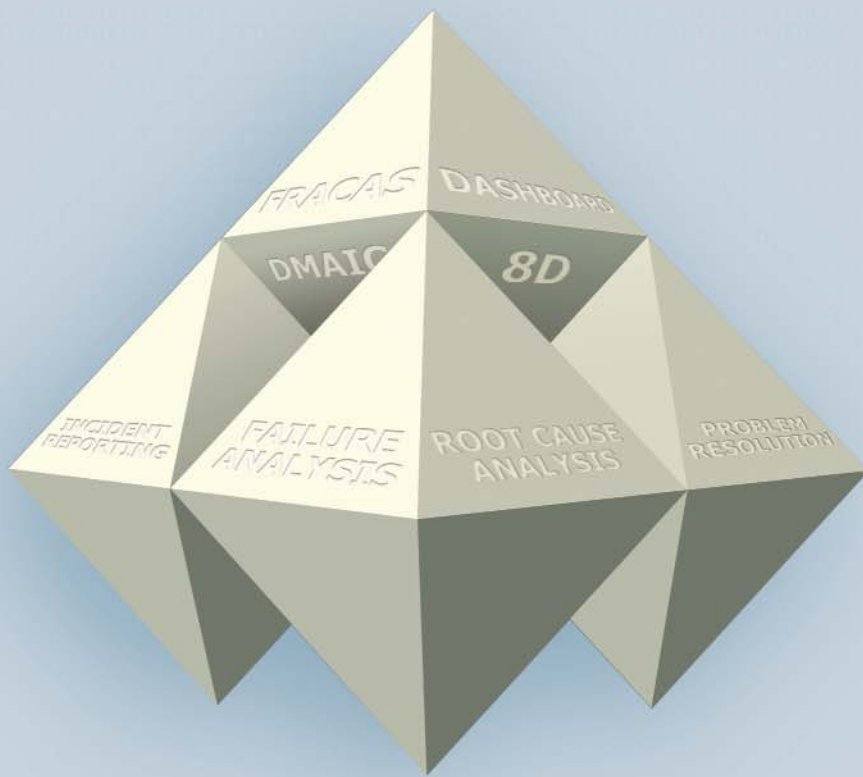


XFRACAS



ReliaSoft Corporation
1450 S. Eastside Loop, Tucson, AZ 85710
Phone: +1.520.886.0410, Fax: +1.520.886.0399

<http://XFRACAS.Reliasoft.com>



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