ClearDDTS User's Guide

Rational
the e-development company™

Contents

Preface

ClearDDTS™ is a change request management system that tracks and manages product feedback such as defects ("bugs") and enhancement requests throughout a product's life cycle.

Intended audience

The *ClearDDTS User's Guide* is intended for quality assurance engineers and managers and for developers and project managers responsible for assigning and implementing change requests. This guide describes how to use the default product for tracking changes, with an emphasis on defect tracking and resolution. For information about administering or customizing the system, see the *ClearDDTS Administrator's Guide*.

Using this guide

For most organizations, the default ClearDDTS product requires at least some modification to reflect the specific needs and business practices in place at each site. Some of the ClearDDTS features that can be tailored include:

- the states used and the rules for moving from one state to another
- the fields displayed for a record and which fields are required
- the availability of default values, pick lists, and calculated values for fields
- the fields associated with each state transition

Because changes to the default product affect so much of what you see, how you enter information, and the actions you can perform, what you see displayed when you work with ClearDDTS can be

very different from what you see described in this guide or in on-line help. For example, when you submit or view a record you may see completely different fields displayed or some of the same fields in a different order.

If ClearDDTS has been customized to suit your organization's needs and processes, your ClearDDTS administrator should supply you with information about any new, unique fields or states you should use.

The examples in this guide are based on the default ClearDDTS product. The following topics are covered:

- Chapter 1, Welcome to ClearDDTS, provides a brief introduction to ClearDDTS and the problems it is designed to solve.
- Chapter 2, Learning the Basics, describes the concepts and terminology to be familiar with before using ClearDDTS.
- Chapter 3, Logging In and Navigating, describes how to log into and navigate through ClearDDTS.
- Chapter 4, Setting Defaults, describes how to set up your default ClearDDTS environment.
- Chapter 5, Submitting New Records, illustrates how to submit new records using the default submission form for a software defect as an example.
- Chapter 6, Querying the Database, describes how to search the information in your database for a record or records matching specific criteria.
- Chapter 7, Viewing and Modifying Records, describes how to modify records as they move through their life cycle, including how to add and edit additional information, how to forward records to new projects, and how to clone records.
- Chapter 8, Generating Reports, provides information about generating and printing standard ClearDDTS reports.

This guide also includes appendices to provide specific technical information, such as other ways you can access ClearDDTS functionality (including the X-window interface *xddts* and

individual command line utilities) and examples of ClearDDTS reports.

Where to go for more information

In addition to this guide, the ClearDDTS documentation set includes several other sources of information. Use the following roadmap to guide you to the documents that best suit your needs:

Installation and licensing

ClearDDTS Installation & Licensing Guide
- instructions for installing, upgrading, and licensing the product

ClearDDTS Administrator's Guide
- setting up and maintaining classes, projects, security
- customizing ClearDDTS for your site

ClearDDTS administration

ClearDDTS administration documentation in HTML (see http://<host>/wt/doc)

ClearDDTS HTML Documentation
- Man(1) and Man(5) pages
- Implementation Roadmap (steps you through the implementation process)
- All three reference guides

If you are planning to integrate with Rational's ClearCase® configuration management system, you may also want to consider the following resources:

- *ClearCase - ClearDDTS Integration Guide*
- *ClearCase Reference Manual*

Questions or suggestions?

For updated information specific to the current release of ClearDDTS, refer to the RELEASE_NOTES file at the top level of your ClearDDTS installation directory. For answers to some of the most frequently asked questions about ClearDDTS, see the ClearDDTS FAQ available on the Rational web site, www.rational.com.

For technical support or suggestions for improving ClearDDTS or this guide, contact the nearest Rational Technical Support Center.

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Welcome to ClearDDTS

This chapter provides a brief overview of ClearDDTS and the kinds of problems that ClearDDTS can help your organization solve. Topics covered include:

- What is ClearDDTS?
- Using ClearDDTS to manage change requests
- Moving beyond change request management

What is ClearDDTS?

ClearDDTS is a change request management system that tracks and organizes product feedback for development and testing organizations. ClearDDTS provides a range of meaningful metrics to help you measure product and process quality and is tightly integrated with software configuration management systems to help you effectively manage change.

Developed through real-world experience and use, ClearDDTS is specifically designed to track and manage change requests, such as product defect reports and enhancement requests. However, ClearDDTS is also flexible enough to be adapted to track almost any other type of information.

ClearDDTS features include:

- An intuitive web-based interface, which allows easy submission of, and access to, change request information through a web browser from virtually any platform.
- Scalable change request tracking facilities that work equally well for small projects and large development organizations, and can be completely customized to suit your needs.

- Extensive search and query capabilities, which allow you to look up and examine records based on any criteria.
- Reporting and analysis tools which allow you to track trends and evaluate product stability and overall quality.
- Fully distributed information management. Users can submit change requests from anywhere. As many people as desired, at any location, can subscribe and be updated on any individual project's change request status.
- Integration with software configuration management systems to manage change and the reasons for change.
- Integration with other development and testing tools to provide the backbone for a Quality Information System.

Using ClearDDTS to manage change requests

In today's competitive markets, software quality and engineering productivity are crucial to a company's success. Effectively tracking defect reports and enhancement requests leads to better quality product releases and a competitive advantage. Without a change request management system, defect reports are lost or never submitted, bugs continue to plague products, and customers are dissatisfied. Without a change request management system, enhancement requests and innovative product ideas get lost, never get to the engineer, and are never put into the product.

These problems are further compounded when software is developed by teams located in different buildings or in different states or countries.

ClearDDTS provides an easy to use interface and a feedback loop to encourage the submission of change requests. Submitters and others interested in the change request are notified of status changes. Once the change request is submitted, the information can be easily retrieved and organized in reports and graphs.

ClearDDTS allows everyone in the organization to be more productive. Depending on your role, you can focus on just the

information or tasks in which you are interested or can view information in different ways. For example:

- Engineers can view all approved change requests for which they are responsible, all change requests in the project, all outstanding change requests, or only change requests submitted in the last week. You define the information you want to see.
- Project managers can generate a variety of reports that provide information about project status and product quality in a format suitable for presentation to upper-level management.
- QA managers can view change requests in all projects and give company-wide quality reports and metrics.
- Management can access corporate-wide quality reports to compare projects and make resource and product shipment decisions based on "hard data."

Moving beyond change request management

ClearDDTS is a very effective way to manage change requests. In many organizations, there is also a need for an integrated approach to configuration management (CM) and change request management (CRM) to provide more complete change control.

The integration of a software configuration management system such as ClearCase, or a version control system such as RCS, with a CRM system like ClearDDTS provides your organization with a formal change management system.

Change management allows you to track the reasons for changes (for example, bugs and enhancement requests), your status responding to those requests (for example, which bugs have been fixed and which enhancements implemented), and which releases contain which changes (for example, the changes that are incorporated into release 2.1 but not 2.0).

ClearDDTS provides this integration by saving information about CM activity as files are checked out and checked in and through

scripts that can be customized to handle communication with your CM system.

If you want to know more about the integration of configuration management and CRM, see the *ClearDDTS Administrator's Guide*. If you are using ClearCase and want to know specific information about how ClearCase and ClearDDTS provide an integrated solution, see the *ClearCase ClearDDTS Integration* guide as well as the *ClearDDTS Administrator's Guide*.

2 Learning the Basics

This chapter describes the concepts and terminology you should be familiar with to get you started with ClearDDTS. Topics covered include:

- How defects are classified
- Defect life cycle
- Defect severity levels
- What happens when changes are made?
- Default fields for state transitions
- Contents of a defect record

How defects are classified

In ClearDDTS, defects are organized into *classes* and *projects*. Each class can have its own process model and rules for how records are handled. Projects that share the same life cycle and field requirements can then be grouped together into an appropriate class. For example:

Class { software

Project { operating_systems   utilities_tools   finance_apps   office_apps
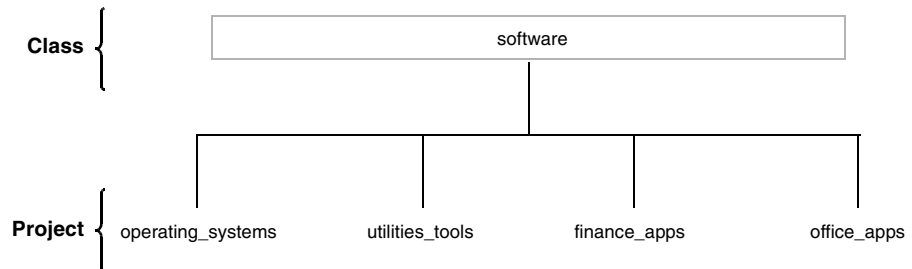
Before you begin collecting defect information with ClearDDTS, you need to identify the projects and classes you want to use.

Working with classes

Each class can have its own unique requirements so that projects within that class are all handled in the same way. Classes are also important because most of the changes your organization makes to customize ClearDDTS for your site are done on a class-by-class basis.

ClearDDTS is shipped with a default class, *software*, for tracking software defects and enhancement requests. Your organization can define other classes for tracking, or modify the *software* class as necessary.

Identifying projects

While ClearDDTS includes a default class, projects are always defined by your organization and may be different from one site to another.

Usually, projects correspond to individual products or to major components of your products. For example, a workstation vendor might define projects for computers, operating systems, utilities, and applications. A company that produces three software applications might define one project for each application.

Every project is identified by a unique name and is associated with exactly one computer system, which is known as its *home system*. When a defect is submitted to ClearDDTS, the person submitting it specifies the project to which the defect belongs. All of the defects submitted for a project reside on the same home system, but users worldwide can log bugs against the project without needing to know where the project's home system is located.

Defect life cycle

Defect records move through a pattern, or life cycle, from submission through resolution. In ClearDDTS, each stage in this life cycle is called a *state*, and each movement from one state to another is called a *state transition*.

For example, the following default states are defined for the *software* class:

State	How it is used
Submitted (S)	Initial state of a defect record when a user encounters a problem with a project and submits a report.
New (N)	State of the defect when it arrives on the system where the target project resides.
Assign (A)	Project manager assigns the defect to an engineer.
Open (O)	Assigned engineer acknowledges receipt of the defect and begins actively working on it.
Duplicate (D)	Defect is determined to be a duplicate of an existing defect record.
Postpone (P)	Defect will not be fixed immediately. For example, it may be fixed in a later release.
Resolve (R)	Defect has been fixed or resolved some other way. For example, you could note that the unexpected behavior was the result of a misunderstanding on the part of the submitter.
Verify (V)	Defect has been fixed and the fix has been tested and found to work.
Forward (F)	Defect has been forwarded to another project. For example, if it was originally submitted to the wrong project you could forward it to the correct project.

As needed your organization can define states such as Rejected, Integrated, Merged, or Approved. In addition, the valid states typically vary by class. For information about customizing states, see the *ClearDDTS Administrator's Guide*.

State transitions

The following figure illustrates the most commonly used state transitions for the default state model. However, many other state transitions are also possible. For example, you can move a defect from Postpone to Verify, or re-open a defect by moving it from Resolve to Open. ClearDDTS prevents you from making any illegal state transitions by not displaying those states in the **Change state to** field.
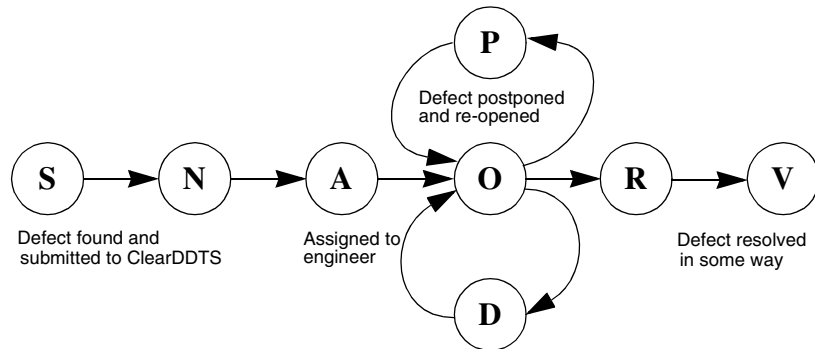
Your organization can customize the states and state transitions available on a class-by-class basis. Contact your ClearDDTS administrator if you are unsure about how states and state transitions are used in your environment.

Defect severity levels

Defect severity levels are used to identify the relative impact of a problem on the release of a product. However, different companies can have different classifications for defect severity. For example, some companies use nine severity levels while others use only five. In some companies, level 1 may be the most severe, whereas in other companies level 5 is the most severe.

Because of these variances, ClearDDTS does not impose rules about how severity levels are used. As a default, ClearDDTS provides 5 severity levels (IEEE has proposed severities 1 through

5 as a standard). To use the default severity scale, you can apply the following levels and definitions:

Level	Suggested usage
Severity 1	Catastrophic defect that causes total failure of the software or unrecoverable data loss. There is no work around. In general, a severity 1 defect would prevent the product from being released. Examples: defects that cause the system to crash, corrupt data files, or completely disrupt service.
Severity 2	Defect results in severely impaired functionality. A work around may exist but its use is unsatisfactory. In general, you would not release the product with such a defect. Examples: the line printer driver causes a crash and the work around is not to use the printer, or database queries fail and the work around is to reboot the system.
Severity 3	Defect causes failure of noncritical aspects of the system. There is a reasonably satisfactory work around. The product may be released if the defect is documented, but the existence of the defect may cause customer dissatisfaction. Examples: the tape backup program, *tar*, doesn't work and the work around is to use *cpio*, a different tape backup program.
Severity 4	Defect of minor significance. A work around exists or, if not, the impairment is slight. Generally, the product could be released and most customers would be unaware of the defect's existence or only slightly dissatisfied. Examples: out of date documentation or a formatting error in printed output.
Severity 5	Very minor defect. A work around exists or the problem can be ignored. The product can easily be shipped with such a problem. Examples: spelling errors in manuals or error messages that aren't as informative as they could be.

Note: These definitions are only provided as guidelines; you are free to choose your own levels and meanings as appropriate for your organization.

Default fields for state transitions

As you submit and move records through their life cycle, ClearDDTS prompts you for specific information appropriate for the state transition you are making. For example, when an assigned engineer opens a defect record, ClearDDTS typically asks

for information such as the expected resolution date and the estimated time it will take to analyze and fix the problem. When you are resolving a defect, ClearDDTS prompts for information about how and when the problem was resolved.

The default fields displayed vary depending on the class associated with the record being edited and the state to which you are moving the record. In addition, the ClearDDTS administrator can completely customize the fields displayed, the default values provided, and whether fields are required to complete a stated transition. Because of this, the fields you see when you use ClearDDTS may be very different than those described in this guide.

If you do not know what information to enter in any field, check the online help or contact your ClearDDTS administrator. For information about customizing ClearDDTS fields, see the *ClearDDTS Administrator's Guide*.

What happens when changes are made?

Whenever changes are made to a defect record, ClearDDTS automatically notifies you of the change through electronic mail. In general, this notification mail is sent to the person who submitted the defect, the engineer assigned to fix the defect, and to any users that belong to the associated project's notification list.

Mail to the submitter

Each time a defect record undergoes a state transition or is modified in any way, ClearDDTS automatically sends an electronic mail message to the person who originally submitted the record explaining what happened to the defect record. ClearDDTS also sends an updated copy of the defect record to the submitter's home system where it is saved automatically for later examination.

ClearDDTS notifies the submitter of each state transition. This allows the submitter to easily track the problem and know

whether the bug is being investigated, has been fixed, or has been closed in some other way.

This closed loop feedback encourages bug submission and can thus improve the quality of your products. It also improves the efficiency of the team by providing up-to-date information automatically whenever changes are made.

Mail to the responsible engineer

Each time a defect record changes state or is modified, ClearDDTS also sends a mail message to the engineer assigned to that defect. In this way, the engineer is kept informed about any changes in status or additional information about the defect.

For example, a support engineer may want to attach a workaround he has uncovered in working with a customer or a tester may decide to re-open a closed defect. When these changes are made, the assigned engineer is automatically notified and can begin investigating the impact of the change.

Project notification list

In addition to the submitter of a defect record and the engineer currently assigned to it (if any), ClearDDTS can also notify other users of all or particular state transitions. This is done by adding the mail addresses of the desired users to the project and indicating which state transitions you want them to be notified about. This is called creating a *project notification list*.

A project notification list allows you to keep an entire project team up-to-date on changes that effect them. For example, a project notification list might include representatives from documentation, development, support, marketing, and testing groups. Each member of the list is automatically notified of new defects and changes to existing defect records and can evaluate the impact of the change on documentation, testing, or customer expectation.

For information about setting up a project notification list, see the *ClearDDTS Administrator's Guide*.

Complex expression email

ClearDDTS can also be configured to only send mail based on a predefined set of events. For example, ClearDDTS can be configured to send a mail message to a division manager if a defect is Severity 1, affects a particular project, or is submitted by a particular customer.

This feature is handled through the Other-mail field or other mail notification options and can be configured by your ClearDDTS administrator. See Chapter 11 of the *ClearDDTS Administrator's Guide* for more information.

Suppression of mail messages

By default, ClearDDTS does not send mail messages regarding transitions to the person who performed that transition, because the person is already aware that the transition occurred. Therefore, if you are the submitter or are on the project notification list and you perform a state transition, you will not receive mail. This option can be configured by your ClearDDTS administrator. As a submitter, you can also ask ClearDDTS not to notify you of any state transitions made by others.

Contents of a defect record

In its standard full-page format, each ClearDDTS defect record contains several distinct sections. Each section contains a specific type of information. The following table describes the default sections and the type of information you can expect to find in each. As you consider each section, refer to the example defect record, *CMMaa00030*, on page 2-11.

Default section	What you find there
Identification	Information identifying the defect record, such as: ▪ defect identifier (for example, CMMaa00030) ▪ name of the associated project (for example, DDT.test) ▪ where the defect was found (for example, version 1 of a subroutine called foo) ▪ key dates (such as the date the defect was submitted, assigned to an engineer, resolved) in the form YYMMDD (year, month, day). ▪ one-line summary of the problem, called the headline, that conveys the problem in a concise form for use in summary reports
Detection Information	Information about how the defect was detected, the environment where the defect was found, the problem severity, and the project affected by the defect.
Submitter Information	Information about the person who found the defect, including his or her organization, phone number, and e-mail address. This information makes it easier for an engineer fixing a problem to contact the person who found the problem.
Laboratory Information	Information about the engineer assigned to fix the defect and the estimated amount of time needed to make the fix. Since ClearDDTS can inform the submitter about every defect state transition, the submitter who receives this information can make plans based on how long the engineer believes it will take to analyze and fix the defect.
Resolution Information	Information about the defect fix. It specifies who fixed the defect, what was changed, how long it took to fix, and what was fixed.
Verification Information	Documents who verified the defect resolution.

Default section	What you find there
Enclosures and Attachments	Additional files with more detailed information about the defect. For example, the submitter can describe how the defect was found or attach a description of how to reproduce the problem or an engineer can add an enclosure to describe the fix or resolution or how to work around a problem. You can add a variety of enclosures to a defect. The example record contains two enclosures: *Problem* and *Resolution Info*.
History	An audit trail of all transactions that have occurred for the defect. This audit trail is read only and cannot be modified. The audit trail also shows configuration management activity against this defect if a CM system is integrated with ClearDDTS.
CM Events	Read-only audit trail recording CM activity associated with the record. For example, If you are using ClearDDTS integrated with a change management (CM) system (such as ClearCase), it records which version files are checked out and checked in for the record.

Example defect record

```
*************************************************************************
Bug CMMaa00030                    DDT.test            Submitted 960728
  VERIFIED defect report          foo, version 1        Assigned 961116
                                  2 enclosure             Opened 961117
                                                        Resolved 961117
  "The foo routine causes core dump."                   Verified 961118

DETECTION INFORMATION                    LABORATORY INFORMATION
 Detection method:  regression test   Assigned engineer:    pb
 Detected in phase: functional test   Problem type:         design
 Test program name:                   Recommended change:   source code
 Test system:      moe                Phase problem caused: implementation
 Version of OS:     5.3               Analysis time (hrs):  2
 Problem severity:  3                 Est. fix time (hrs):  3
 Affects project:   foo               Estimated fix date:   961210
 Need fix by:                         RESOLUTION INFORMATION
SUBMITTER INFORMATION                 Resolution:           source code
 Submitter:     Mike Martin          Resolved by:          Pat Birch
 Organization:  CMM Lab              Address:              pb@vertigo
 Phone number:  555-1212             Changed location:
 Address:       martin@good             foo.c
                                      Fixing time (hrs):    3
VERIFICATION INFORMATION              Phase problem fixed:  implementation
 Resolution accepted by: Mike Martin (martin@mickey)

************ Problem (Added 961116 by martin) ***********
I tried to link foo.c into my program.  When I ran it the process core
dumped.  After running dbx(1) to look at the stack trace it was clear that
foo.c was the problem.

************ Resolution Info  (Modified 961117 by pb) *********
You were correct it was a null pointer caused by an uninitialized
variable. I should know better by now (sigh).  Next time I'll Purify the
code.

************ History ************
batchbug  960728 222146  Submitted to DDTs by martin@good
batchbug  960728 224432  Enclosure "Problem" added by martin
xddts     961116 183234  N -> A (pb) by rico
batchbug  961117 073237  A -> O by pb
xddts     961117 180812  O -> R (source code) by pb
xddts     961117 184432 Enclosure "Resolution Info" added by pb
batchbug  961118 195349  R -> V (source code) by martin
*************************************************************************
```

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Logging In and Navigating

For most users, the easiest way to access ClearDDTS is through the *webddts* interface. The *webddts* interface allows you to submit, view, and modify records, run ClearDDTS management reports, and perform other common tasks using your web browser.

This chapter provides an introduction to logging in to and navigating through *webddts*. Topics covered include:

- Logging in for the first time
- Navigating with pages and frames
- Accessing information about ClearDDTS

Note: For information on using the *xddts* and *bugs* interfaces see Appendix B, Using Other Interfaces for ClearDDTS.

Logging in for the first time

To begin using the *webddts* interface:

1 Launch your web browser.

2 Open the location specified by your ClearDDTS administrator. For example, enter:
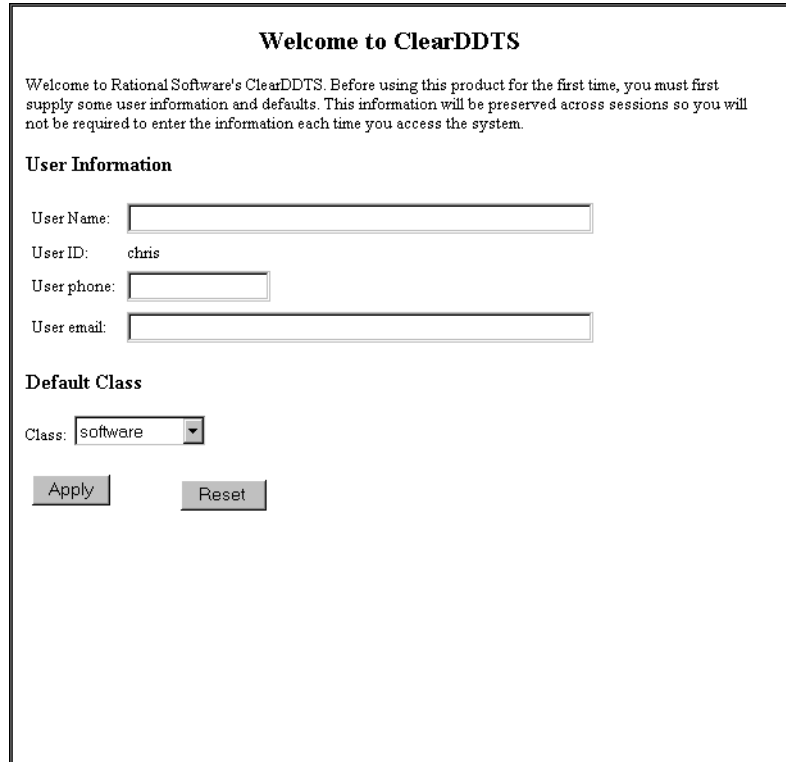
```
http://<host>/ddts/ddts_main
```

where <host> is the name of your HTTP server. This displays the ClearDDTS log-in page.

3 Enter your user name and click **Login**.

Depending on how security is set up for your web site, you may need to enter your user name or your user name and password. If

you are not sure what to enter, contact your ClearDDTS administrator. You need to log in every time you start a new ClearDDTS session.

4 The first time you use ClearDDTS, you are prompted to enter default user information. This includes your name, phone number, and email address.

Enter your user information and select a default class from the list of valid classes. ClearDDTS uses the software class as the default.

5 Click **Apply**.

You can now access ClearDDTS to submit defects, query and view records, and run reports. ClearDDTS uses these defaults each time you run the product until you return to the User Profile page

and make changes. For more information about making changes to
your defaults, see Chapter 4, Setting Defaults.

Navigating with pages and frames

Each time you start *webddts*, you are prompted to log in, and then
are presented with the main page. This first page and all other
webddts pages have at least two frames:

- The Toolbar frame contains the buttons you use to access the
  most commonly used pages. The Toolbar frame contents do not
  change.
- The Display frame contains the information resulting from your
  selection in the Toolbar frame.

Toolbar frame   Display area frame
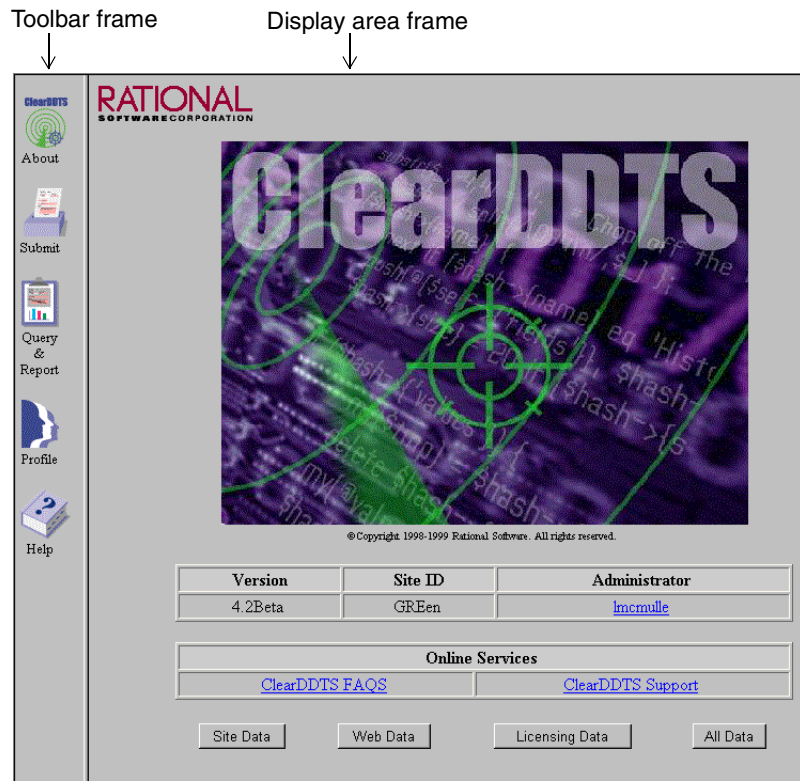
To perform any task, click the appropriate icon in the Toolbar frame. The Display frame changes to allow you to enter information or view results. The Toolbar icons include:
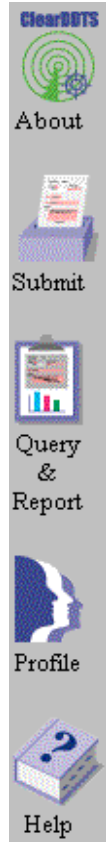
ClearDDTS / About	Provides information about your ClearDDTS site, plus links to access Technical Support.
Submit	Takes you to the Submit page where you can enter defects.
Query & Report	Provides access to the Query Builder, Saved Queries, and Reports.
Profile	Provides access to a variety of options for customizing your ClearDDTS environment. Options include default class, default installation site, query defaults, field defaults, and display options.
Help	Provides on-line help for the page currently displayed in the Display frame.

Note: The Query by ID option formally available on the Toolbar is now available as the View Defect field on the Saved Queries page. To access the Saved Queries page click the Query & Report icon.

Using the Back button

Your browser comes with a Back button to help you navigate through web pages. You can use this button in *webddts*, but be

careful. Through *webddts* you can change data in the ClearDDTS database or alter the ClearDDTS environment. If you use the Back button to return to a page, there is a possibility that the data or display on that page could be outdated. For the best results, access *webddts* pages using the Toolbar whenever possible.

Accessing information about ClearDDTS

To access information about Rational Software and your ClearDDTS installation:

1 Click **About** from the Toolbar frame. The ClearDDTS main page displays.

2 Click on the images and links to access information. The information available includes:

Rational Software logo	Link to the Rational Software home page (displayed in a new browser window).
Version	Displays the version of your current ClearDDTS installation.
Site ID	Displays the site ID of your current ClearDDTS installation. Defects entered though this site begin with this site ID.
Administrator	Displays an e-mail link to the ClearDDTS administrator.
ClearDDTS FAQs	Link to the ClearDDTS frequently asked questions page developed by Rational Technical Support (displayed in a new browser window).
ClearDDTS Support	Link to the Rational Software Technical Support home page (displayed in a new browser window).
Site Data	Link to the About ClearDDTS page displaying installation information about your ClearDDTS site.
Web Data	Link to the About ClearDDTS page displaying CGI and web server information about your ClearDDTS site.
Licensing Data	Link to the About ClearDDTS page displaying FLEXlm licensing information about your ClearDDTS site.
All Data	Link to the About ClearDDTS page displaying a summary of the site, web, and licensing data.

This page is useful when contacting Rational Software Technical Support.

4

Setting Defaults

This chapter describe setting up your default ClearDDTS environment, your *user profile*, through *webddts*. Your profile establishes some user-defined information and preferences about your ClearDDTS environment. You can change some of this information when entering or modifying defects. For example, whenever you submit defects, all of the submitter information defaults to your current user data, but you can edit this if necessary.

Your defaults also establish your current class, ClearDDTS installation site, preferences for the Query Builder display, default field values for modifying and querying, and default display options.

Topics covered in this chapter include:

- Changing your default class
- Changing your ClearDDTS site
- Setting query display fields
- Entering field defaults
- Entering user information
- Setting display options
- Clearing the ClearDDTS cache

Changing your default class

In most cases, you will work within a single class of projects. Your default class should reflect the class you work with most often. However, you may occasionally want to submit a defect or view records for another class created at your site.

To change your current working class:

1 Click **Profile** from the Toolbar frame.

2 Select a new class from the list of valid classes in the **Default Class** field.

Your selection is automatically applied.

Note: Only valid classes, those containing at least one project, appear in the class list.

Changing your ClearDDTS site

Typically you will have a separate web site for each ClearDDTS installation, but it is possible to have access to more than one ClearDDTS installation from a single web site. If this is the case, you may need to switch from one installation to another to perform certain activities. For example, to submit or modify

records for a remote site, you first need to change your ClearDDTS environment to point to that site's home directory.

To change your default ClearDDTS installation site:

1 Click **Profile** from the Toolbar frame.

2 Enter the full path to the desired ClearDDTS installation in the **Installation Home** field.

For example, enter /nfs/home/ddts. If you are unsure of the directory path to use, contact your ClearDDTS administrator

3 Press **Enter** to apply your changes.

Note: After changing to another ClearDDTS site, be sure your chosen class is still valid on the new site.

After changing the ClearDDTS site you will notice a new button, **Use installation default**, appear under Installation Home. Clicking this button returns you to the original installation.

Setting query display fields

When building a query, ClearDDTS displays a list of fields to use on the Query Builder page. You can select which default fields you want to see displayed (you can always add more as you are building the query). You can also provide a label for any field to use as the column heading in the Query Results page. These settings are class specific.

To select your query display preferences:

1 Click **Profile** from the Toolbar frame.

2 Click **Query Settings**.

User Profile

Query Settings

To set the default fields to display on the Query Builder page, select fields in the desired order and check the default box. Optionally, enter a label for each field to use as the column heading in the Query Results table.

Class: software ▼   Display 7 ▼ entries

Default	Field	Label
☑	Identifier ▼	Identifier
☑	Project ▼	Project
☑	State ▼	State
☑	Software ▼	Software
☑	Problem severity ▼	Sev
☑	Headline ▼	Headline
☐	▼	

Apply   Reset   Cancel

3 Select the **Class** to which these settings apply.

4 Select the number of **Display Entries** to show.

This determines the number of rows available to you for adding fields.

5 Select the **Fields** you want as the defaults for the Query Builder display and check the **Default** option next to them.

The defect Identifier is always displayed in the Query Results, even if you do not select it as a default field for querying.

6 Optionally, enter a **Label** to use for a field as the column heading in the Query Results table.

This does not change how the field name is displayed in lists or in the database. If you want to define a Query Results label for a

field, but do not want it to appear as a default in the Query Builder, just uncheck the Default option.

7   Click **Apply**.

The Query Builder page displays showing the default fields you selected.

Entering field defaults

Setting field defaults allows you to predefine values for specific fields when querying, submitting or modifying defects. There are two ways you can set default values for a field:

- enter a default value: You can enter a default value for any field in the database.
- make the field *sticky*: You can make a field retain the last value you entered and use that as the default for future submissions or queries. The value you enter in effect *sticks* to that field until you change it.

You can always override a default value.

If you enter a default value for a field that is normally system generated, such as Last Modified, that value is only used as the default for queries on that field. When submitting or modifying a defect, ClearDDTS ignores any defaults set for a system defined field.

Note: Another way to set a default for a field is in the field's derivation in the *master.tmpl* file. This is done by your ClearDDTS administrator when customizing the application for your site.

To set default field values:

1   Click **Profile** from the Toolbar frame.

2   Click **Field Defaults**.

User Profile

Field Defaults

Setting field defaults allows you to predefine values for specific fields when querying, submitting or modifying defects. You can override a default value when performing any of these actions. Each field value can be *sticky* -- meaning a field retains the last value you entered as the default for future submissions or queries.

Class: [software ▼]   Display [5 ▼] entries

Sticky	Field	Value
☑	Phase problem caused ▼	
☐	Resolver_id ▼	chris
☐	Affects project ▼	DDTs
☐	▼	
☐	▼	

[Apply]

3   Select the **Class** to which these settings apply.

4   Select the number of **Display Entries** to show.

This determines the number of rows available to you for selecting fields.

5   Select a **Field** from the list.

6   Optionally, enter a default **Value** for the field, or click the **Sticky** checkbox.

7   Click **Apply**.

Your default selections will appear the next time you submit, query, or modify a defect.
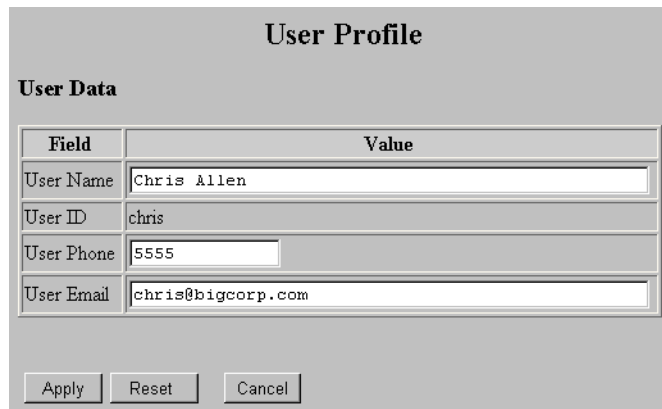
Entering values

When entering a specific value for a field remember the following:

- Dates entered as text must be entered in the yymmdd format.

- If you enter a value for a field that is not normally on the picklist for that field, your value will appear in parentheses. ClearDDTS will try to validate this value against the known acceptable values for that field.

- Some fields accept only one field value during submission, but can have multiple values during a query. For example, you can only enter one Severity level for a bug when you submit it, but you can query for all Severity 1 and 2 defects. If you enter multiple default values for a field, only the first value is selected as the default for that field.

Entering user information

To enter or change your user information:

1 Click **Profile** from the Toolbar frame.

2 Click **User Data.**

<table>
<tr><td colspan="2" align="center">User Profile</td></tr>
<tr><td colspan="2">User Data</td></tr>
<tr><td>Field</td><td>Value</td></tr>
<tr><td>User Name</td><td>Chris Allen</td></tr>
<tr><td>User ID</td><td>chris</td></tr>
<tr><td>User Phone</td><td>5555</td></tr>
<tr><td>User Email</td><td>chris@bigcorp.com</td></tr>
</table>

Apply   Reset   Cancel

3 Enter your default user information:

- **User Name**: Enter your name. This information appears as the Submitter information when you submit defect reports. Entering your full name makes it easier for other users to contact you if they need more information about a defect you submitted.

- **User ID**: This field displays the log-in ID you entered when you started ClearDDTS. You cannot edit this field.

- **User Phone**: Enter your phone number. You can enter a complete phone number or just an extension, depending on the policies in effect at your site. Entering a phone number makes it easier for other users to contact you if they need more information about a defect you submitted.

- **User Email**: Enter your email address. If you want to be notified of changes to a defect report, notification is sent to this address.

4 Click **Apply**.

Setting display options
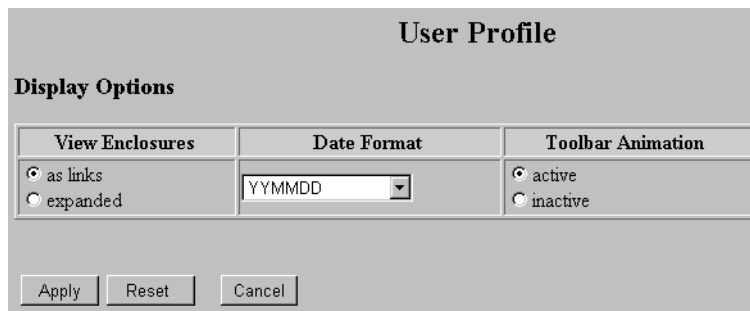
Most of the ClearDDTS display is determined by the customizations made by your ClearDDTS administrator. However, you can determine how the following features are displayed when viewing a defect:

- **Enclosures**: You can display the enclosures as links that you must click in order to view the information, or in expanded form with the enclosure information fully displayed at the bottom of the defect display.

- **Date Format**: You can view dates in a variety of formats, including YYMMDD or MMDDYYYY.

- **Toolbar Animation**: The Toolbar icons are animated; they change slightly when the cursor passes over them. You can make the animation active or inactive.

Note: When switching the Toolbar option you may need to reload the Toolbar frame to see the changes.

To set display options:

1 Click **Profile** from the Toolbar frame.

2 Click **Display Options**.

3 Select your **View Enclosures**, **Date Format**, and **Toolbar Animation** preferences.

4 Click **Apply**.

Clearing the ClearDDTS cache

ClearDDTS uses a caching system to store initial versions of some *webddts* pages. The cached pages are stored in the `~ddts/www/cache` directory. The ClearDDTS cache is completely separate from the browser cache. It is only used for ClearDDTS pages so that they do not need to be generated every time you access them.

To clear the cache:

1 Click **Profile** from the Toolbar frame.

2 Click **Clean Cache**.

You only need to do this if an element has changed on a page. For example, if your ClearDDTS administrator adds a new field to a page or a new value to a pick list, you must clear your cache to force ClearDDTS to read in the new version of the page.

Note: Your ClearDDTS administrator can set up the cache to clear itself automatically so that you do not need to manually clear it. You most likely will need to clear the cache in special cases only.

5

Submitting New Records

This chapter describes how to submit new records to a project using the default submission form for a software defect as an example. Topics covered include:

- Submitting new defects
- Handling other types of tracking

Submitting new defects

Select **Submit** from the Navigation frame. The fields and options you see vary depending on your current class. In addition, fields may be customized for your site. Typically the required labels for fields on any form are highlighted in some way (for example with bold face or color).

By default, the following fields are displayed when submitting a new defect for the *software* class:

Fields	Description
Class	Displays your default class and allows you to select a new class.
Project (required)	Select the project against which you want to log the defect.
Software	Enter the name of the product, program, function, or document that should be corrected.
Version	Enter the version of the software against which you are logging this defect.
Headline (required)	Enter a one line description of the problem or behavior.
Detection method (required)	Indicate how this defect was found by selecting a detection method from the list of valid methods.
Detected in phase (required)	Select the phase of the product life cycle in which this defect was found from the list of valid phases.

Fields	Description
Severity (required)	Select a severity level from the list of valid levels. Defect severity levels are used to identify the relative impact of a problem on the release of a product. By default, ClearDDTS has five severity levels. Your ClearDDTS administrator can set the number and meaning of severity levels to suit your site's needs.
OS version	Enter the version of the operating system in which the problem was found.
Show stopper	Set this option to mark this defect as a "show stopper" or very serious defect. Typically, a show stopper means you are unable to continue doing work or the defect impacts the product so severely that it may not be shipped.
Enhancement	Set this option to mark this defect as an enhancement request.
Submitter name	Displays the name set in your user profile. You can modify this field, if necessary.
Submitter phone	Displays the phone number set in your user profile. You can modify this field, if necessary.
Submitter email	Displays the email address set in your user profile. You can modify this field, if necessary.
Notify submitter of changes	Set this option if you want to receive e-mail notification of changes to this defect. If set, you will receive email each time the defect report is modified.
Problem	Enter a detailed description of the defect or problem you are reporting. This creates the Description enclosure.

To submit a defect:

1 Click **Submit** from the Toolbar frame.

The fields and options you see may vary depending on your current class or customizations made for your site.

2 Fill in all required fields.

Required fields appear colored (the default is red).

3   To submit the defect report, click **Submit**.

To clear the information you have entered without submitting the report, click **Reset**.

Some fields have field-level help. To view the help click the ●.

Once you submit a record, it is queued for posting to the database. Depending on network traffic, the accessibility of your server, and other factors, the new defect may not be available for immediate viewing. In most cases it takes only a few seconds for a new record to be available for you to view and modify. You can continue to perform other tasks and work with other records while waiting for the new record to post.

After filling in the information for the defect, you may want to provide additional enclosures to supply more detailed information. See "Adding enclosures and attachments" on page 7-3.

Handling other types of tracking

In addition to defect records, ClearDDTS can be used to track other types of work flow. For example, a request for help from a system administrator or facilities team is much like a software defect. In either case, a request is submitted, someone is assigned to handle the request, and eventually the problem or action item is resolved. Because the information needed to handle different types of tracking will vary, the fields you see on the submission form will be different.

Your organization can add any number of custom classes. For example, ClearDDTS can be used to track:

- System administration requests
- Facilities requests
- General issues

If you use ClearDDTS for other types of tracking, the states and state transitions you use may be very different than they are when tracking defects. If you are unsure about the information you need to enter or how to perform a desired state transition, see your ClearDDTS administrator.

6

Querying the Database

Before viewing or modifying records, you must query the database to find the defect records in which you are interested. For example, you may want to see only the defects assigned to you, only resolved defects, or a specific defect whose identifier you know. Topics covered in this chapter include:
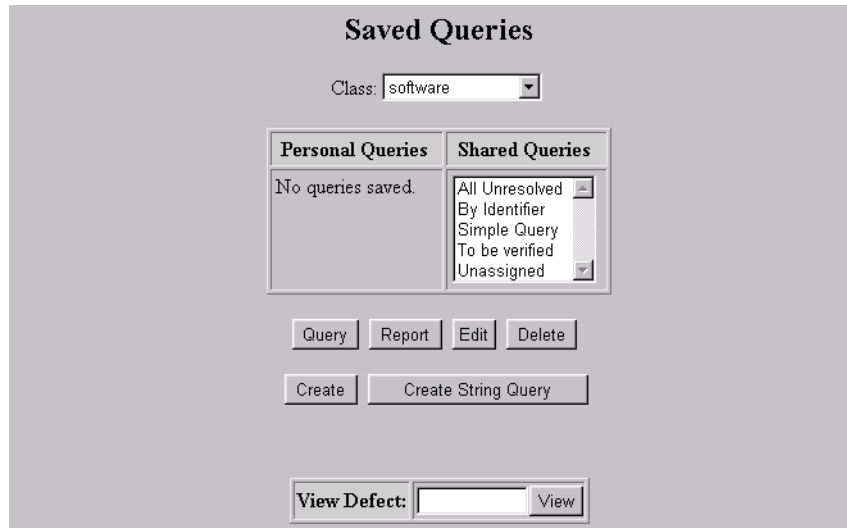
- Creating a new query
- Saving personal queries
- Running saved queries
- Creating a string query
- Editing and deleting saved queries
- Viewing results
- Viewing an individual defect

Creating a new query

To create a new query:

1 Select **Query & Report** from the Toolbar frame.

The Saved Queries page displays.

2 Click **Create**.

The Query Builder page displays. Optionally, you can set default fields for the Query Builder by clicking the Defaults button.

Query Builder

Class: software ▼   Display 7 ▼ entries

Show	Field	Operation	Sort Order	Sort Method
☑	Identifier ▼	▼	▼	▼
☑	Project ▼	▼	▼	▼
☑	State ▼	▼	▼	▼
☑	Software ▼	▼	▼	▼
☑	Problem severity ▼	▼	▼	▼
☑	Headline ▼	▼	▼	▼
☐	▼	▼	▼	▼

Next   Reset   Defaults

3 Select the **Class** to which this query applies.

4 Select the number of **Display Entries** to show. This determines the number of rows available to you for selecting fields.

5 Select the **Fields** you want for your query.

6 You can choose fields to use as search criteria, as fields you want displayed in the Query Results, or both. To make a field display in the Query Results click the **Show** checkbox.

7 To use a field as part of the search criteria, select an option from the **Operation** field. The Operation choices are:

  ▪ **Filter**: The Filter operation is used to set a static value so that when a query is run, the chosen value is always used. For example, if you want to create a query for all unresolved defects, you will always want the same states selected, so you would filter the State field.

  ▪ **Prompt**: The Prompt operation is used when you want the field value to be dynamic so that when a query is run, the user is prompted for the field

value. For example, if you want to create a query that different engineers can use to find their assigned defects you would prompt for the engineer field so that each person using the query can enter their own user ID.

8   Optionally, determine the **Sort Order** for your query.

If you want a primary sort for a field, select 1 in the Sort Order field. For a secondary sort, select 2 in the Sort Order field, and so on.

9   Optionally, determine whether you want the **Sort Method** for the query to be in **Ascending** or **Descending** order.

10   When you have the fields and options you want, click **Next**.

11   Enter values for filtered fields. Prompted fields are listed.

When entering values you can choose **Not** to indicate the defect should not include the value you enter. You can also select different operators for the value such as "equals" or "contains."

12 Determine how the fields should be joined.

Use **And** if all elements must be found for a record to be considered a match.

Use **Or** if any element of the query must be found for a record to be considered a match.

You can also Group different elements together by checking the **Group** box between the fields you want to group.

13 When you have entered all your search criteria click **Query**.

If you had any prompted fields in your query you are prompted for them now. Enter the values and click **Query**. The results display in the Query Results table.

At this point you could also click **Report** to use your search criteria to generate reports. For information on reports see Chapter 8, Generating Reports.

Querying for dates

Dates in *webddts* are entered using pull-down menus for the day, month, and year. You can also use the date **Shortcuts** field that follows all date fields. This field allows you to select values including *today*, *tomorrow*, *next week*, and *last week* without having to manually enter the dates. There is also a *clear* option that allows you to clear a value from a date field.

Querying for null values

You can query for a null or blank field by setting the operator to equal and leaving the value blank. There is no need to enter the word "null" or enter quotes.

Saving personal queries

ClearDDTS has two types of saved queries, Personal and Shared.

- *Personal queries* are queries you create and save. No one else can see your personal queries.
- *Shared queries* are created by your ClearDDTS administrator and are available to all users within the specified class. You can change or delete Shared queries only if you are logged in as the administrative user *ddts*.

There are certain queries that you probably want to run regularly. For example, if you have a query to look up the defects you are assigned to fix, you may want to run that query weekly without re-entering the selection criteria each time. To do this you need to save the query.

1 Follow the steps for creating a new query (see "Creating a new query" on page 6-2), or for creating a string query (see "Creating a string query" on page 6-7).

2 After creating the query you can either enter a name and click **Save As**, or run the query first and use the **Save As** field on the Query Results page.

   You must enter a name for the query before you can save it.

Running saved queries

To run a saved Personal or Shared query:

1 Select **Query & Report** from the Toolbar frame.

   The list of Personal and Shared queries for your default class is displayed.

2 Select the **Class** you want to work in.

   The queries for that class are displayed.

3 Select the query you want to run.

4 Click **Query** or **Report**.

   For information on entering report options see Chapter 8, Generating Reports.

Running converted saved queries

During a ClearDDTS upgrade, saved queries are automatically converted to the current format. Most saved queries convert to the new format without any problems, and these can be run and edited with the Query Builder. If a saved query does not convert successfully, you will see an asterisk (*) next to its name on the Saved Queries page. Queries that did not successfully convert can still be run, but they can only be edited as string queries.

Creating a string query

During a query, ClearDDTS generates a query string in a special syntax that is interpreted by the command line program *findbug*. If you understand findbug syntax, you can create and edit query strings directly using the String Query page. (See the findbug man page for more information on findbug syntax.) String queries can be useful for editing or creating highly complex queries.

Creating a new string query

To create a new string query manually:

1 Select **Query & Report** from the Toolbar frame.

2 Click **Create String Query**. The String Query page appears.

String Query

Enter a query string in *findbug* syntax. Once a query has been saved as a String Query, it cannot be converted into a Query Builder query.

Query String:

```
\(Class 'isequal' "software" \)
```

[Query] [Report] [Save As] [_____]

[Cancel]

---

3 Each query should specify the class in the query. The String Query page displays your current class as the first part of the string. You can edit this if necessary.

4 Enter your query using findbug syntax.

5 When your query string is complete you can either:

- click **Query** to run it
- click **Report** to run reports based on the query string
- give the query a name and click **Save As** to save it as a Personal query

Converting a query to a string

Another way to produce a string query is to convert queries that were created using the Query Builder. This can be done with either new or saved queries.

To use the Query Builder to create a new string query do the following:

1 Follow the steps for creating a new query. See "Creating a new query" on page 6-2.

2 When you are finished creating the query choose **String Query** on the final Query Builder page (the page containing the Save As and Query buttons). The String Query page appears displaying the string for the query you just built.

You can also run the query first, then choose String Query from the Query Results page.

3 You can now continue to edit the query using findbug syntax.

4 When your query string is complete you can either:

- click **Query** to run it
- click **Report** to run reports based on the query string
- give the query a name and click **Save As** to save it as a Personal query.

Warning: Once a query is saved as a string it can only be edited as a string. You can no longer view it using the Query Builder pages.

To convert an existing saved query into a string query:

1 On the Saved Queries page, select the query you want to convert and click **Edit**.

2 Press **Next** until you reach the final page of the Query Builder (the page containing the Save As and Query buttons).

3 Click **String Query**. The String Query page appears displaying the string for the saved query.

4 You can now edit the query using findbug syntax.

5 When you finish making edits you can either:

- click **Query** to run it
- click **Report** to run reports based on the query string
- click **Save As** to save it as a Personal query

Warning: Once a query is saved as a string it can only be edited as a string. You can no longer view it using the Query Builder pages. We recommend that you give the string query a different name from the original saved query.

Using prompted values in a query string

If you create a query that contains prompted values and convert that to a string query, you must supply a value for the prompted field before running the string query. String queries do not prompt you to enter a value while the query is being run.

When converted to a string query the value for a prompted field is substituted with the phrase "ENTER_VALUE_HERE". Replace the phrase with the appropriate value, then run the query.

Selecting fields for string query results

When running a string query, the fields that appear on the Query Results page are determined by the fields you selected as your default Query Settings in your User Profile. To set your default Query Settings see "Setting query display fields" on page 4-3.

Editing and deleting saved queries

To edit a Personal query:

1 Select **Query & Report** from the Toolbar frame.

2 Select a query.

3 Click **Edit**.

Depending on the type of query, either the Query Builder page or the String Query page appears displaying the previous selections.

4 Make changes to your query.

5 Click **Save As** to save your changes.

Note: You can select a Shared query for editing, but you can only save the changes to a Personal query. The original Shared query remains the same. To edit a Shared query you must be logged in as the administrative user *ddts*.

To delete a Personal query:

1 Select **Query & Report** from the Toolbar frame.

2 Select a query.

3 Click **Delete**.

Note: Only the ClearDDTS administrator can delete Shared Queries.

Viewing results

Once you run a query, ClearDDTS searches the database and displays a list of matching records on the Query Results page. From an index of query results, you can select an individual defect to view or modify. The Display frame then is split into two distinct frames. The top frame contains the index of the matching records. The bottom frame displays the selected defect record.

For more information about working with individual records, see Chapter 7, Viewing and Modifying Records.

In addition to viewing defects you can do the following from the Query Results page:

- Refresh: Reruns the query using the current values.
- Reprompt: Allows you to rerun the query and enter new values for prompted fields.
- Report: Uses the current query for generating reports.
- Edit: Allows you to edit the current query. Depending on the type of query, either the Query Builder page or the String Query page appears displaying the current query selections.
- String Query: Displays the String Query page and allows you to edit the current query as a string query.
- Save As: Allows you to save the current query.

Viewing an individual defect

You can view an individual defect by entering the defect ID in the **View Defect** field on the Saved Queries page. Viewing a defect this way differs from the By Identifier shared query in two key ways:

- Displaying a defect in this way does not check out a license, making this feature always available. Using a Shared or Personal query does check out a license.
- Using the By Identifier shared query allows you to search for multiple defects by using the *contains* option to search for a partial value. The View Defect feature displays only the defect ID entered.

To view an individual defect:

1 Select **Query & Report** from the Toolbar frame.

2 Enter the defect ID in the **View Defect** field.

3 Click **View** or press **Return** to display the defect.

You can only modify the defect if you have write permission. Keep in mind that modifying the defect requires that a license be available.

7

Viewing and Modifying Records

After running a query, ClearDDTS displays the Query Results page. From this page, you can select a hyperlink to view more detailed information about that defect record. Topics covered in this chapter include:

▪ Selecting a record from the index
▪ Changing the state of a record
▪ Adding enclosures and attachments
▪ Viewing and modifying enclosures
▪ Modifying a record
▪ Linking defect records
▪ Cloning a record

Selecting a record from the index

When you run a query, ClearDDTS assembles the records that meet your criteria and displays them in a table on the Query Results page. The information displayed is customizable by class and by query. See "Setting query display fields" on page 4-3. The defect ID is the link to the defect and is always displayed in the index.

After a query, the Display frame splits into two distinct frames. The top frame contains the list of matching records. The bottom frame displays the selected defect record. From this list, you can

select an individual defect to view or modify by clicking on the defect ID in which you are interested.

Index of matching records found for your query

Details about the selected record

Enclosures with related information

The options for modifying a record are displayed in the bottom frame below the details about the record and its enclosures.

Changing the state of a record

To change the state of a defect:

1 Display the record by querying the database and selecting the defect ID from the Query Results page.

2 Scroll to the bottom of the screen to see the modification options.

3 Select the appropriate state from the list of valid states, or click **Change State** to accept the default value displayed.

Selecting a state automatically takes you to a new page where you can enter additional information. The information to enter varies depending on the change you are making and the policies in effect at your site.

The next logical state is always displayed as the default. ClearDDTS prevents you from attempting an invalid transition by not displaying invalid states in the **Change state to** field.

4 Enter the requested information.

5 Click **Submit** to complete the change and update the database.

Adding enclosures and attachments

You can add additional information to a defect by adding enclosures and attachments.

▪ Enclosures contain text you manually add to describe the details and status of a defect.

- Attachments contain binary data (images, executables, and so on) or text. When you add an attachment, ClearDDTS copies the file to a new location in the ClearDDTS home directory and stores that location in the form of a URL in an enclosure.

This section describes both methods of adding information.

Enclosures

An enclosure contains additional information related to a defect record. For example, an enclosure might contain text from a source file or shell script that reproduces the problem, or just a longer description of observed behavior. ClearDDTS saves each enclosure in the database with the defect record to which it is attached.

To add an enclosure to a defect:

1 Display a record by querying the database.

2 Once the record displays, click **Add Enclosure**. A new page displays asking for:

- **Enclosure Title**: Enter a unique name for the enclosure. Name the enclosure something descriptive, like Workaround or Problem.
- **Enclosure Text**: Enter the text you want included with this defect. You can use your browser's cut, copy, and paste functions. You cannot save an empty enclosure.

3 When you have finished entering information for the enclosure, click **Commit**.

Attachments
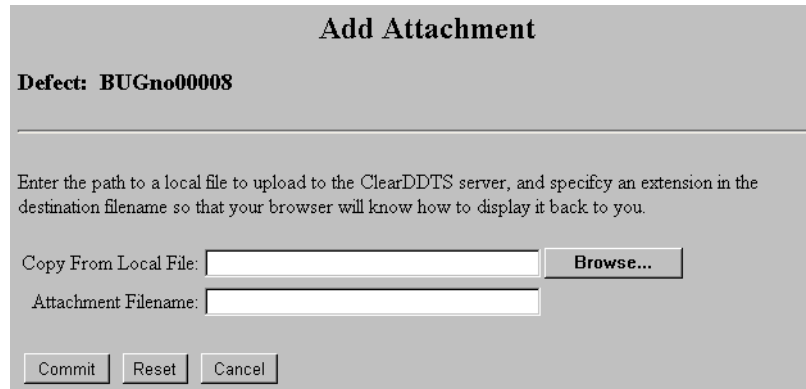
You can use an Attachment to associate a binary or text file with a defect. When you add an attachment, ClearDDTS copies the file to the `~ddts/allbinaries/<defect ID>` directory, then stores that location in the form of a URL in an enclosure. When you open the enclosure, *webddts* opens the attached file through your browser.

Note: You can associate helper applications and plug-ins with your web browser to allow you to view different types of files. See the documentation for your browser to learn how to do this.

Since only the URL is saved with the defect, the overall size of the defect record remains small, and you do not need to keep multiple copies of large attachments on each distributed site.

To add an attachment:

1 Display a record by querying the database.

2 Once the record displays, click **Add Attachment**. A new page displays.

Add Attachment

Defect: BUGno00008

Enter the path to a local file to upload to the ClearDDTS server, and specifcy an extension in the destination filename so that your browser will know how to display it back to you.

Copy From Local File: [   ] Browse...
Attachment Filename: [   ]

[Commit] [Reset] [Cancel]

3 Enter the location of the file you want to attach in the **Copy From Local File** field. If you need to find the file click **Browse** and locate the file, then click **Open**.

4 Enter a name for the attachment in the **Attachment Filename** field.

It is important to put a file extension (for example, .gif) in the name of the attachment to identify the file type. Your browser will use this to launch the appropriate application when you view the attachment.

The file types and extensions supported depend on the options set in your browser. Review your browser settings and documentation for more information on the types of files your browser will support.

Note: Attachment file names cannot contain UNIX shell meta characters such as dollar signs, exclamation points, ampersands, asterisks, quotes, parentheses, brackets, slashes, and so on. They also cannot contain spaces or carriage returns. They can contain national characters.

5   Click **Commit**.

Viewing and modifying enclosures

Every defect has at least one enclosure called *History*, which contains a read-only audit trail of changes made to the record. It includes the date, time, user who made the change, and the type of transaction for every event in the defect's life cycle.

If you are using ClearDDTS integrated with a change management (CM) system (such as ClearCase), a *CM Events* enclosure is added to your record. The CM Events enclosure is an audit trail that records CM activity associated with the defect. For example, it records which version files are checked out and checked in for the defect.

These enclosures, along with any other enclosures or attachments that have been added to the record, are available by clicking on the appropriate icon on the defect page. For example:

Note: If you selected the expanded display option for enclosures in your user profile the contents of the enclosure will appear at the

bottom of the defect display. Attachments are not displayed in this manner.

Editing enclosures

When you select an enclosure, ClearDDTS displays a new page with the contents of the enclosure.

To edit the enclosure:

1 Display a record by querying the database.

2 Click on the enclosure to open it.

3 Click **Edit**. A new page displays.

4 Make your changes.

5 Click **Commit**.

Deleting enclosures

You can delete most enclosures from the database. The only enclosure you cannot delete is the History enclosure.

To delete an enclosure:

1 Display a record by querying the database.

2 Click on an enclosure icon to open it.

3 Click **Remove**. A confirmation page appears.

4 Click **Commit** to delete the enclosure and save your changes to the database.

Deleting attachments

To delete an attachment:

1 Display a record by querying the database.

2 Click on **Remove Attachment**.

3 Select the attachment to remove from the **Attachment** field.

4 Click **Commit** to delete the attachment.

Renaming enclosures

You can change the name of most enclosures. The only enclosures you cannot rename are the History enclosure and Attachments.

To rename an enclosure:

1 Display a record by querying the database.

2 Click on an enclosure icon to open it.

3 Click **Rename**. A new page displays.

4 Enter the new name of the enclosure.

5 Click **Commit** to save your changes to the database.

Searching enclosures

You can search for an enclosure name, text within an enclosure, or a defect with a certain number of enclosures. To do this:

1 Click **Query & Report** in the Toolbar frame.

2 Choose **Create** on the Saved Queries page.

3 Build a query that includes the following fields of your choice:

- **Enclosure title**: Find a defect with that particular enclosure.
- **Enclosure contents**: Find all defects with enclosures containing that text
- **Enclosure_count**: Find a defect with a certain number of enclosures (not including the History enclosure)
- **History contents**: Find all defects with History enclosures containing that text

4 Click **Query** to begin the query.

Modifying a record

Note: You can modify records only if you have permission.

To modify a defect:

1 Display the record by querying the database and selecting the ID from the Query Results page.

2 Once the record displays, click **Modify Defect**.

A new page with all of the current information displays.

3 Make your changes.

4 Click **Submit**.

Linking defect records

Links allow you to collect defects into specified groups and define actions or operations that should occur based on the relationships you define. For example, you could have two types of defects: Change Proposals (CP) and Problem Reports (PR). Defects and enhancements are logged as PRs and a collection of PRs is put together and defined as a CP.

The CPs are considered the *parent* records and the individual PRs are the *children* linked to one or more CP. This could be pictured as follows:

QTKco02200   QTKco08000

Change Proposals
(parent records)   CP   CP

Links defined   Children of QTKco02200   Children of QTKco08000

Child defect and
enhancement records   PR   PR   PR   PR

QTKco00011   QTKco02013   QTKco00501   QTKco00068
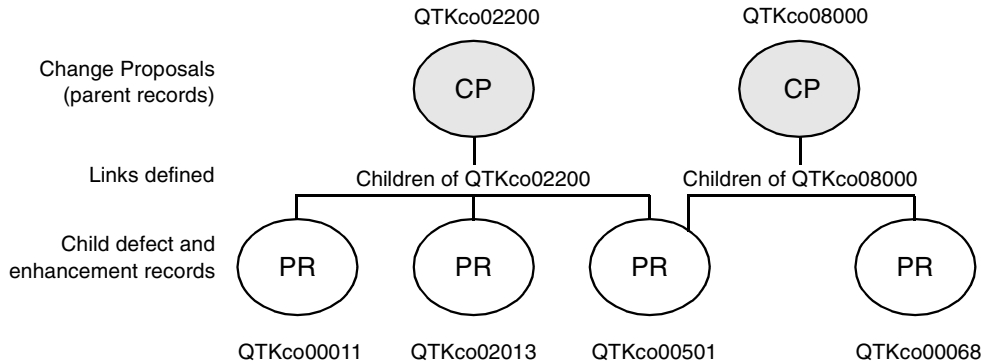
The ClearDDTS administrator can customize the system to define what actions or operations are performed based on those links. For example, the ClearDDTS administrator can customize the system to:

- automatically move all PRs associated with a Change Proposal to an open state when the parent CP is approved and opened by management
- automatically move a CP to a closed state when all the associated PRs are closed

You can define parent and child relationships between two or more defects. Siblings are children of the same parents. The ClearDDTS administrator can customize the maximum number of links a defect can have.

To view or modify the links for a record:

1 Display a record you want to link by querying the database.

2 Click **Links**. A new page displays the current links for that record, if any, and allows you to add and delete parents and children.

Links for BUGno05829

Parent Link(s)	Child Link(s)
	BUGno05850

Add Parent Link(s)	Add Child Link(s)
	Remove Child Link(s)
	BUGno05850

Commit   Reset   Cancel

3 Determine the records to add by browsing the table of Query Results.

4 Enter the IDs for child defects in the **Add Child Links** field and parent defects in the **Add Parent Links** field. Separate multiple IDs by a space.

5 Click **Commit** to save your changes.

The History enclosure is updated with the links indicated. Error messages may appear if the defect is locked by another user, if the two defects are already linked, or if you exceed the maximum number of links. See the *ClearDDTS Administrator's Guide* for information on setting link limit for.

To remove links, select the links you want to remove in either the **Remove Parent** or **Remove Child Links** field and click **Commit**.

Once you have established the relationship between defect records, the actions or operations performed based on those links

depend on the rules defined for your site. For example, a link may be customized so that a state change to a parent automatically results in a state change for all of the children. See the *ClearDDTS Administrator's Guide* for more information about defect linking and defining link semantics.

Cloning a record

In some cases you may want to make a copy of a record. For example, if a particular defect shows up in several different executables or on multiple platforms, you may want to log a separate defect for each occurrence or implementation to ensure you resolve all cases.

By cloning the record you can ensure greater visibility and tracking for each instance without the data entry time required to submit a new record that contains much of the same data as an existing record.

To clone an existing record:

1 Display a record you want to clone by querying the database.

2 Click **Clone**. A new page displays.

3 Select the **Class** and **Project** for the cloned record.

This example shows the default cloning configuration for the software class. Your ClearDDTS administrator can configure the

data to request when cloning a defect by editing the *~ddts/class/<class>/clone.prompt* file.

4 Click **Submit** to save your changes. A new record is created with all of the same information as the original record except:

- the new record has a new identifier
- any links associated with the original record are not copied to the new record
- the new record can have a new project
- the state of the new record depends on the configuration in the *~ddts/class/<class>/clone.prompt* file

5 Once the record is available for viewing, click **View <defect ID>** to view the new defect.

6 Click **Modify Defect** to modify the record and change the fields that make the cloned record unique from the original record (for example, by modifying the executable affected by the defect or the platform on which the defect was found).

8

Generating Reports

This chapter describes how to generate, view and print standard ClearDDTS management reports. Topics covered include:

- Selecting report criteria
- Viewing report output
- Printing reports from the browser
- Printing PostScript graphs

Selecting report criteria

Reports derive their information from the same query data as the Query Builder. In addition to specifying the query you also have several options for viewing and displaying your reports. To generate and view a report:

1 Follow the steps for creating a new query or select a saved query. For information on building a query see Chapter 6, Querying the Database.

2 Click **Report.**

3 Select **Graph Format** options:

- Graphs can be generated in either gif (for viewing on-line and printing from the browser) or PostScript (for viewing and printing with a PostScript viewer) format.
- For gif graphs you can select size options, whether to print the graph with a background grid, or whether the background color should be white or transparent. Transparent graphs are useful if you plan to paste the image into another file.
- PostScript graphs can be printed in color or black and white.

4 Select a **Window** viewing option:

- To generate the report in the same browser window, select *This Window*. This may take considerable time, depending on the number and type of reports selected and the data involved.
- If you want to continue working while the report is generated, select the *New Window* option. If you use this option, the reports can be processed and viewed in a new browser window, while you continue to work in the original window.

5 Select the reports or graphs you want to generate.

For a list of the standard management reports for the default Software class and a brief description of each see "Appendix A, Sample ClearDDTS Reports".

6 When you have finished making your selections, click **Generate Report(s)**.

Viewing report output

When you set the *This Window* option and click **Generate Report(s)**, a Reports in Progress page appears in the Display frame listing the reports and graphs you selected. Any report that has completed processing displays as a hyperlink to the report. Reports still generating appear as normal text.

ClearDDTS automatically updates the status of the reports periodically. If you want to force an update of the Reports in Progress page click **Update Status**.

When the reports have completed processing they appear on the Reporting Complete page. You can click on a hyperlink to view an individual report or you can click the **View All Reports** hyperlink to view all the reports and graphs concatenated together. Clicking on a link displays the report in a new browser window.

If you are running several reports or PostScript graphs at the same time, you may want to generate the reports in a new browser window and view them at your convenience instead of waiting for them to be displayed after processing.

Printing reports from the browser

Once the reports are generated, you can print them. One way to print the reports is to use the printing capabilities of your browser, for example by selecting Print from the File menu. In some cases, this method is sufficient for producing the report output and it does not require you to have any additional programs installed or any additional set up.

Note: If you print graphs using the Print option available in your web browser, the output is simply a bitmap version of what you see displayed on the web page. For some graphs the bitmap output is not sufficiently readable and you need some other way to print

the graph. To produce this higher quality output, download and print the PostScript version of the graphs.

Printing PostScript graphs

Each graph includes a hyperlink to a PostScript version for viewing and printing. Depending on your web browser and current configuration, following this hyperlink can produce several different results.

For example, if you are using Netscape on a PC and have not defined a specific helper application or plug-in for viewing and printing PostScript, you are prompted to save the file with an appropriate PostScript file extension (.ps) or pick an application for viewing and printing.

After saving the PostScript version of the file, you can use whatever utility you normally use to view or print PostScript output. For example, if you have *ghostscript* or a similar program on your system, you can use that tool to see and print the graph output.

Note: See your browser documentation or your system administrator for information on associating a PostScript viewer application with your browser.

Printing multiple reports from a single hyperlink

Although each graph includes a hyperlink for viewing and printing PostScript output, some reports contain more than one graph. Printing the PostScript version of any of the graphs prints all of the graphs associated with the report in the format defined in the actual PostScript code. Therefore it is not necessary to download the PostScript for every graph individually.

A

Sample ClearDDTS Reports

This appendix contains sample output from standard ClearDDTS reports. Topics covered include:

▪ Standard graphs and reports

▪ Sample table metrics

▪ Sample graph metrics

Note: This appendix does not include samples for all reports; in addition, some reports may be modified at your site.

Standard graphs and reports

The following tables lists all the metrics that are provided by default with ClearDDTS. The metrics are categorized as *table* (plain text), *graph* metrics, or *Troff* metrics.

Table metrics

Report name	Description
Problems by Project by State	Lists the total number of defect records for each project and how many records are in each state. This metric can help you see which projects are nearing completion with most bugs Resolved and Verified and few New or Open.
Problems by Project by Severity	Lists the total number of defect records for each project and how many records are of each severity. This metric can help you see the relative severity of problems being found for each project.

Report name	Description
Problems by Assigned Engineer by Severity	Lists the total number of defect records each engineer is assigned to fix broken down by severity level. This metric can help you analyze how the work load is distributed across the engineering team and who is working on the most critical bugs.
Problems by Assigned Engineer by State	Lists the total number of defect records each engineer is assigned to fix broken down by current state. This metric helps you analyze how the work load is distributed across the engineering team and the progress each engineer is making in resolving the assigned bugs.
Problems by Submitter by Severity	Lists the total number of defect records found by each submitter and the severity of the defects found. This metric gives you insight into your bug submission process, allowing you to see who is submitting bug reports, who is finding the most bugs, and who is reporting the most critical defects.
Problem Arrival and Repair Rates	Lists the number of New, Resolved, and Unresolved defects each week for the project and time period you specify. This metric helps you analyze engineering efficiency and progress by comparing the number of new bugs submitted against the number resolved each week.
Three Line Summary of all Problems	Provides a short summary for all defect records by project. The three-line summary includes the defect ID, project, status, severity, headline description, software module, version, assigned engineer, date found, and date fixed.
Problems Submitted Over the Last Week	Prints full defect reports for all problems submitted in last 7 days. This report provides detailed information for your most recent bugs. It can be especially useful at bug review meetings near the end of a project when there are typically fewer bugs that require discussion.

Report name	Description
Problems Resolved Over the Last Week	Prints full defect reports for all problems resolved in last 7 days. This report provides detailed information for your most recent bugs. It can be especially useful at bug review meetings near the end of a project.
General Problem Statistics	Summarizes defect statistics for the projects and dates specified. This report include information such as the percentage of defects assigned to each engineer and found during each phase of product development, and the percentage of defects in different severities and states.
Full Text Listing of Queried Problems.	Prints full defect reports for all problems matching the search criteria. The format of the reports is similar to what you would see if you used the *dumpbug* utility.

Graph metrics

Graph name	Description
Graph of Phase Metrics	Provides five different graphs that illustrate when and where problems were found. Useful for root-cause analysis.
Phase Containment Effectiveness Bar Graph	Graphs the percentage of defects caused, found, and fixed within each phase of the project lifecycle. Ideally, problems created in any phase should be found and fixed before the project moves to the next phase of its lifecycle. This graph helps you see how effective you are in finding and resolving defects in each phase.
Total Faults Sourced Per Phase	Graphs the total number of errors and defects per phase.
Graph of Problems by Resolution Type	Graphs how defects were resolved. For example, defects can be resolved through source code changes or documentation or when declared unreproducible or not a bug. This graph shows the number of defects resolved in each of these ways.

Graph name	Description
Graph of Submitters, Assigned Engineers, and Resolvers	Provides four different graphs that illustrate the number of defects found by each submitter-ID, the number of defects each engineer is assigned to fix, the number of defects resolved by each engineer, and the combined number of defects submitted, assigned, and resolved by each engineer.
Problems by Severity, State, Problem Arrival Rate	Provides 12 different graphs that illustrate combinations of all problems by state, all problems by severity, unresolved problems by severity, and problem arrival and resolution rates.
Graph of Problems by Severity	Graphs the total number of defects of each severity for the projects and dates specified.
Graphs - Repair Time and Diff between Est Time and Actual Fix Time	Provides two graphs concerning the time required to fix defects. One graph illustrates the actual number of hours spent fixing defects over the specified time period. The second graph illustrates the difference between the estimated fix time and the actual repair time. Useful for measuring schedule estimates.
Graph of Overdue Problems	Graphs the number of defects that are at least a week overdue (past the Estimated fix date).

Troff metrics

Report name	Description
One Line Meeting Summary of Selected Problems (xddts only)	Provides a formatted one line summary of defects for bug review meetings. This report is only available through the xddts interface.
Phase Containment Effectiveness Report (xddts only)	This report is similar to the Phase Containment Effectiveness Bar Graph, but presents the information in a different format and provides detail about the number of defects found in each phase (not just the percent effectiveness for each phase). This report is only available through the xddts interface.

Sample table metrics

```
-------------------------------------------------------------------------

                   Table of Problems by Project by Severity.

-------------------------------------------------------------------------

                        ClearDDTS MANAGEMENT SUMMARY
                                    of
                        PROBLEMS by PROJECT by STATE
                        (Mon Dec 16 10:23:12 PST 1996)

Project           New  Assnd Open Rslvd  Verif  Dup  Postp    Total
-------------------------------------------------------------------------

EZTxt              23    9    1    0      1      4    3         41
-------------------------------------------------------------------------

RTE.network        1     1    17   20     42     16   2         99
-------------------------------------------------------------------------

RTE.builds         2     0    5    27     13     4    1         52
-------------------------------------------------------------------------

RTE.audit          2     0    5    4      49     6    0         66
-------------------------------------------------------------------------

RTE.mail           2     9    4    3      8      1    0         27
-------------------------------------------------------------------------

RTE.devices        2     0    0    10     23     0    1         36
-------------------------------------------------------------------------

RTE.install        6     1    23   13     72     6    0        121
-------------------------------------------------------------------------

RTE.window_apl     4     10   19   48     15     37   5        138
-------------------------------------------------------------------------

RTE.file_sys       3     1    0    5      2      4    0         15
-------------------------------------------------------------------------

RTE.lib            17    3    32   53     69     10   52       236
-------------------------------------------------------------------------
-------------------------------------------------------------------------
TOTAL              62    34   106  183    294    88   64       831
-------------------------------------------------------------------------

 Youngest Problem Date =>  961210

 Oldest Problem Date   =>  961028

 Software Versions     =>  Unknown  3.1.11  2.0

 O.S. Versions         =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

```
--------------------------------------------------------------------------
                    Table of Problems by Project by Severity.

--------------------------------------------------------------------------
                          ClearDDTS MANAGEMENT SUMMARY
                                       of
                          PROBLEMS by PROJECT by SEVERITY
                          RESOLVED & UNRESOLVED PROBLEMS
                          (Mon Dec 16 10:23:20 PST 1996)

Project                Sev1    Sev2    Sev3    Sev4    Sev5    Total
--------------------------------------------------------------------------

EZTxt                    1       0      40       0       0      41
--------------------------------------------------------------------------
--------------------------------------------------------------------------

TOTAL                    1       0      40       0       0      41
--------------------------------------------------------------------------

 Youngest Problem Date =>  961210

 Oldest Problem Date   =>  961028

 Software Versions =>  Unknown  3.1.11  2.0

 O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

Note: This report includes an additional variation that only lists
Unresolved Problems by Project and Severity. For example:

```
                          ClearDDTS MANAGEMENT SUMMARY
                                       of
                          PROBLEMS by PROJECT by SEVERITY
                              UNRESOLVED PROBLEMS ONLY
                          (Mon Dec 16 10:23:20 PST 1996)

Project                Sev1    Sev2    Sev3    Sev4    Sev5    Total
--------------------------------------------------------------------------

DDTs                     1       0      32       0       0      33
--------------------------------------------------------------------------
--------------------------------------------------------------------------

TOTAL                    1       0      32       0       0      33
--------------------------------------------------------------------------

 Youngest Problem Date =>  961210

 Oldest Problem Date   =>  961028

 Software Versions =>  Unknown  3.1.11  2.0

 O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

```
-----------------------------------------------------------------------
           Table of Problems by Assigned Engineer by Severity.

-----------------------------------------------------------------------

                      ClearDDTS MANAGEMENT SUMMARY
                                 of
                     PROBLEMS by ENGINEER by SEVERITY
                      RESOLVED & UNRESOLVED PROBLEMS
                      (Mon Dec 16 10:23:33 PST 1996)

Assigned           Sev     Sev     Sev     Sev     Sev     Total
Engineer            1       2       3       4       5
-----------------------------------------------------------------------

jeff                0       0       9       0       0        9
-----------------------------------------------------------------------

nguyen              1       0       2       0       0        3
-----------------------------------------------------------------------

chris               0       0       3       0       0        3
-----------------------------------------------------------------------

mcm                 0       0       4       0       0        4
-----------------------------------------------------------------------

UNASSIGNED          0       0      22       0       0       22
-----------------------------------------------------------------------
-----------------------------------------------------------------------

TOTAL               1       0      40       0       0       41
-----------------------------------------------------------------------

 Projects surveyed => EZTxt

 Youngest Problem Date =>  961210

 Oldest Problem Date   =>  961028

 Software Versions =>  Unknown  3.1.11  2.0

 O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

Note: This report example includes three additional variations to
further clarify the information in the report: Resolved &
Unresolved Problems by Engineer and Severity excluding
self-reported problems, Unresolved Problems by Engineer and
Severity, and Unresolved Problems by Engineer and Severity
excluding self-reported problems.

```
              --------------------------------------------------------------------------
                         Table of Problems by Assigned Engineer by State.

              --------------------------------------------------------------------------
                                      ClearDDTS MANAGEMENT SUMMARY
                                                  of
                                      PROBLEMS by ENGINEER by STATE
                                      (Mon Dec 16 10:23:45 PST 1996)

              Assigned       New  Assnd  Open Rslvd Verif  Dup  Postp    Total
              Engineer
              --------------------------------------------------------------------------

              jeff            0    4     1    0     0     2    2         9
              --------------------------------------------------------------------------

              nguyen          0    2     0    0     1     0    0         3
              --------------------------------------------------------------------------

              chris           1    2     0    0     0     0    0         3
              --------------------------------------------------------------------------

              mcm             0    1     0    0     0     2    1         4
              --------------------------------------------------------------------------

              UNASSIGN       22    0     0    0     0     0    0        22
              --------------------------------------------------------------------------

              --------------------------------------------------------------------------
              TOTAL          23    9     1    0     1     4    3        41
              --------------------------------------------------------------------------

               Projects surveyed =>  EZTxt

               Youngest Problem Date =>  961210

               Oldest Problem Date   =>  961028

               Software Versions =>  Unknown  3.1.11  2.0

               O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

```
--------------------------------------------------------------------------
                    Table of Problems by Submitter by Severity.

--------------------------------------------------------------------------

                         ClearDDTS MANAGEMENT SUMMARY
                                    of
                    PROBLEMS by SUBMITTING ENGINEER by SEVERITY
                          (Mon Dec 16 10:23:56 PST 1996)

Submitting          Sev      Sev      Sev      Sev      Sev      Total
Engineer             1        2        3        4        5
--------------------------------------------------------------------------

jan                  0        0        3        0        0        3
--------------------------------------------------------------------------

fgoode               0        0        3        0        0        3
--------------------------------------------------------------------------

chris                0        0        1        0        0        1
--------------------------------------------------------------------------

williams             1        0       33        0        0       34
--------------------------------------------------------------------------
--------------------------------------------------------------------------

TOTAL                1        0       40        0        0       41
--------------------------------------------------------------------------

 Projects surveyed =>  EZTxt

 Youngest Problem Date =>  961210

 Oldest Problem Date   =>  961028

 Software Versions =>  Unknown  3.1.11  2.0

 O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3
```

```
--------------------------------------------------------------------------
                Table of Problem Arrival and Repair Rates.

--------------------------------------------------------------------------

                        ClearDDTS MANAGEMENT SUMMARY
                         ARRIVAL & REPAIR RATE
                           SEVERITY 1 & 2 ONLY
                       (Mon Dec 16 10:24:19 PST 1996)

      Week        Date        # New     # Resolved     Diff    # Unresolved
     ---------------------------------------------------------------------
       1         9-1-96         0            0           0          19

       2         9-8-96         0            0           0          19

       3         9-15-96        0            0           0          19

       4         9-22-96        0            0           0          19

       5         9-29-96        0            0           0          19

       6         10-6-96        0            0           0          19

       7        10-13-96        0            0           0          19

       8        10-20-96        0            0           0          19

       9        10-27-96        0            0           0          19

      10         11-3-96        0            0           0          19

      11        11-10-96        0            0           0          19

      12        11-17-96        0            0           0          19

      13        11-24-96        0            0           0          19

      14         12-1-96        1            1           0          19

      15         12-8-96        0            0           0          19

      16        12-15-96        0            0           0          19

      17        12-22-96        0            0           0          19

    Projects surveyed =>  EZTxt
```

> **Note:** This report example includes an additional variation with
> the arrival and repair rate for all severity levels.

```
------------------------------------------------------------------------

                  Three Line Summary of all Problems.

------------------------------------------------------------------------

                      ClearDDTS MANAGEMENT SUMMARY
                       Three Line Problem Summaries
                      Mon Dec 16 10:24:21 PST 1996



PROBLEMS FOR PROJECT  EZTxt

Problem Number = ANTig00074,   Project = EZTxt,
St=P, Sv=3,  walk through the state translation
Module: Unknown, Vers = Unknown,Engr = mcm,Found: 961210,Fixed: 961211

Problem Number = ANTig00066,   Project = EZTxt,
St=P, Sv=3,  text copy failed with no error msg
Module: copy, Vers = 2.0,Engr = jeff,Found: 961205,Fixed: 961206

Problem Number = ANTig00062,   Project = EZTxt,
St=P, Sv=3,  save copy needs new button
Module: copy, Vers = 2.0,Engr = jeff,Found: 961205,Fixed: 961206

Problem Number = ANTig00072,   Project = EZTxt,
St=O, Sv=3,  cancel goes into loop
Module: cancel, Vers = 3.1.11,Engr = mcm,Found: 961209,Fixed: ??

Problem Number = ANTig00071,   Project = EZTxt,
St=O, Sv=3,  nested options unclear
Module: querybox, Vers = 3,Engr = chris,Found: 961209,Fixed: ??
.
.
.
.
```

```
--------------------------------------------------------------------------

                        General Problem Statistics.

--------------------------------------------------------------------------
                        ClearDDTS MANAGEMENT SUMMARY
                                    of
                            General Statistics
                        (Mon Dec 16 10:24:27 PST 1996)

Projects surveyed =>  EZTxt

Youngest Problem Date =>  961210
Oldest 0 Date    =>  961028

Software Versions =>  Unknown  3.1.11  2.0

O.S. Versions     =>  HpUx 9.0  Solaris 2  Sun 4.1.3


Assigned Engineer Statistics
  Of 19 assigned Problems:
      NO ONE   assigned     0 Problems =>    0.00%
      mcm      assigned     4 Problems =>   21.05%
      jeff     assigned     9 Problems =>   47.37%
      nguyen   assigned     3 Problems =>   15.79%
      chris    assigned     3 Problems =>   15.79%

Problem Submission Statistics
  Of 41 Problems submitted:
      williams submitted   34 Problems =>   82.93%
      fgoode   submitted    3 Problems =>    7.32%
      jan      submitted    3 Problems =>    7.32%
      chris    submitted    1 Problems =>    2.44%

How Found Statistics
  Of 41 Problems found:
      33 Problems found by customer use          =>   80.49%
       3 Problems found by manual review         =>    7.32%
       1 Problems found by functional test       =>    2.44%
       4 Problems found by in-house normal use   =>    9.76%

How Resolved Statistics
  Of 7 Problems resolved:
       6 Problems resolved by not a bug          =>   85.71%
       1 Problems resolved by unreproducible     =>   14.29%

When Caused Statistics
  Of 9 Problems:
       3 Problems caused during investigation    =>   33.33%
       5 Problems caused during design           =>   55.56%
       1 Problems caused during specification    =>   11.11%

When Found Statistics
  Of 41 Problems found:
      39 Problems found during investigation     =>   95.12%
       2 Problems found during design            =>    4.88%
```

```
When Fixed Statistics
  Of 7 Problems fixed:
      6 Problems fixed during investigation      =>   85.71%
      1 Problems fixed during specification      =>   14.29%

Severity Statistics
      Number of severity 1 Problems  =    1  =>    2.44%
      Number of severity 2 Problems  =    0  =>    0.00%
      Number of severity 3 Problems  =   40  =>   97.56%
      Number of severity 4 Problems  =    0  =>    0.00%
      Number of severity 5 Problems  =    0  =>    0.00%

Status Statistics
      Number of new Problems         =   23  =>   56.10%
      Number of open Problems        =    1  =>    2.44%
      Number of resolved Problems    =    0  =>    0.00%
      Number of postponed Problems   =    3  =>    7.32%
      Number of duplicate Problems   =    4  =>    9.76%
      Number of verified Problems    =    1  =>    2.44%
      Number of assigned Problems    =    9  =>   21.95%
      Number of integrated Problems  =    0  =>    0.00%
      Number of released Problems    =    0  =>    0.00%
```

Sample graph metrics

Graph - Problems by Severity, Problems by State, Problem Arrival Rate (partial output)
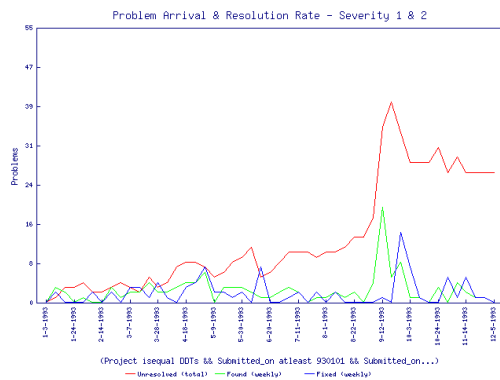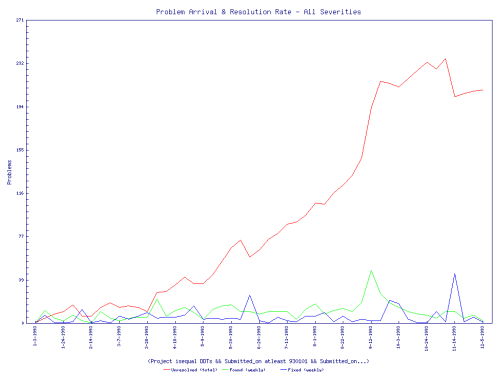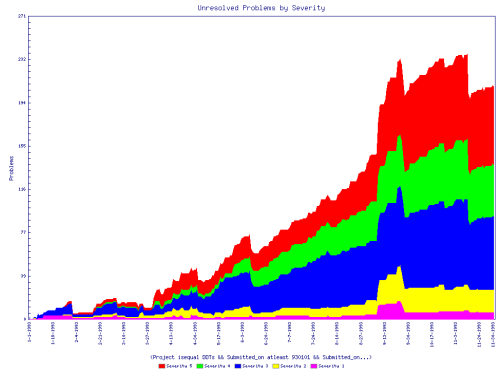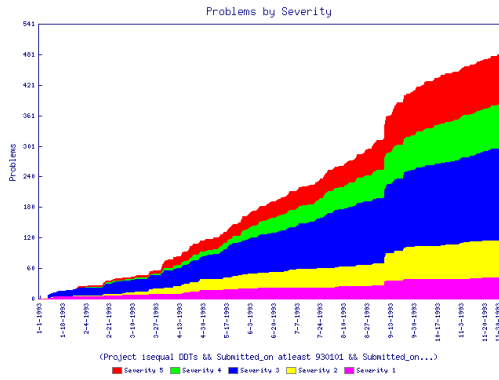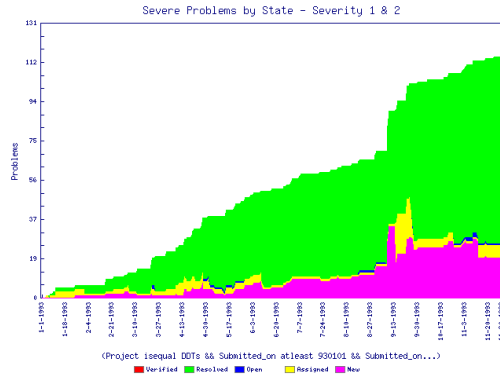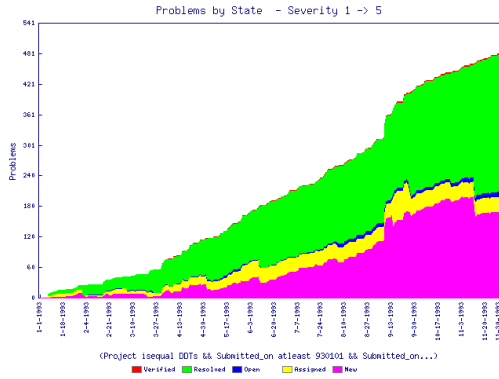
Graph of Phase Metrics
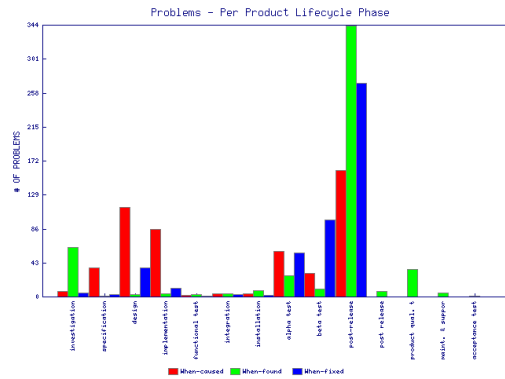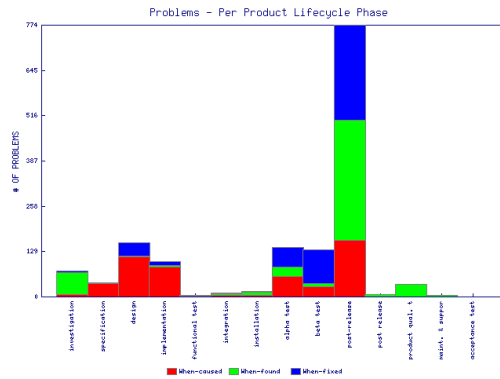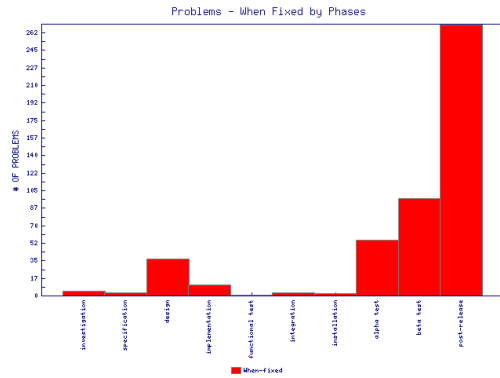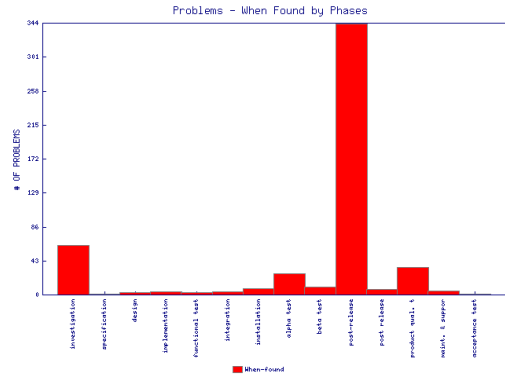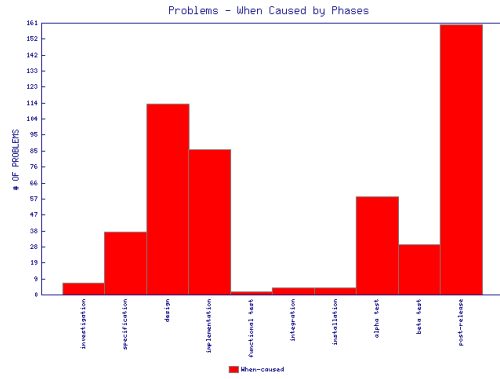
Graph of Problems by Resolution Type

Graph of Overdue Problems
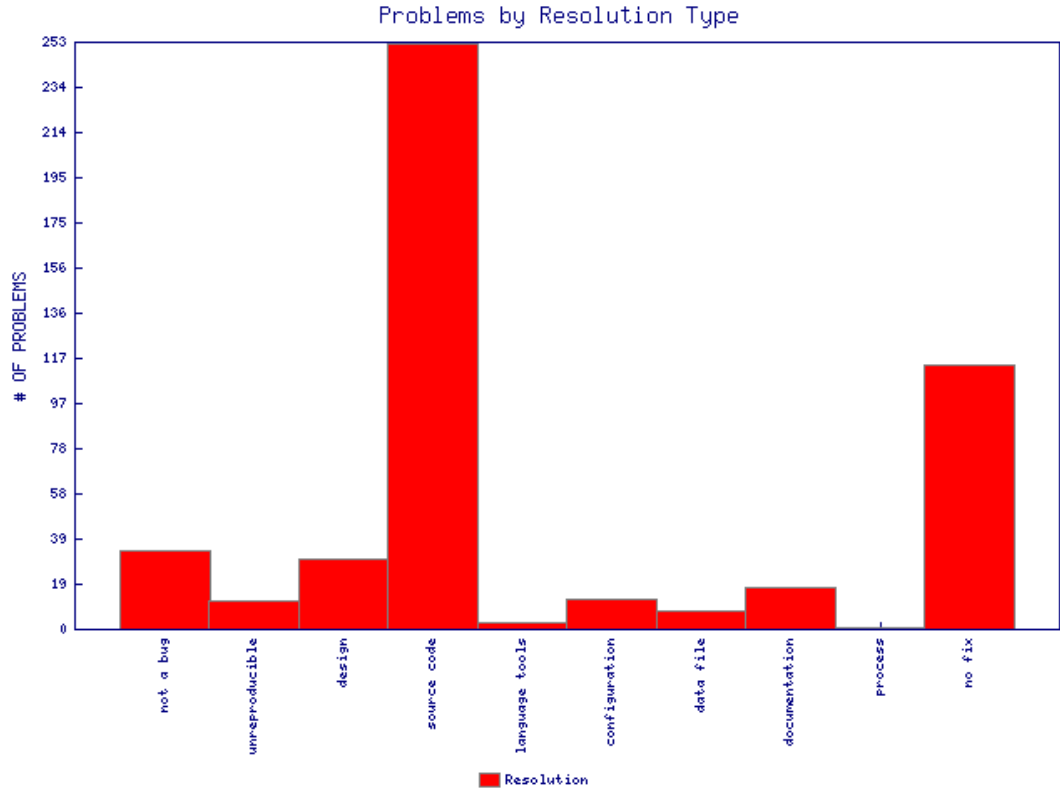
Overdue Problems - Overdue Problems for DDTs

B
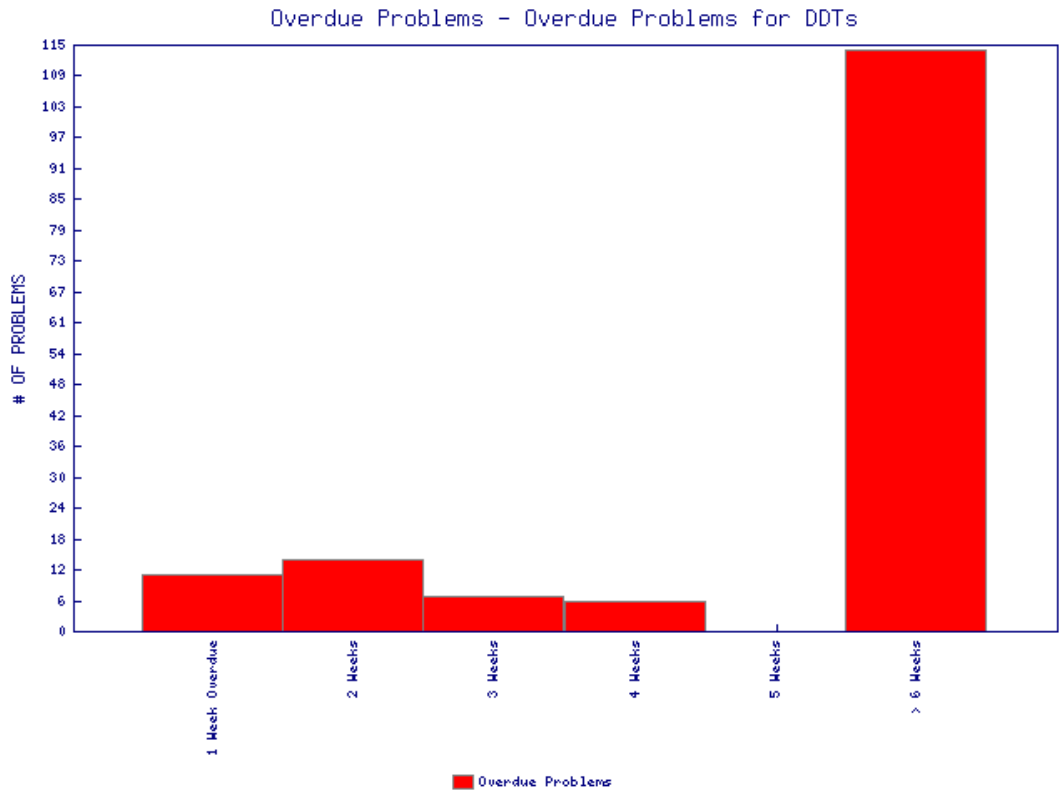
Using Other Interfaces for ClearDDTS

In addition to the *webddts* interface, ClearDDTS provides several different ways to access the product's functionality. For example:

- If you are using a UNIX workstation that supports X windows, you can use the graphical user interface (GUI) program xddts.
- If you are using a character-based UNIX workstation, you can use the bugs program to submit and view defects.
- If you are interested in performing specific tasks without using one of the ClearDDTS user interfaces, you can use the command line programs documented in the online man pages.

This appendix provides a brief overview of the xddts user interface. It also provides a list of key command line programs.

Adding ClearDDTS to your path

To use the xddts user interface, you first need to add the ClearDDTS bin directory to your command search path. To add the directory to your path, edit the PATH environment variable in the .profile, .login, or .cshrc file in your home directory. For example, if you use the C-shell (csh), the .cshrc in your home directory should contain a line similar to the following:

```
set my_bin = '~ddts/bin/ddts_archdir.sh'
set path = ($path ~ddts/$my_bin)
rehash
```

In the Bourne or Korn shell, you would add the following to the .profile file:

```
my_bin='/usr/home/ddts/bin/ddts_archdir.sh'
PATH=$PATH:/usr/home/ddts/$my_bin; export PATH
```

These lines allow you to log in to any system and have the PATH environment variable configured properly. If you are using

ClearDDTS with only one hardware architecture, the procedure is somewhat simpler. For the C-shell, you can set the path by adding *~ddts/bin* to your current path:

```
$ set path=($path ~ddts/bin )
$ rehash
```

If you are using the Bourne or Korn shell, you would specify something like this:

```
$ PATH=PATH:/usr/home/ddts/bin
$ export PATH
```

If you are unsure how to set your path, see your system administrator.

Setting the display variable

Depending on your environment, you may also need to set up your display. To do this, you need to add your machine to the xhost access control list or set your DISPLAY environment variable. For example:

```
xhost + 'machine'
setenv DISPLAY :0
```

Running xddts

To run the graphical user interface xddts on your UNIX workstation, enter xddts at the command line:

```
% xddts
```

You should see a display similar to the following (if the display is blank, choose **Select Project, Class & State** from the Select menu and make your project, class and state selections to load records into the index):

Workspace or *Index* which shows an index of records

Record contains detailed information about a particular record

Related information *Enclosures* associated with the record

ClearDDTS

File   Select   Metrics   Options   To Do List   Help

Complex Query: 'software' Records [SNAORVDPF] [DDTs]   280 records

```
 1 N Sv5 BUGno00008 xddts    submmiter comments window should have differ  +2
 2 R Sv5 BUGno00025 ddts     Daemon installation in manual unnec   carl_s   +2
 3 N Sv3 BUGno00028 ddts     Address cannot be modified on cloned record.   +1
 4 N Sv3 BUGno00078 xddts    the label in the Printer Options window / Wh   +1
 5 P Sv3 BUGno04013 xddts    When I print, I get a bogus splash    johnc    +2
 6 R Sv2 BUGno04051 xddts    gui crashes when saving large compl   johnc    +2
 7 R Sv1 BUGno04052 xddts    xddts crashes when you try to execu   johnc    +1
 8 P Sv5 BUGno04053 xddts    File/Commit Modications not greyed    johnc    +1
 9 P Sv5 BUGno04054 xddts    Clear button not greyed out when no   johnc    +1
10 P Sv5 BUGno04059 xddts    Problems with iconifying gui under    johnc    +1
```

Submit Commit Clone   Refresh Clear Next Prev Print...

The workspace currently contains 280 records

Record

Modify   Change_State   Links   CM   Help

```
Bug BUGno00008                    DDTs                    Submitted 950707
 NEW enhancement               xddts, version 3.1.14      Forwarded 950731
                                  2 enclosures

 "submmiter comments window should have different buttons"

DETECTION INFORMATION                FORWARDING INFORMATION
 Detection method:  customer use      Old project:  .Gripe
 Detected in phase: post-release      New project:  DDTs
 Test program name:                   Forwarded by: Carl Seaton
 Machine name:                        Organization: Pure Software Inc.
 OS and Version:                      Address:      downundr!carl
 Problem severity:  5                 Phone number: (408) 524-3065
 Affects project:
 Need fix by:
SUBMITTER INFORMATION
 Submitter:     jdrobina@cas.org
 Organization:  Chemical Abstracts Ser
 Phone number:  (614)447-3600 2864
 Address:
```

Enclosures

History   Submitter Comments   Response

The index is created when you enter selection criteria using Select Project, Class & State or Complex Query & Sort under the Select menu. To see more information about any record in the index, double click on it. The details are displayed in the Record portion of the window.

For the most part you perform tasks in xddts much like you do through the webddts interface except you make your selections through menus and dialog boxes instead of pages and frames.

However there are a few items that are unique to the `xddts` interface.

Submitting defects

1 Select **Submit New Record** from the File menu or click the **Submit** button.

2 Enter the *class* and *project* you want to submit the defect against. Once you identify the class and project, a blank defect record form is displayed.

3 Enter information in each field as appropriate. For most fields, you can enter a partial response.

4 Click **Commit**.

After filling in information for the defect, you may want to add an enclosure to supply more information. To do this, select **Add Enclosure** from the Modify menu.

Selecting and searching for defects

With `xddts` there are several different ways for you to select the records you want to view and work with.

Entering simple selection criteria

The most common way to control the records loaded into the index is with the **Select Project, Class & State** option from the Select

menu. When you select this menu option, the following is displayed:

1 To select a different class, click **Change Class** and select a new class.

2 Select the project(s) you want to include from the Projects list.

3 Select the state(s) you are interested in from the States list.

4 Select the records you are interested in viewing.

You can select defects by the engineer assigned to repair the defect or by the engineer who submitted the defect. This selection is further modified by clicking Myself or Users. If you select Myself, the search is restricted to defects that you are assigned or that you submitted. If you select Users, you can see all defects in the specified Class, Projects, and States, or limit your search to

specific engineers by entering their login IDs in the Users' Names field.

For example, if you select **Submitted By** and **Myself**, the search is restricted to defects that you have submitted in the projects and states selected. If you choose **Assigned To** and **Users**, and type the names "george bill" in the Users' Names text field, ClearDDTS finds all defects assigned to *george* and *bill* in the projects and states selected. If you do not enter anything in the Users' Names field, ClearDDTS returns all engineers who have defects in the class, projects, and states selected.

5   Click **OK**.

Creating complex queries

If you want to perform more sophisticated searches on the information in your database, you can select **Complex Query & Sort** from the Select menu. This menu option displays a query builder that allows you to define the specific fields, operators, and values you want to use in your search.

For example to find all unresolved defects that belong to you with a Severity less than or equal to 3:

1   Select the **engineer** field.

2   Select the **==** operator.

3   Enter your login ID in the **Selection Value** field and press RETURN.

4   Select the **&&** operator (because the search needs to satisfy the first condition *and* this new condition).

5   Select the **severity** field.

6   Select the **<=** operator.

7   Type in the number 3 and press RETURN.

8 Click **OK**. ClearDDTS searches the database and displays the results in the index.

Searching the index

After running a query you may have a large number of defects in the index, but need to quickly locate a particular one. To do this, choose **Search Index** from the Select menu (or position the mouse in the index, type /, and press RETURN), then enter the string you want to find.

Using the bug box (bbox)

After doing a search of the database, you may want to save all of the defect records (identified by *defect ids*) to use with other ClearDDTS utilities or to restore later. To do this, choose **Save All to BBox** from the Select menu. This menu option writes the defect ids for the records in the index to a file called the *bug box* or *bbox*.

To save only selected defect records, highlight the defects you are interested in then choose **Save Selected to BBox** from the Select menu.

Setting options

The xddts Options menu allows you to set up of your preferences for printing and editing files.

Defining printing options

- To control how and where defects and reports are printed, select **Printing** from the Options menu. There are four basic report formats:
- Full Page Report (complete defect report with all fields)
- Index Format (same as the displayed index)
- One Line Format (you select the fields to print and the order in which they are printed)
- Three Line Summary (more detail than the one line summary, but you cannot select the fields included)

In addition to the report format, you can specify whether you want output sent to a printer, file, or the terminal screen.

Choosing an editor

ClearDDTS allows you to choose the editor to use for editing enclosure files. You can use the internal text editor provided with xddts or an external editor such as vi or emacs. To define the editor you want to use, select **Editor** from the Options menu.

To use the internal text editor, select **Internal Editor**.

To use an external editor, select **External Editor** and enter the command to run the editor in the Editor Command field. For example, to use vi in an xterm, enter xterm -e vi as the editor command.

Starting a CM transaction

The CM menu in xddts allows you to perform configuration management (CM) operation while viewing a defect record.

1 Select the defect from the xddts index.

2 Select the CM operation you want to perform from the CM menu. For example, you might want to perform a Check Out operation. Once you select the operation, a file selection browser is displayed.

3 Use the file browser to locate and select the file you want to work with and click **OK**. ClearDDTS calls the appropriate CM system, and a success or failure message is written to the status line in the main xddts window.

4 Click **Commit** to update the database. Upon completion of a successful CM operation, the CM system records ClearDDTS data (defect ID and one line description) and ClearDDTS records CM information (CM operation and file name). To view the CM data, double click on the History or CM events enclosure displayed in the enclosure area.

Using ClearDDTS in localized environments

In general, ClearDDTS is not localized for use in different countries. To the extent that your web browser supports internationalization, the webddts interface supports different languages and character sets. The xddts and character-based user interfaces do not include this capability. However, the xddts interface can support Japanese language enclosure if you are properly configured for this support.

Japanese language enclosures in xddts

If you want to add or edit Japanese language enclosures in xddts:

1 Set your language environment variable to Japanese. For example, if you use the C shell you would enter:

```
$ setenv PURE_LANG=ja
```

If you use the Bourne or Korn shell, you would specify something like:

```
$ PURE_LANG=ja
$ export PURE_LANG
```

2 Start xddts.

3 Select **Editor** from the Options menu.

4 Select **External Editor**.

5 Select the format appropriate for your editor from the list of Enclosure Encoding options. For example, select New-JIS.

6 Enter the command to run the editor.

7 Click **OK** or **Save As Default**.

Internally, ClearDDTS stores Japanese language enclosures in New-JIS format. If you add or edit enclosures without using xddts, for example through the character-based interface or through e-mail, the enclosures should be encoded in New-JIS.

Checking your X resources

If you are viewing or editing Japanese language enclosures and characters are not displayed properly, check your X resources file. If your resources or default fonts are not set properly, characters may appear as black boxes, be missing strokes, or be improperly formed.

Printing full page reports with enclosures

If you intend to print full page defect reports with Japanese language enclosures, your printer must accept files in New-JIS format, which is how the enclosures are encoded within ClearDDTS. If your printer does not accept New-JIS, you need to convert the format before printing.

Viewing Western European character sets

ClearDDTS supports the Western European character set, which consists of the US ASCII character set and special European characters such as ä, ç, õ, and ñ. However, European characters can only be viewed through the interface in which they were entered. For instance, European characters entered in the `webddts` interface cannot be viewed through the `xddts` or `bugs` user interfaces.

Key command line programs

ClearDDTS includes several key programs you may be interested in running directly from the UNIX command line. Most of these programs simply allow you to perform a specific task without starting ClearDDTS. The following table lists the most common of these ClearDDTS command line utilities.

For complete information about running these programs and the options available, see the appropriate on-line UNIX man pages

(typically stored in the `~ddts/doc/man` directory) or your
ClearDDTS administrator.

Program	What it does
bugs	Provides a command line interface for submitting, viewing, and modifying defects.
bugval	Prints selected defect record fields.
ddtssql	Provides a command line interface to the SQL server, allowing you to write SQL-style queries to retrieve information from the database.
dumpbug	Formats and prints defects records to standard output.
findbug	Finds defect records based on the criteria you specify.
graphbug	Allows you to create PostScript graphs based on defect metrics.
sortbug	Allows you to sort ClearDDTS records based on particular fields.
summarybug	Prints three-line summaries of ClearDDTS defects.

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