



User Guide – Defect Manager for Windows

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About the User Guide – Defect Manager for Windows

This guide describes how to use Defect Manager for Windows and how the client/server version of this product can serve your issue reporting, tracking and resolution needs.

The purpose of this guide is to assist you in learning what you can do and how to do it with *Defect Manager for Windows*.

Additional information on the purpose of Defect Manager can be found in sections:

[What is Defect Manager?](#), [What are the Benefits of Defect Manager?](#)

Other Defect Manager Guides

The User Guide – Defect Manager for Windows has the following companion guides that provide additional detail on specific topics for Defect Manager:

- Getting Started Guide
- Installation Guide
- User Guide – Defect Manager for Web
- User Guide – E-Tech Support Guide
- Administration Guide
- Programmer API Guide
- Glossary

Purpose of the System

Defect Manager is an interactive software product that allows companies, large and small, to manage the capture, tracking and resolution of issues and other issues related to its products, projects, processes or services.

In fact, Defect Manager should be thought of as an “Issue Management System” since issues and problems with products, projects, processes and services are merely a subset of issues that may be reported, tracked and managed. Reports of issues can come from customers as well as your staff and outside contractors. Such reports on issues may include actual issues, perceived issues, enhancements requests, questions, requests for action or service.

The purpose of Defect Manager is to provide tools you need to capture, track and resolve all reported issues while maintaining effective communications with stakeholders on each issue.

How the System Works – Using Defect Manager for Windows

Issue-Item Tracking Process

It is important to remember that every company has different goals and objectives as well as different regulations, policies and procedures that affect how it operates.

There are many ways that you can track issues and issues as well as different methodologies to accomplish this. In fact, almost everyone that deals with issues and issues will have their own opinion or an existing business process for how this should be done.

What most companies lack is an effective tool for tracking and resolving reported issues and issues -- Defect Manager is designed with the flexibility to meet your company's need for better control throughout the complete issue/issue tracking lifecycle.

Although each company is different, your business processes, concepts and terminology can be accommodated in your use of Defect Manager.

Client Communications Process

As your support staff uses Defect Manager to track and resolve issues, problems and enhancements, it should not be working in a vacuum. Your clients, the people you serve and support, can be an integral part of your business process as well.

Defect Manager includes configurable features automatically remind your staff and communicate with your clients when significant events occur during issue item processing such as opening an item to begin work or closing an item when the problem is resolved. This automated as well as user-initiated communication can be facilitated by Defect Manager to send appropriately formatted emails to clients and other stakeholders for an issue item.

The *Defect Manager E-Tech Support* application provides a web-based application to allow your clients to easily browse your Knowledgebase of prior problems and solutions as well as interactively submit issues, issues and enhancement requests to you. Your clients can also use the system to check on the status of the issues they submitted. If the support team tells a client that they need more information, the client can add the requested information as a note or file attachment to the issue item in the Defect Manager Repository.

Defect Manager not only improves the communication and relationships with your clients, it makes your client your “partner” where his problems are also your problems and you are solving them together using integrated automation – Defect Manager.

What are Issue Items?

The term, *Issue Item*, refers to an object in the repository database that maintains all of the accumulated information related to an issue or issue that has been reported.

Thus an issue or issue that is submitted to you and entered into the repository, generates an *Issue Item* that can be tracked and have all of the related information that describes it associated in the repository database as a single item – a single object.

The *Issue-Item object* provides you with the convenience of being able to easily access any of its descriptive properties and associated collections of notes, documents, pictures, testing results to efficiently view, update and process the issue item.

As you process an *Issue Item*, you can add your findings, notes, and updates to its properties and collections that reflect your contribution to the processing of the issue item – Hence, the system is tracking your work on the issue item.

When your part of the processing work is done, the *Issue-Item* can be conveniently passed as a single object containing all its properties and associated information collections, including those you just made, to the next work step required to complete its processing.

Issue Items are the basic objects in the repository that allow you to track and manage reported issues such as: issues, enhancement requests, suggestions, questions, requests for action or service, etc. The main window, the Issue Log form, in *Defect Manager for Windows* provides you with many ways to query and view issue items, plus it allows you to select issue items to view or process.

Issue-Items Properties and Collections

The properties of an issue-item object are of the following types;

- **Identifying** property – A field that uniquely identifies an issue item allowing it to be accessed quickly
- **Coded-Value** properties – Fields that accept only pre-defined code-values to insure data consistency and make it easy for a user to select the appropriate value from a drop-down list of values.
- **Timestamp and Schedule** properties – Schedule and tracking dates and time values
- **Descriptive** properties – text information characterizing the problem or groups of data fields that provide additional description of an issue item

A **Collection** is a group of files containing information related to an issue-item object that are registered and linked in the Defect Manager Repository.

value allows issue items to be sorted in the order of its severity with zero (0) being the highest severity with the greatest urgency for resolution.

Default severity definitions are shown below which can be customized by the Defect Manager *Administrator* program to meet your organizations needs.

Severity Name	Severity Sort Value
System Down	0
System Crash	100
Loss of Functionality	200
Minor Issue	300

Note: By leaving gaps in the numerical severity sort values assigned, it is possible at a later time to create new levels of severity within the existing severity assignments.

Priority – Processing priority for an issue item is defined in terms of code names that indicate the priority of an issue or importance of an issue. Priority code definitions consist of a priority name and a numerical priority sort value. The numeric priority sort value allows issue items to be ranked in the order of its priority with zero (0) being the highest priority with the greatest urgency for resolution.

Default priority definitions are shown below which can be customized by the Defect Manager *Administrator* program to meet your organizations needs.

Priority Name	Priority Sort Value
1	0
2	100
3	200
4	300

Note: By leaving gaps in the numerical priority values assigned, it is possible at a later time to create new levels of priority within the existing priority assignments.

Extensible Coded Value Sets – Defect Manager allows other types of entities to be named and referenced with code values appropriate to your organization:

- **Work Queues** – Meaningful names for processing steps in your organization’s workflow process can be defined where work is held while awaiting attention and processing. Meaningful names for work queues also assist in routing work to the next processing step while identifying the nature of the processing at each work step.
- **Users** – Names of workers and their profiles of permissible operations can be defined. These user names can be chosen from a list of values for the **Assigned To** field that indicates the person responsible for processing an issue item.

- **Product Names** – Names for the things you support in your organization such as products, projects, processes or services.
- **Product Releases** – Code names that describe the versions or releases for the things you support in your organization.
- **Groups** – Names for pairings of one or more Product Names and multiple User Names that indicate: “the Group of Users that support the Product Name(s) listed”. Groups provide the means for the system to provide an appropriate list of users for you to select from when assigning an issue item to an individual.
- **Components** – Meaningful names for component elements that your organization must support or work with that may be subdivisions of products, platforms or other entities. The Components property and code values provide an additional level of granularity and classification for an issue item.
- **Platform Names** – Code values that represent a physical context for an issue. Some examples of application areas and physical context are:
 - Software → Computer System Type: Windows, Macintosh, Solaris, Linux
 - Hardware → Environment Used: Clean Room; Lab, Office, Warehouse
 - Field Test → Test Group/Situation: Control Group, Placebo Group, Random Sample
- **Platform Releases** – Code values that represent specific versions of the physical context. Some examples of application areas and versions of physical contexts are:
 - Software → Windows 98, Windows 2000, Windows XP
 - Hardware → Clean Room: Standard 1, Standard 2, Standard 3
 - Field Test → Test Group: 2001 Tests, 2002 Tests, 2003 Tests
- **Products** – Groupings for combinations of:
 - Product Names
 - Product Releases
 - Default Assignments
- **Clients/Users, Locations, and Contacts**
Your clients and users can have their location and contact information stored in the Defect Manager’s Repository database.

Timestamp and Schedule Properties

- **Entered On** -- The date the issue item was entered.
- **Reported Date** – The date the issue was reported
- **Last Updated** -- The last time anyone updated the issue item
- **Closed On** -- The latest date the issue item was resolved and status indicated as “Closed”.

- **Due On** -- The latest date the issue item is expected or to be resolved. The date represents a planned “on or before” date or it reflects an urgent milestone related to the issue item and its stakeholders.

Descriptive Properties

Summary – A brief description of the issue or a issue.

Description -- A long description of an issue or issue.

Revision – The revision of the product and release, such as a build number.

Tabs – The bottom half of the ***Detail Issue Form*** window has tabs that contain a wealth of information related to an issue item. The tabs let you selectively view additional groups of descriptive information as follows:

- **General Tab** -- This is general information about the issue/issue.
- **Resolution Tab** -- This tab is used to review the information that is required to resolve this issue. You specify the resolution when you close the issue item.
- **Internal Activity Tab** -- These are activities and notes that have been entered by your technicians that are pertinent to resolving the issue. These notes remain private and internal to your company. The activity notes that should be accessible by clients using the ***E-Tech Support*** interface, should be placed in the ***External Activity Tab*** (see below).

It is a good practice for your technicians to add notes for all the work that they have done on a issue item, so that anybody can pick up and continue work on the issue item, if need be.

For example, if the individual is reassigned to another task, you will not loose the investigative work that has already been done. You should always document the time and effort you have spent on resolving your client’s issues.

To add notes to a issue use the **Update →Activity** menu item.

- **External Activity Tab** -- These are activities and notes that have been entered by your technicians and clients via the web interface. Since your clients can see these comments, make sure you technicians use appropriate language and suitable remarks.

To add notes to a issue, use the **Update →Activity** menu item or the updates notes tool bar button.

If you will not be using the E-Tech Support interface, you can use the **View →Customize** option to hide this tab from view.

- **User Defined Tab** -- User defined fields allow you to extend Defect Manager to better suit your organizations needs. You can use up to eight (8) custom fields to hold data of a specified type that is appropriate for your organization’s issue-processing needs.

These fields are defined by using the Defect Manager *Administrator* tool. You can also change the label that appears on this tab from within this tool. See the [Administration Guide](#) for more information on defining these fields.

- **Bookmark Tab** – This area is used to view and maintain key words that serve as bookmarks that allow you and others to quickly locate an issue item or multiple issue items associated with the same key-word bookmark.

Issue-Item Collections

Collections are groups of files containing documents, digital pictures, source code, text files, sets of test result data, etc. that are related to an issue item.

Defect Manager provides the following types of collections:

- **Attachments** – Typically attachments are documents, source code segments, digital images of photographs or faxes, memory dumps and any other files of information that are related to an issue item. This information includes information files that were submitted by the individual reporting the issue as well as those attached by workers while an issue item was processed.

You can add, remove and view attachments.

Attachments to an issue item are logged **immediately** -- update is not postponed until a **Save** operation. If you realize you have made a mistake when making an attachment, you can reverse your change.

- **Notes** – Notes can be added to the journals for both Internal and External Activities to document the progress of work on each issue item.
- **System Test** – Testing Results in multiple files can be included as a group representing each test done while processing an issue item.

Your System Test department can log system test information related to this issue. You can even import issue reports from other regression testing tools into this collection.

- **Source Files** – Your technicians can track multiple source code segments, date accessed, version of the source code and current status code.

Source file changes made on this tab are logged **immediately** -- update is not postponed until a Save operation. If you realize you have made a mistake when modifying a Source Files collection on an issue item, you can reverse your changes.

When *Visual Source Safe* is used, Defect Manager allows software program code modules to be checked in an out during this process and the actions logged in the Repository.

The Source Files tab is primarily for use by companies involved in tracking

issues/issues with software products, applications and web-sites; however, it can be applied to forms of text other than program-source code.

With the exception of the **Attachments**, **Notes** and **Source Files** tabs, all other changes are temporary until you use the **File→Save** menu item, or press the **Save** toolbar button.

When you save an issue item all modifications are logged by the system. You can review these activities by selecting the **Internal Activity** and **External Activity** tabs.

Repository and Activity Log

The **Defect Manager Repository** is the central database for the Defect Manager system. It organizes all of the issue items and related information needed enter, track and resolve issues/issues.

Both versions of Defect Manager, the “... for Windows” and “... for Web”, utilize this database and provide their users with access.

A key part of this repository database is the **Activity Log** that stores a record of all activities that are done to issue items while using Defect Manager.

Knowledgebase

The Knowledgebase is a separate database that is available as WEB pages over the Internet/Extranet network by using the E-Tech Support system. Only selected issue items that you decide to publish to this Web-database are available for viewing by issue/issue stakeholders and clients authorized to use the E-Tech Support system.

Likewise, Internal Actions, Notes, Source Code, and Test Results are not included when an issue item is published, but the External Actions and Notes are included along with other properties

Workflow and Work Queues

What is Workflow?

Workflow is a method for processing issue items that typically require multiple work steps to complete its processing and it may also involve several different groups and individuals.

Defect Manager is designed to use **Workflow** because the processing of reported issues and issues is typically done in multiple work steps that often involve different groups and individuals. Each work step, or stage of work, will have a specific group or individual that is trained and possesses the skills to do the work required at this point in the processing of an issue item.

Workflow is a useful technique for both large and small organizations. Workflow can be applied to small organizations that may be a “One-Man-Band” who has many things going on and interruptions. Defect Manager workflow can help him organize and track

the pending, in-process and resolved issues he must contend with on a daily basis to insure the important work and tasks do not get lost in the “cracks”.

The large organization may need and use many specialists that must co-operate during the life-cycle a reported issue. Workflow provides an effective way to “flow” the work between many cooperating individuals and organizations while tracking and helping to prevent any of the related issue item information from becoming lost.

What is a Work Queue?

As work flows between **work steps** and different workers, it is rarely a smoothly running assembly line where each of the work steps are synchronized by a common “conveyer belt” as you might imagine as running in an ideal factory.

As I am sure you are aware, processing issues and issues is normally done by independent groups and individuals – This typically requires that the workflow be asynchronous because these workers are not immediately available when work arrives.

Work Queues are an effective way to allow an issue item to flow to the next work step and be held until an appropriate worker is able to process it. Work queues should have meaningful names to make it easy to route each issue item to the next work step.

Specific groups or individuals obtain issue items to process from a named work queue. After completing the appropriate processing at a work queue, the issue item is then placed in the work queue for the next step in the process. Such workflow processing continues until the final work step is completed and the issue item is deferred or closed.

The names assigned to work queues should be meaningful terms within your business process. Work-queue names should reflect either the type of work performed in the work step or the group or individual that obtains work from the work queue.

It is recommended that the names be descriptive generically, rather than using the names of individuals who may be re-assigned. For example, use a generic description such as “QA Tester” rather than “Bill”.

Issue Processing Steps

Issues and issues are typically reported by: your customers, the system test or QA teams, technical support teams, help desk, sales support teams, documentation teams, management, and system integrators. Regardless of whom the issue is reported by, it is important that you log each and every issue. To properly address and resolve the issue it is important that:

- A priority level is set for the reported issue based on its severity. The most important issues should get resolved first.
- Your staff works on the issues in priority sequence.
- All effort spent on each issue is logged. This will give you the ability to re-assign the issue to another technician without losing the investigative work previously performed.

- Bookmarks are associated with this issue, so others can easily find all the relevant information related to this type of issue. This helps you to start building a coherent knowledgebase.

Once an issue is reported, the issue should be put into a verification queue, so that someone can verify if this is an issue, or not. The following sections characterize the basic process from a software issue and issue processing point of view. Other applications for Defect Manager will have similar considerations in their respective contexts and environments.

Issue Verification

System Test or Technical Support usually review reported issues and verify if they are in fact an issue. If it is not an issue, the client must be notified that it is not an issue and why. If it is an issue, it must be passed to the appropriate group (usually development or support) to be fixed.

Issue Correction

Based on the type of issue, there could be any number of skilled individuals that can correct the issue. You want to make sure that these individuals have a list of all the issues that they are expected to fix, an associated priority in which they should be worked on, and a scheduled date that they need to have the fix completed by. These individuals are typically software developers, documentation writers, graphic artists and release management engineers, etc.

As they work on the issues that are assigned to them they should keep notes on everything they have done to progress on the issue. After they have fixed the issue they need to pass it on to the group that will verify that the issue is corrected. These fixes should also be checked into the source code control system.

Issue Correction Verification

After the fix is made it needs to be passed to the group that will verify that it has truly been corrected. Usually, the System Test group does this work.

Issue Delivery

Usually, management (based on the client need or marketing need) determines when the issue corrections (fixes) need to be completed and when it should be targeted for delivery.

Fixes are scheduled as a hot fix/patch into the production product, distributed as problem notices with documentation of fixes or workarounds, or they are targeted for a particular release in the future. The nature of fixes and how they are deployed depends on your type of business and products that are being supported.



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The fix is deployed and delivered to the client along with a notice that the issue/issue has been resolved. The issue is closed. A final resolution is recorded. The failing component area is recorded.

Example of Workflow with Work Queues for each Work Step.

The following is a general example of workflow processing. The processing of reported issues could follow this workflow for our example company as shown in the figure below.

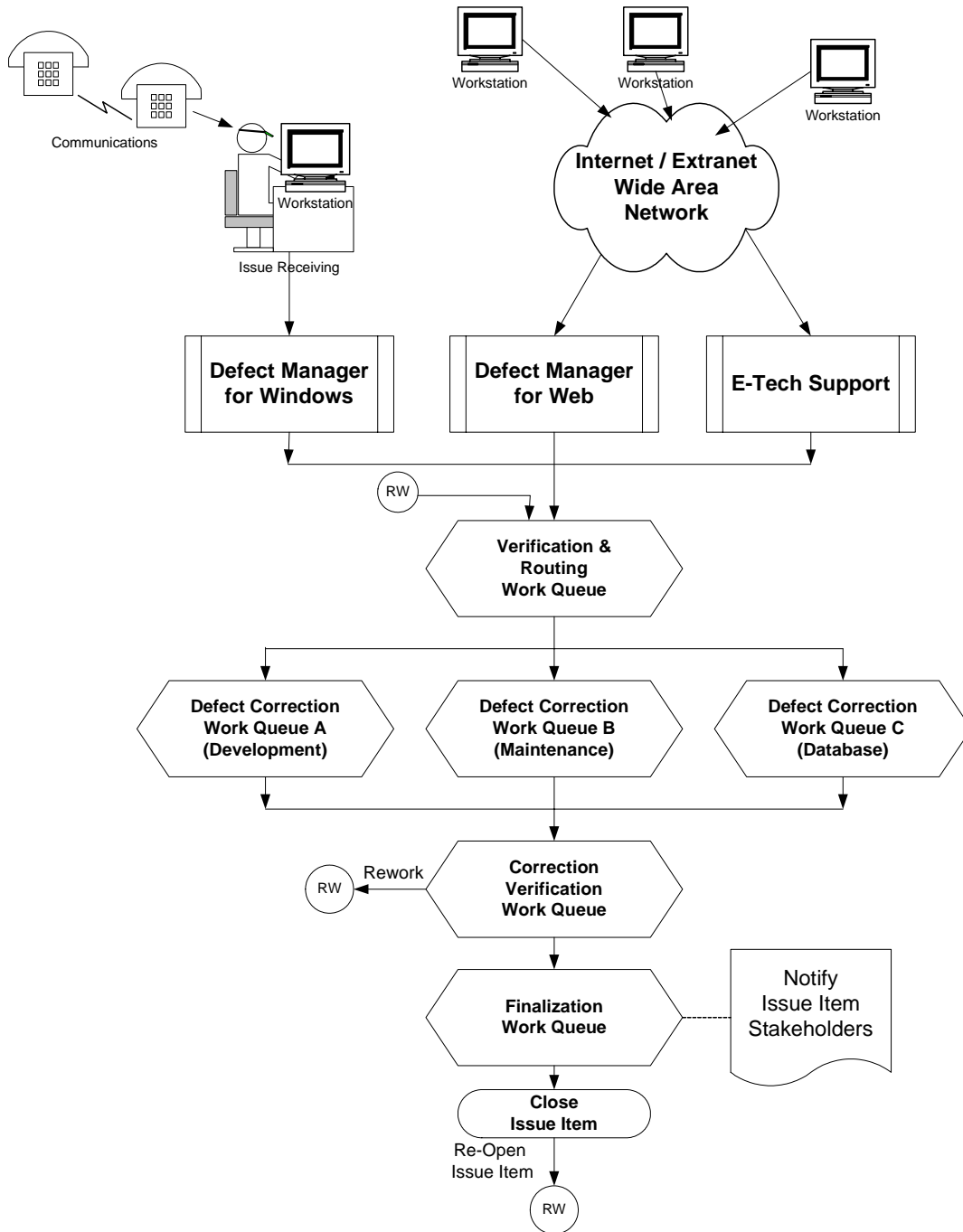


Figure: A Sample Workflow Sequence

The following outline describes the example workflow process shown in the above figure. This example begins with a report of an issue over the phone or via the internet which initiates the following action and subsequent work steps:

▪ **Initial Actions:**

1. Receive the issue report and enter it into Defect Manager storing it in the Repository.
2. The new issue item is placed in the work queue named: **Verification & Routing**.
3. Optionally, the issue item may also be assigned to a specific individual that is responsible for processing this issue.

▪ **Subsequent Work Steps:**

1. An assigned worker for the work queue accesses the highest priority issue item from the work queue named: **Verification & Routing**.

Work-Step Actions: Review the issue item properties and collections for completeness and accuracy. Determine the **Next** work queue that should process the issue item and if a specific user should be **Assigned To** work on it at the next work step.

If the issue item is incomplete, defer the item while taking action to obtain the missing elements needed – once obtained, re-activate the issue item and continue.

Post-Process Actions: Send the issue item to the next appropriate work step for processing by individual(s) with appropriate skills and training by placing the issue item into the proper work queue (e.g., “**Issue Corrections**”). Likewise, if a specific individual should process it, assign the individual’s name in the **Assign To** field for this issue item.

2. Assigned worker accesses the highest priority issue item from the work queue named: **Issue Corrections**. (Note: The issue item fetched next may or may not be the one shown in step one above, since a higher-priority issue item may take precedence)

Work-Step Actions: Review the issue item properties and collections to understand the nature of the issue or issue. Research and, attempt to, resolve the issue or issue. Log all actions taken, attach information and materials gathered that should be retained and update the status of the issue item as appropriate.

Post-Process Actions: Send the issue item to the appropriate next work step for processing:

- If the issue item needs additional processing by other groups/specialists, assign the work to those individuals by placing this issue item in the appropriate work queue
 - If this work-step processing is completed, then place this issue item in the next appropriate work queue: **Correction Verification**
3. An assigned worker accesses the highest priority issue item from the appropriate one of the three work queues named: **Correction Verification**.

The workflow diagram, shown above, shows three different queues that are used to hold and provide issue items to workers with different specialties in issue corrections. One or more workers know which work queues they are assigned to use.

The **Assign To** field can further route the issue to a specific worker because he/she is responsible for the issue item or because he/she is best able to process it at this time.

Work-Step Actions: Review the issue item properties and collections to insure that the issue item is completed properly with all of its accumulated information accurately logged. Verify that the correction is indeed valid and complete.

Note: In the case of a software bug and bug-fix correction, this work queue might be called “System Test”, QA-Quality Assurance, etc. This group must plan and test the correction to insure that it is valid, complete and can be deployed with the planned release. In addition, work-around suggestions and solutions may be identified to provide immediate relief from the issue until the next release can be obtained and installed.

Post-Process Actions: Send the issue item to the appropriate work step for processing:

- If this issue item does not meet the quality standards required by your business process, update its status and route it to the appropriate work queue for re-work.
The workflow diagram, shown above, indicates that the company’s policy is to send re-work to the **Verification & Routing** work queue (shown with connector marked RW) so the individual working this queue will be able to verify that the issue does need re-work and assign it to an appropriate worker to correct the problem.
 - If this issue item meets the quality standards required by your business process, place it in the work queue named: **Finalization**.
4. Assigned worker accesses the highest priority issue item from the work queue named: **Finalization**.

Work-Step Actions: Send appropriate follow-up responses to all issue-item stakeholders. These responses would advise of the disposition of the reported

issue or issue, plans for deployment a solution and any work-around suggestions or solutions that could provide immediate relief.

Review the issue item to determine if it should be published to the Knowledgebase to allow staff and customers to find previously resolved issues and issues along with the solution.

Update the issue item information required to track the finalization actions performed in this work step.

Post-Process Actions:

- If this issue item does not meet the quality standards required by your business process, update its status and route it to the appropriate work queue for re-work.
- If this issue item meets the quality standards required by your business process, update it as “closed” which removes it from workflow.

This simple workflow example has been kept very simple and generic to illustrate the concepts of workflow processes and issue-tracking lifecycle built around work queues.

We designed this example to show how you can combine quality control and issue processing steps that are done by different individuals and to:

- Illustrate how independent steps and workers can collaborate effectively
- Emphasize that by injecting quality control work steps at the beginning and end of a process that is done by multiple independent workers provides checks and balances to insure that work is ready for processing before it is assigned; Likewise, it insures that the processed work is correct before telling your customers and stakeholders that you have resolved the problem.
- Demonstrate that work can flow asynchronously and be accessed in priority order as it is delivered to workers at their desktop computers.

The administrator for your installation of Defect Manager will need to define and name the work queues that best suit your organization’s needs for processing your reported issues and issues (see the [Administration Guide](#)).

Basic System Operations

This section covers the basic operations needed to routinely add and process issues and issues while using Defect Manager for Windows.

A separate section, [Advanced System Operations](#), describes the more specialized operations.

Logging On To Defect Manager for Windows

You begin by logging onto the system allowing it to recognize you as a pre-defined user and the permissions you are authorized to use. The logon window below will be displayed.

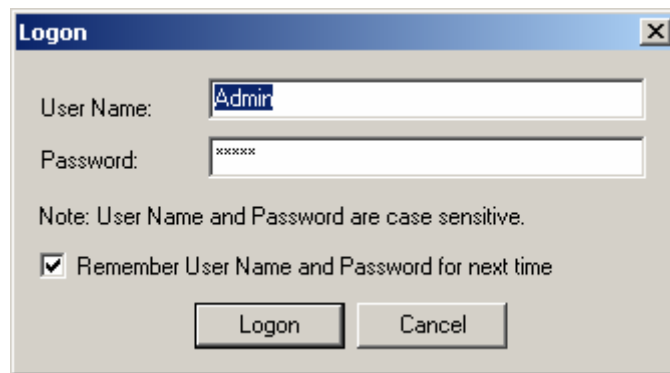
A screenshot of the Defect Manager Log On Form. The window has a title bar that says "Logon" with a close button (X) on the right. Inside the window, there are two text input fields. The first is labeled "User Name:" and contains the text "Admir". The second is labeled "Password:" and contains six asterisks "*****". Below the password field, there is a note: "Note: User Name and Password are case sensitive." Underneath the note is a checked checkbox with the label "Remember User Name and Password for next time". At the bottom of the window, there are two buttons: "Logon" and "Cancel".

Figure: Defect Manager Log On Form

Staff users have issues/issues assigned to them and perform work on it as a part of the process to resolve a problem or address an issue. Staff-users can be people who: answer support calls, do development, manage projects, test systems, document systems, produce graphics, manage product configurations, etc. – Anyone who is a part of your organization's issue/issue resolution business process.

Users are defined by the administrator(s) of the system who configure each user with suitable permissions and parameters.

If you are an administrator, you will also want to read the section: [Configuring Users](#) in the [Administration Guide](#) to see how to add new users to the system.

If you do not know your password, contact your administrator, and they can provide you with your User Name and Password to log onto Defect Manager.

Once you are logged on to the system you can use the Defect Manager Log display grid to select, then view or process reported issues and issues.

Issue Log Window – Main Window

The main window of Defect Manager displays a log of issue items for you to select and view as shown in the figure below

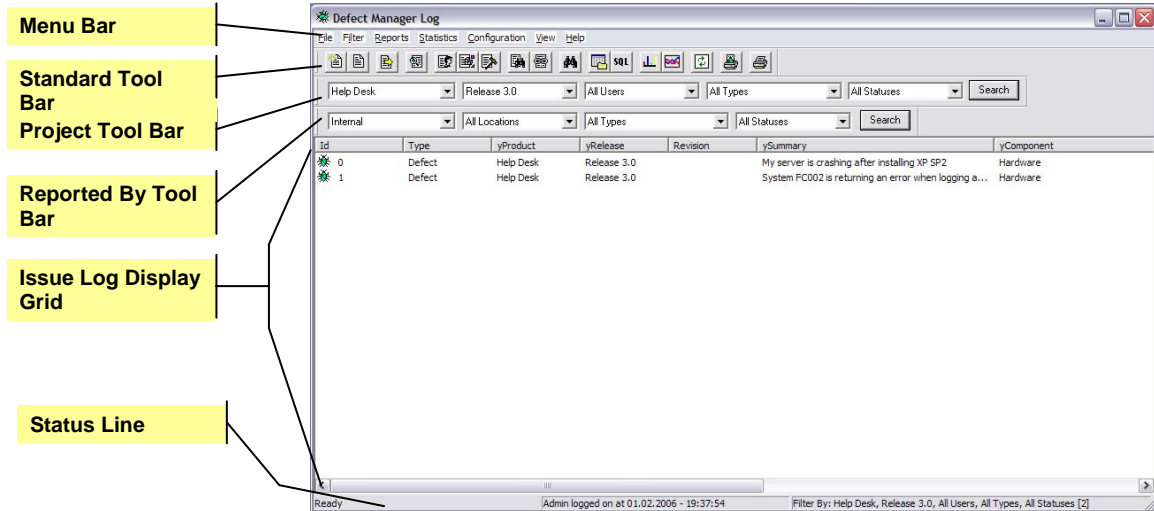


Figure: Defect Manager for Windows – Main Window –Issue-Log Display

In addition to the Menu Bar and the Toolbar operations, you can also use the Right-Mouse Button pop-up menu to evoke operations on the item under the cursor. This is only available in the *Defect Manager for Windows* (client version) of the product.

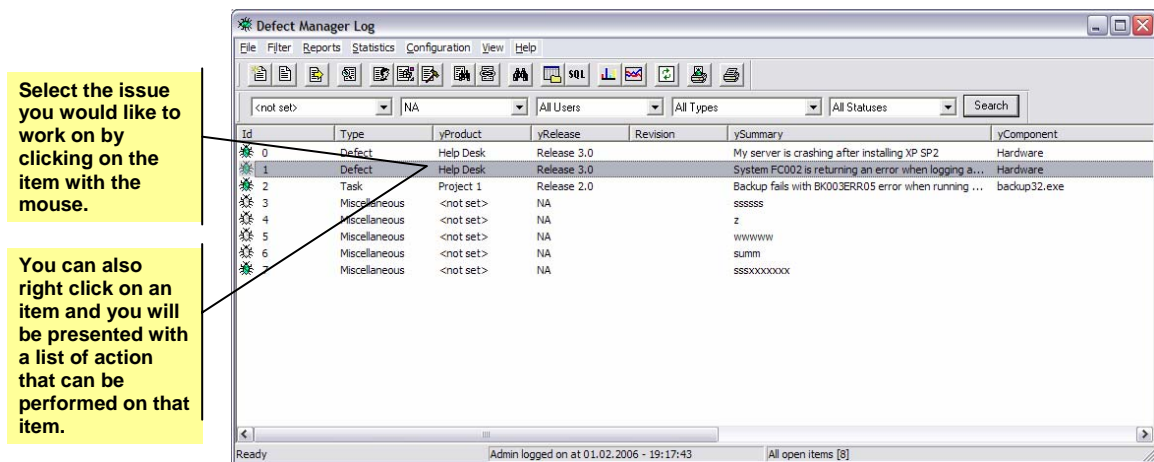


Figure: Issue Log- Working with Issues

However, the Menu Bar and Toolbar provide alternative ways to launch operations for the Windows and Web versions. You may select different filtered-views in the grid and perform other operations by using Menu Bar or the Toolbar controls.

You can enter a new issue-item by clicking on the “New Issue” button in the toolbar (i.e., the first button) or use the menu bar: **File → New Issue**.

Different filters allow you to view selected subsets of issues and issues in the grid display area of this window by selecting the filter you need using toolbar buttons or by using **Filter** on the menu bar. For example you could locate work that is assigned to you by selecting:

Filter → My Filters → My Open → Defects

The display grid for the Issue Log window will list the defects assigned to the indicated name. If you have no assigned work, the list will be empty.

You can also use the **Project Tool Bar** or the **Reported By Tool Bar** to easily view items by project and items that were reported by respectively. Both of these toolbars can be viewed or hidden by checking them under the **View** menu item.

To select an issue item from the list on the grid, merely select it with a mouse click to advance to the Detail Issue window to view and update the selected issue item (as shown in the figure above).

You can also use the “View By Id” toolbar button or the **View → By Id**.menu item to view a specific issue. Either selection will prompt you with a small window to enter the desired Id number as shown below.

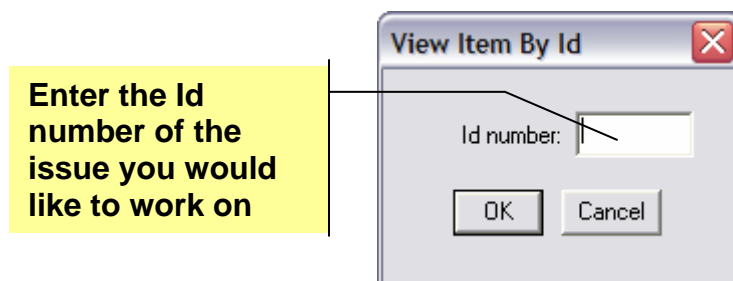


Figure: Open the Detail Issue using its Id number

After you click the Ok button, the Issue Detail window will open and you can view and update the issue.

Detail Issue Window

The detail-issue window is broken up into two areas. The top area lists general information about a particular issue and the bottom is a set of tabbed folders that organize the majority of specific information for an issue.

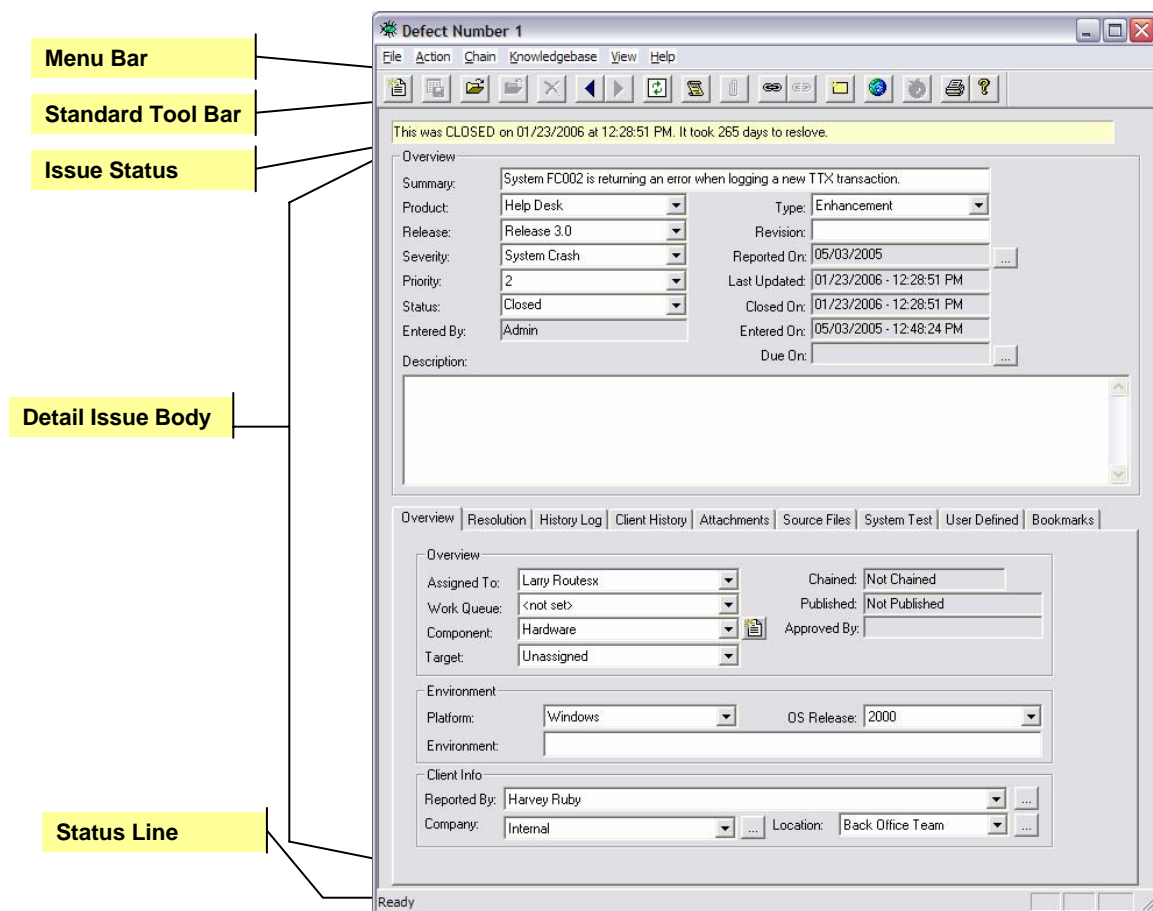


Figure: Issue Detail Window –Summary

Some of the most important information fields that characterize the problem and identify the current state of the issue-issue are shown in the figure above.

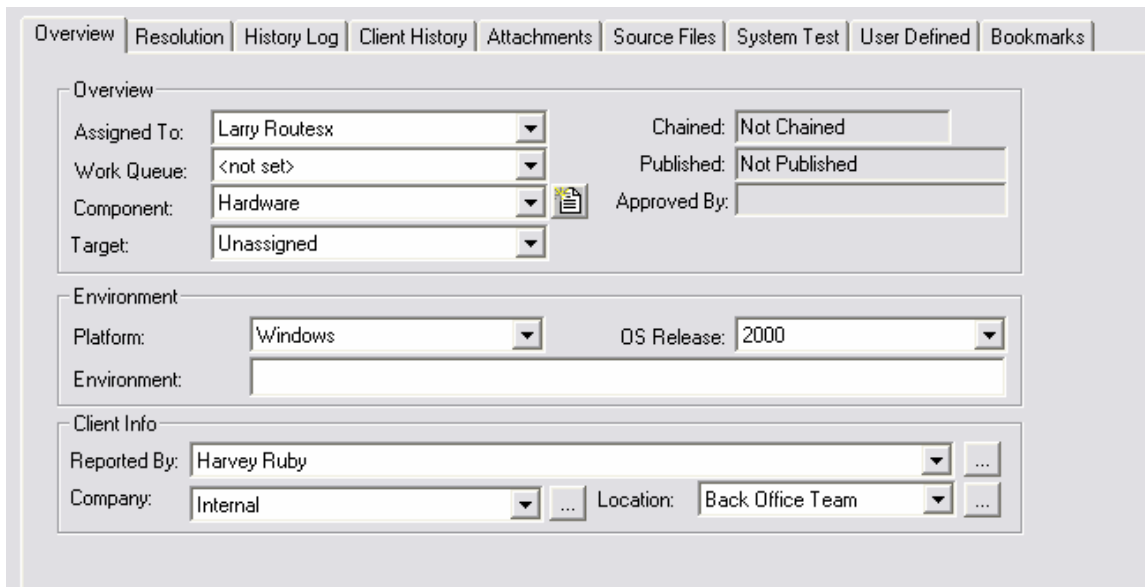
- **Summary** – A brief description that summarizes the problem.
- **Product** – Product name picked from a pre-defined list created and maintained by your system administrator
- **Type** – The type of item. This can be Defect, Enhancement, Call, Task, or Miscellaneous.
- **Product Release** – Product release identification picked from a pre-defined list created and maintained by your system administrator.
- **Revision** – This is the current revision level for the selected release. This field is often used as the build level. .
- **Severity** – The current Severity is expressed as a code for the severity of the issue in a list box that allows the user to select from a pre-defined list of values when updating this field.

- **Priority** – The current Priority expressed as a code for the priority of the problem in a list box that allows the user to select from a pre-defined list of values when updating this field.
- **Status** -- The current status-code for the issue-issue item in a drop-down list box that allows the user to select from a pre-defined list of values when updating this field.
- **Description** – A text description of the issue or enhancement request.
- **Reported On** -- The date the issue was reported.
- **Entered On** -- The date the issue was entered.
- **Last Updated** -- The last time anyone updated the issue.
- **Closed On** -- The date the issue was resolved.
- **Due On** -- The on-or-before date the issue is scheduled to be resolved.

The bottom half of this window has tabbed folders that contain a wealth of information related to the issue. A summary of the tabs that are available follows:

General Tab

This is general information about the issue. It is broken into three panels: **Overview**, **Environment**, and **Client Info**.



The screenshot shows a software window titled 'General Tab' with several tabs at the top: Overview, Resolution, History Log, Client History, Attachments, Source Files, System Test, User Defined, and Bookmarks. The 'Overview' tab is active. It contains three main sections:

- Overview:** Includes fields for 'Assigned To' (Larry Routesx), 'Work Queue' (<not set>), 'Component' (Hardware), 'Target' (Unassigned), 'Chained' (Not Chained), 'Published' (Not Published), and 'Approved By'.
- Environment:** Includes 'Platform' (Windows) and 'OS Release' (2000).
- Client Info:** Includes 'Reported By' (Harvey Ruby) and 'Company' (Internal). The 'Location' field is set to 'Back Office Team'.

Figure: The General Tab on the Issue Detail Window

Issue Info Panel

- **Assigned To** -- The person assigned as responsible for processing the issue-issue item in the next processing step. Selected from a list of pre-defined user names.

- **Work Queue** – The current work-step’s Work Queue name. By selecting another Work Queue name from a list of pre-defined work queues, the issue item may be routed to the next work step.
- **Component** – A name for the specific part of the product (e.g., module, sub-assembly, etc.), project (e.g., project phase, task, etc.), process or service that is related to the issue. It provides a way to identify the specific sub-component that the issue or defect is related to. This field allows you to select the proper component from a pre-defined list.

Notice the button to the right of this field, it allows you to add new component names to the list-box when components that have not been previously involved in issue reports.

- **Approved By** – The person that has approved this item to be worked on.
- **Chained To** – Set to “Not Chained” or shows links to other issue items that reported the same or a highly-related problem.
- **Published** – Set to “Not Published” or “Published” or date-published indicating that external descriptions for the issue item are visible in the Knowledgebase on the Defect Manager’s website.
- **Target Release** – View the release identification where the resolution to this issue item will be deployed (if appropriate).

Environment Panel

- **Platform** – Name of the operating system or environment related to the issue picked from a pre-defined list created and maintained by your system administrator. When software products are involved this refers to the software operating system environment. When other types of products are involved, your list of operating environments can refer to those appropriate to your industry.
- **OS Release** – Identification of the operating system version or operating environment version/type that is appropriate to your industry.
- **Environment** – Additional information about the end user environment that will be helpful in diagnosing and resolving the item beyond the **Platform** and **OS Release**.

Client Info Panel

- **Reported By** – User Name for the submitter of the issue item picked from a pre-defined list of users (which can include customers) that is created and maintained by your system administrator. Pressing the button to the right of the **Reported By** will allow you to view all the detail contact information.
- **Location** – Identifier for the user’s site/organization location that submitted the issue item picked from a pre-defined list created and maintained by your system administrator.

- **Company** – Name of the user’s company that submitted the issue item picked from a pre-defined list created and maintained by your system administrator. Pressing the button to the right of the **Company** will allow you to view all the detail company information.

Resolution Tab

This tab is used to review the information that is required to resolve this issue. You specify the Resolution, the Workaround (if any) and the Client Resolution.

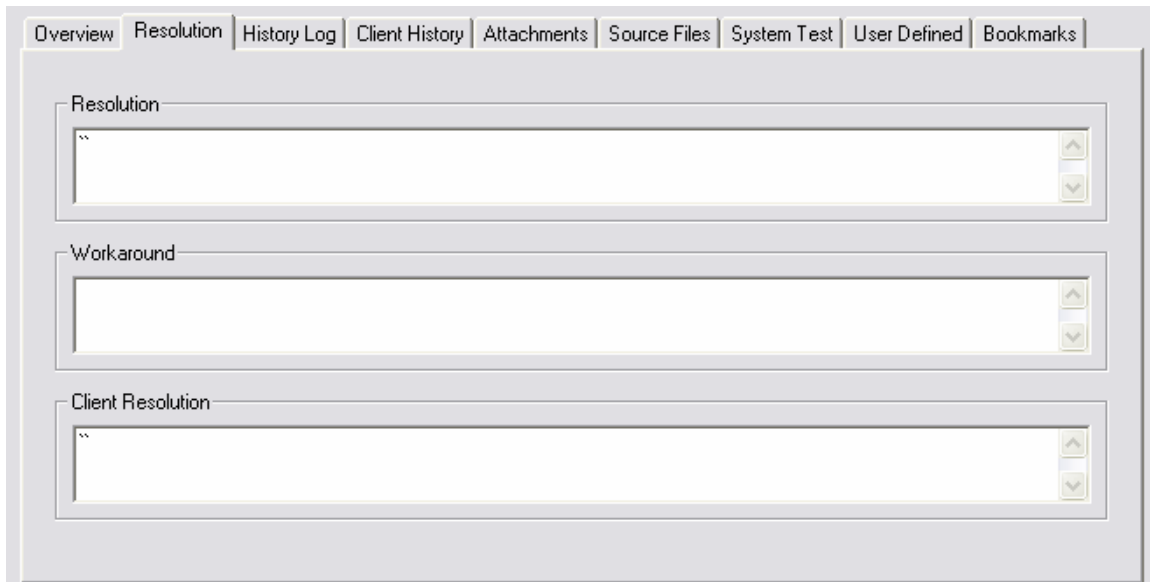
The screenshot shows a software window with a tabbed interface. The 'Resolution' tab is selected and active. It contains three text input fields, each with a label and a small button to its right. The labels are 'Resolution', 'Workaround', and 'Client Resolution'. Each field contains a double quote symbol ("). The tabs at the top are: Overview, Resolution, History Log, Client History, Attachments, Source Files, System Test, User Defined, and Bookmarks.

Figure: The Resolution Tab on the Issue Detail Window

The **Resolution** is not displayed to your clients when they review their issues via the E-Tech Support interface, only the Workaround and Client Resolution are viewable. This allows you to record more-detailed or, perhaps, sensitive information in the **Resolution** field.

History Log Tab

These are activities and notes that have been entered by your technicians that are pertinent to the issue. It is a good practice for your technicians to add notes for all the work that they have done on the issue or issue, so that anybody can pick up and continue processing the issue.

For example, if the individual is reassigned to another task, you will not lose the investigative work that has already been done. You should always document the time and effort you have spent on resolving your client’s issues.

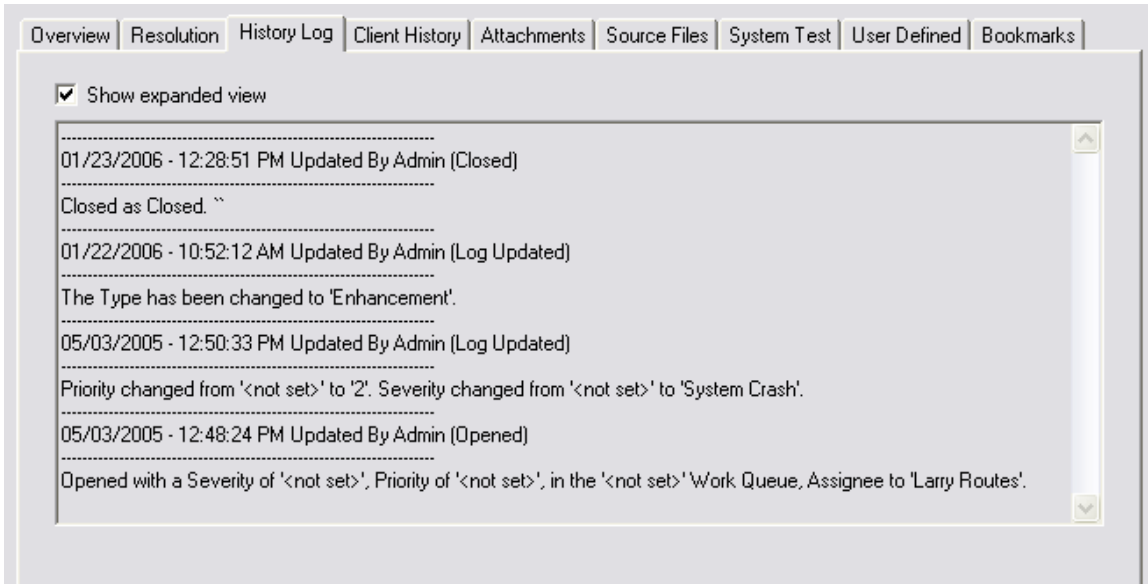


Figure: The History Log Tab on the Issue Detail Window

To add notes to an issue, use the **Action → Add a Note** menu item.

Client History Tab

These are activities and notes that have been entered by your technicians and clients via the ETech Support interface. Since your clients can see these comments, make sure you technicians make appropriate comments.

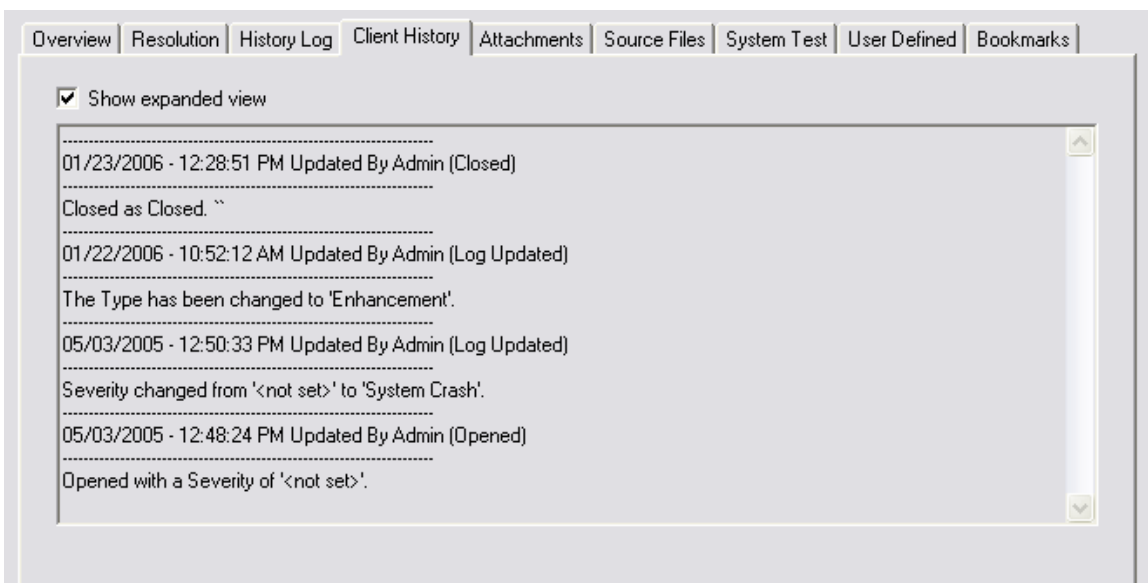


Figure: The Client History Tab on the Issue Detail Window

To add notes to a issue use the **Action → Add a Note** menu item.

If you will not be using the E-Tech Support interface, you can use the **View → Customize** option to hide the **Client History** tab from view.

Attachments Tab

You can add, remove and view attachments that are associated with an issue item. For instance, you could save documents that contain screen captures of error messages (e.g., a .bmp image file) sent in by your client. Likewise, the individual submitting the issue item may have included a detailed text description of the problem as an Adobe Acrobat (.pdf file as shown below) or Microsoft Word document (.doc) that can be attached. You can also attach document links (URLs) to issues as well.

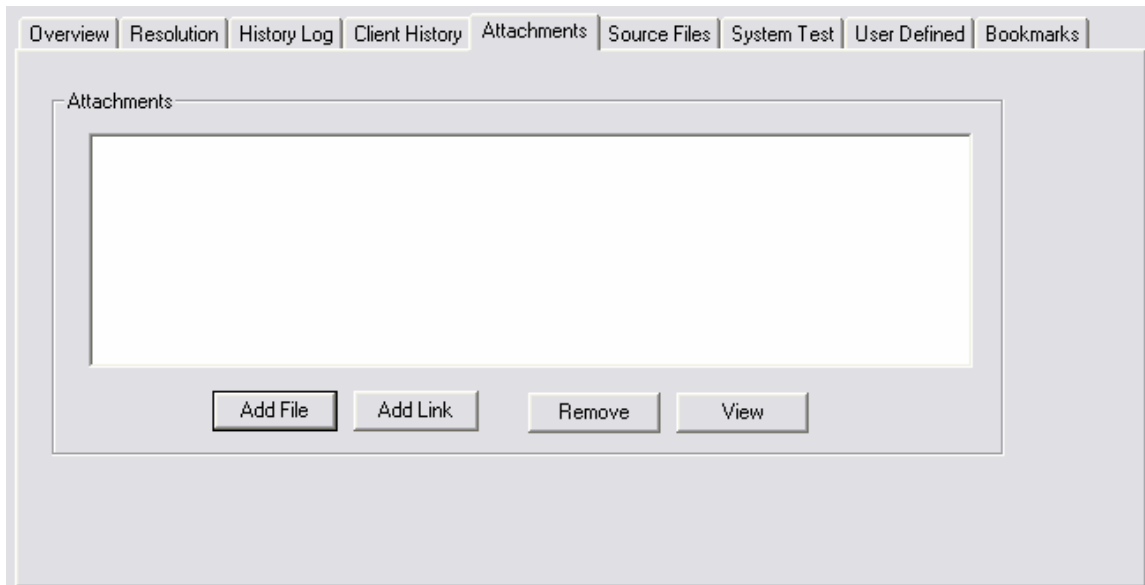


Figure: The Attachments Tab on the Issue Detail Window

Clicking the **Add File** button, will display a file browser control that allows you to pick the documents that you want to attach to the current issue.

Clicking the **Add Link** button, will display a window that allows you to enter the URL that you want to attach to the current issue.

To **View** or **Remove** an attachment or link, it must first be selected. Once the attachment icon is selected, press the **View** button to display the attachment with a viewer that is associated with the attached file's suffix.

Likewise, a selected attachment icon can be removed by clicking the **Remove** button.

Source Files Tab

Your technicians can identify which source files (and the version) that were changed to resolve this issue. Defect Manager has complete Microsoft Visual Source Safe support.

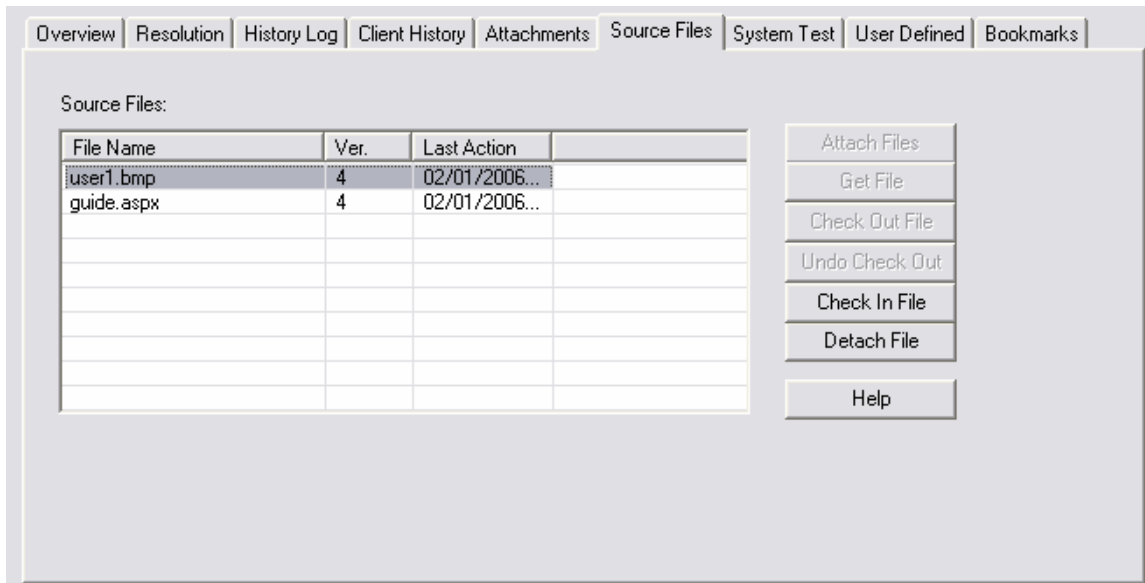


Figure: The Source Files Tab on the Issue Detail Window

The above form lists the file name, version number, date of the last action and a description for the status for an issue item.

The buttons on the right-side of the form allow you to:

- **Attach Files** – Attach copies of computer program source code to an issue item object.
- **Get File** – Display source code programs and other logic
- **Check Out File** – Allows you to check out a copy of a source code program managed under Visual Source Safe so you can make modifications. While you have a source code module checked out others on the team can view the code, but they cannot modify it until you check it back in.
- **Undo Check Out** – Provides a way to unlock source code files when you do not have any changes to apply.
- **Check In File** – Allows you to return modified source code to Visual Source Safe.
- **Detach File** – Allows you to delete an attached copy of a source code file

System Test Tab

Your System Test department can use this tab to log typical system test information related to this issue. You can even import issue reports from other regression testing tools.

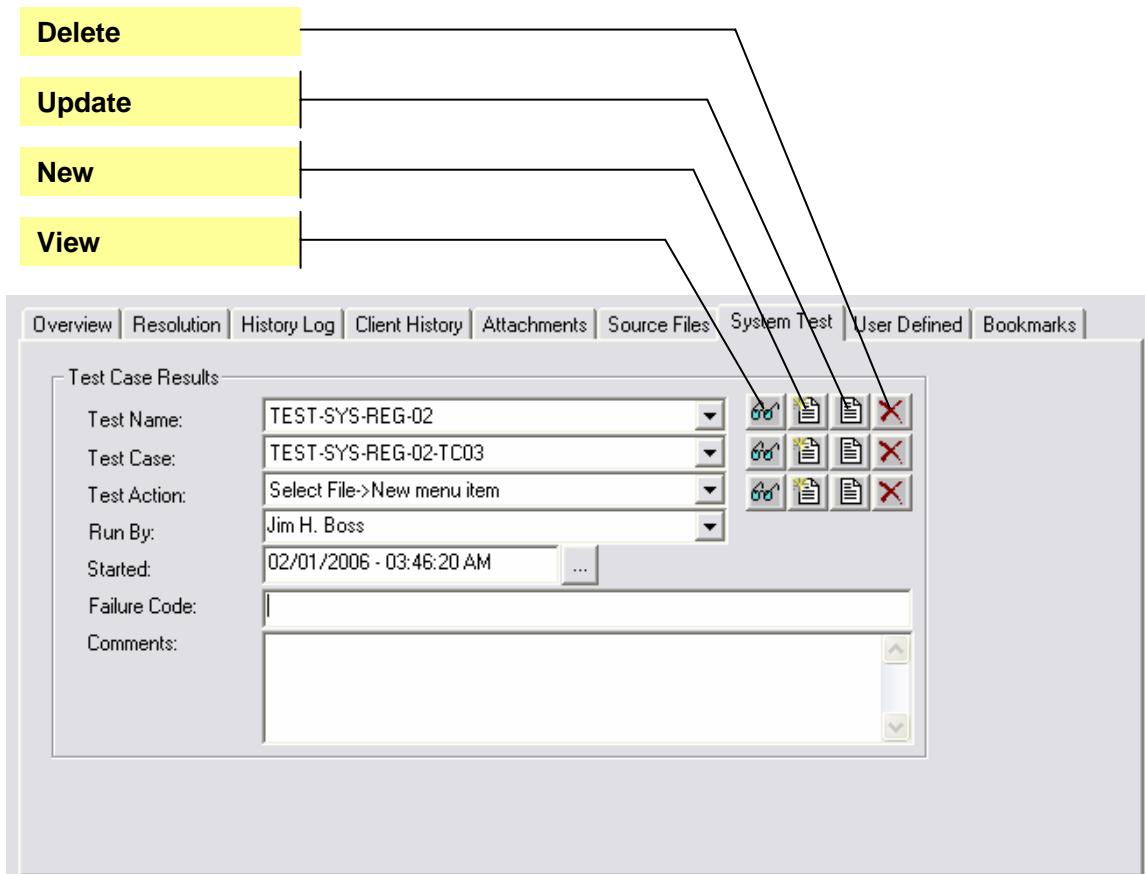


Figure: The System Test Tab on the Issue Detail Window

Each system test case related to an issue-item object has the following properties that can be viewed and entered on this form:

- **Test Name** – Test Names can be viewed and entered by picking from a pre-defined list of QA Test names in this field. The tools buttons to the right of this field allow you to: View, Add, Modify and Delete tests. When a new QA test is created with the Add-Tool button, it is added to the pre-defined list of values for this field.
- **Test Case** – Test Cases can be viewed and entered by picking from a pre-defined list of QA test cases in this field. The tools buttons to the right of this field allow you to: View, Add, Modify and Delete test cases. When a new QA test case is created with the Add-Tool button, it is added to the pre-defined list of values for this field.
- **Test Action** – Test Action Names can be viewed and entered by picking from a pre-defined list of QA test action names in this field. The tools buttons to the right of this field allow you to: View, Add, Modify and Delete test action names. When a new QA test action name is created with the Add-Tool button, it is added to the pre-defined list of values for this field.
- **Run By** – The user's name that ran the system text is picked from a pre-defined list created and maintained by your system administrator.

- **Started** – The date and time the system test was started can be viewed and entered in this field by using the date and time controls.
- **Failure Code** – This field allows you to, optionally, record a system test failure or exception conditions and a description of their cause
- **Comments** – You may enter additional comments and observations in this field.

User-Defined Fields Tab

User-defined fields allow you to extend Defect Manager to better meet your organization’s needs. These fields are defined by the Administrator to hold additional information specific to your organization and needed by your business processes.

Your system administrator can create up to eight (8) user-defined fields of information that are associated with each issue item.

You can also change the label on this tab from User Defined to what ever suits your company. Sethe [Administration Guide](#) for more information on defining these fields.

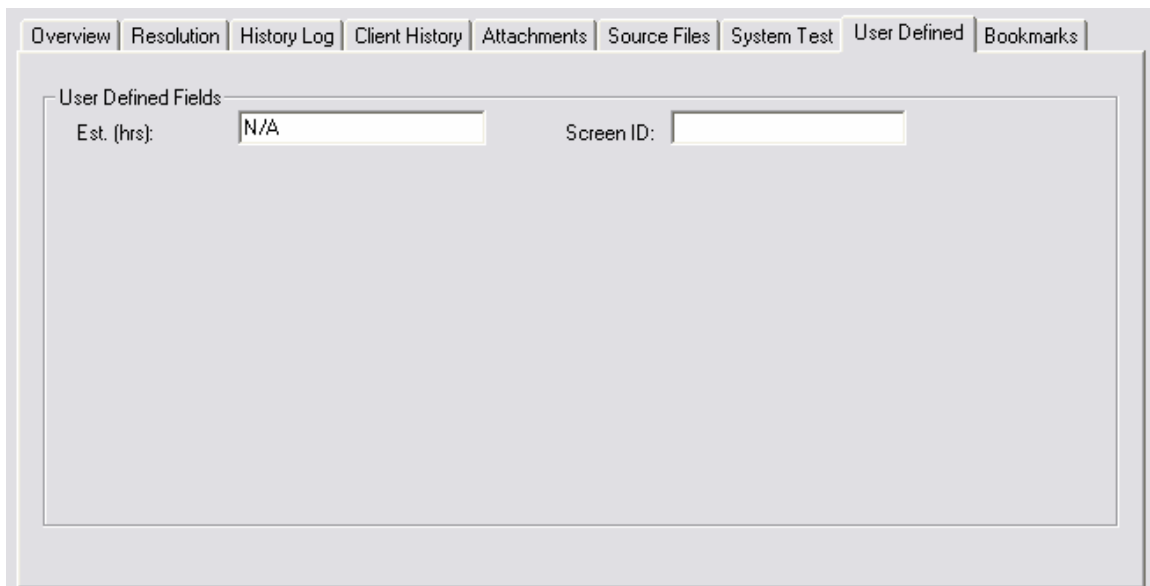


Figure: The User Defined Fields Tab on the Issue Detail Window

Bookmarks Tab

These are words that can be used by all users to easily find related issue items that are associated with a bookmark name.

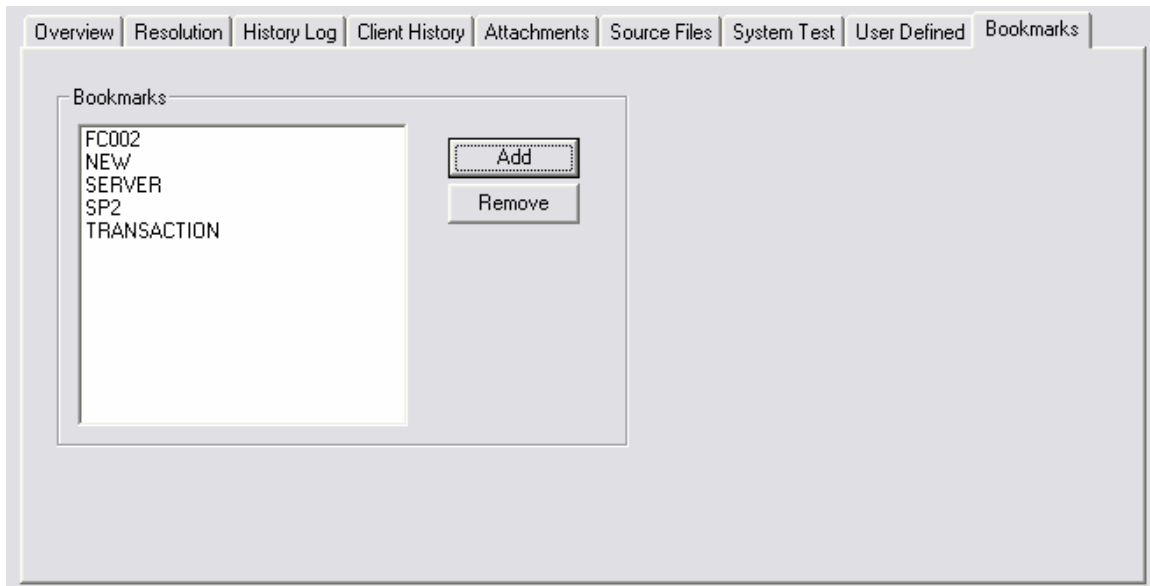


Figure: The Bookmarks Tab on the Detail Issue Window

Saving Issue Item Information

With the exception of the **Attachments** and **Source Files** tabs, all other changes are temporary until you select the **File->Save** menu item, or press the **Save** toolbar button. When you save an issue all modifications are logged by the system. You can review these activities by selecting the **Internal Activity** and **External Activity** folders.

Attachments, Notes and **Source File** changes take effect **immediately**.

If you realize you have made a mistake when modifying either of these data items associated with either of these folders, you can reverse your changes.

Issue Detail Toolbar

The Issue Detail Toolbar operations are summarized in the figure below.

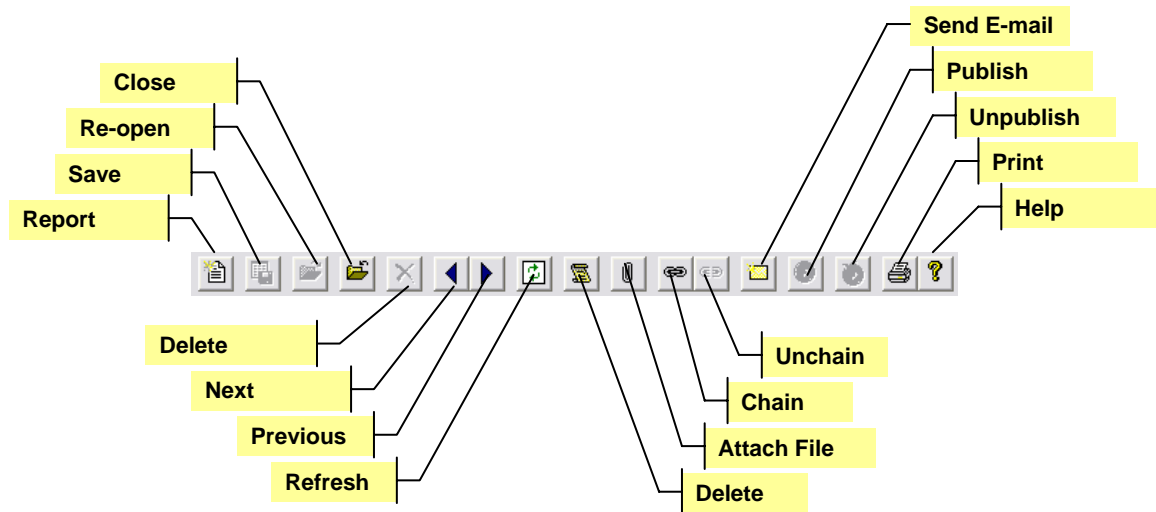


Figure: Detail Issue Window – Toolbar Operations Summary

All the Issue Detail window toolbar functions plus other operations can be accessed from the menu bar as summarized in the figure below.

Entering a New Issue

A new issue or issue is entered by pressing the New button on the toolbar or by using the Menu Bar to select: **File → New**.

This opens the New Item window as show below.



New Item

Client Info

Company: Internal

Location: Back Office Team

Reported By: Bobby Small

Overview

Summary:

Product: <not set>

Release: NA

Severity: <not set>

Priority: <not set>

Work Queue: <not set>

Component: Unassigned

Type: Miscellaneous

Revision:

Reported On: 02/03/2006

Assigned To: Inbox

Target: Unassigned

Due On:

Description:

Environment

Platform: NA

OS Release: NA

Additional Info:

After submitting this ...

Submit Another

Send E-Mail

Add Bookmark

Add Attachment

Submit Close Help

Figure: Reporting a New Issue

- **Company** – The company that reported the issue/issue.
- **Located At** – The particular company location responsible for the issue or issue/issue.

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The location/department in the company that reported the issue/issue. If your clients are not specified at this level of granularity, just have your administrator create a single location for each company.

- **Reported By** – The contact that reported the issue/issue.
- **Summary** – A brief description of the issue/issue.
- **Product** – Product name picked from a pre-defined list created and maintained by your system administrator
- **Type** – The type of item. This can be Defect, Enhancement, Call, Task, or Miscellaneous.
- **Release** – The Product release identification picked from a pre-defined list created and maintained by your system administrator.
- **Revision** – This is the current revision level for the selected release. This field is often used as the build level. .
- **Severity** – Select the severity of the issue/issue.
- **Priority** – Select the priority of this issue/issue.
- **Reported On** – The date this issue/issue was reported.
- **Work Queue** – Select the work queue where this issue/issue should be placed.
- **Assigned To** – Select the user who this issue/issue should be assigned to.
- **Target Release** – Optionally, you can select the product release that this issue/issue will be fixed in.
- **Component** – Optionally, you can select the component area that this issue/issue is related to.
- **Due On** -- Select the date this issue/issue needs to be resolved by.
- **Description** – Enter the description that describes this issue/issue. If you want to add additional notes to the issue/issue as you proceed in resolving this, use the **Action** →**Add a Note** menu item in the Issue Detail window.
- **Platform** – Name of the operating system or environment related to the issue picked from a pre-defined list created and maintained by your system administrator. When software products are involved this refers to the software operating system environment. When other types of products are involved, you list of operating environments can refer to those appropriate to your industry.
- **OS Release** – Identification of the operating system version or operating environment version/type that is appropriate to your industry.
- **Environment** – Additional information about the end user environment that will be helpful in diagnosing and resolving the item beyond the **Platform** and **OS Release**.

After submitting this...

- **Submit Another** – Check this box if you want to enter more than one issue.

- **Send E-mail** – Check this box if you want to send an e-mail about this issue to another person.
- **Add Bookmark** – Check this box if you want to specify bookmarks for this item.
- **Add Attachment** – Check this box if you want to add an attachment to this item.

Click the **Submit** button to log the issue into the system. After the item has been successfully received by the system, the Id of the item will be displayed.

If **Submit Another** is checked, the window will remain open for you to submit more issue, otherwise the window will close.

If you have specified e-mail form letters, or alerts, they will automatically be sent to you your client and users respectively. See [Administration Guide](#) for information on how to configure this.

You can close the window at any time by clicking the **Close** button.

Reviewing Assigned Work from a Work Queue

Choosing the filter, **File →Standard Filters→All Open Items By Work Queue**, causes the following window to appear – it allows you select one of your assigned work queues.

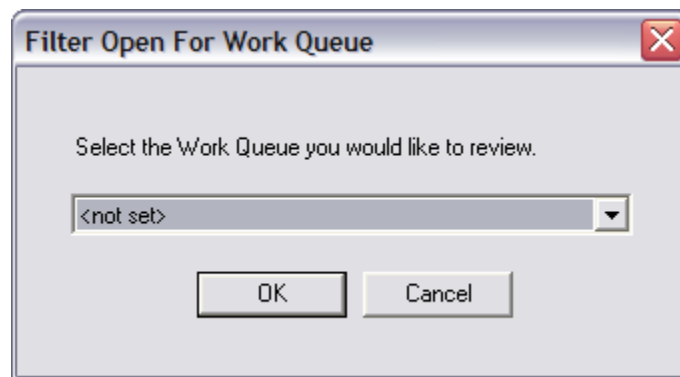


Figure: Viewing Assigned Work by Work Queue

Pressing the **OK** button will update the Issue Log with a list of all the open items in the selected work.

Adding Notes to the History Log

The History Log automatically keeps a chronological record of all activities performed an issue. There will be times when you want to add your own notes or comments about an issue to the item. Selecting the **Action →Add a Note** menu item will open the following window.

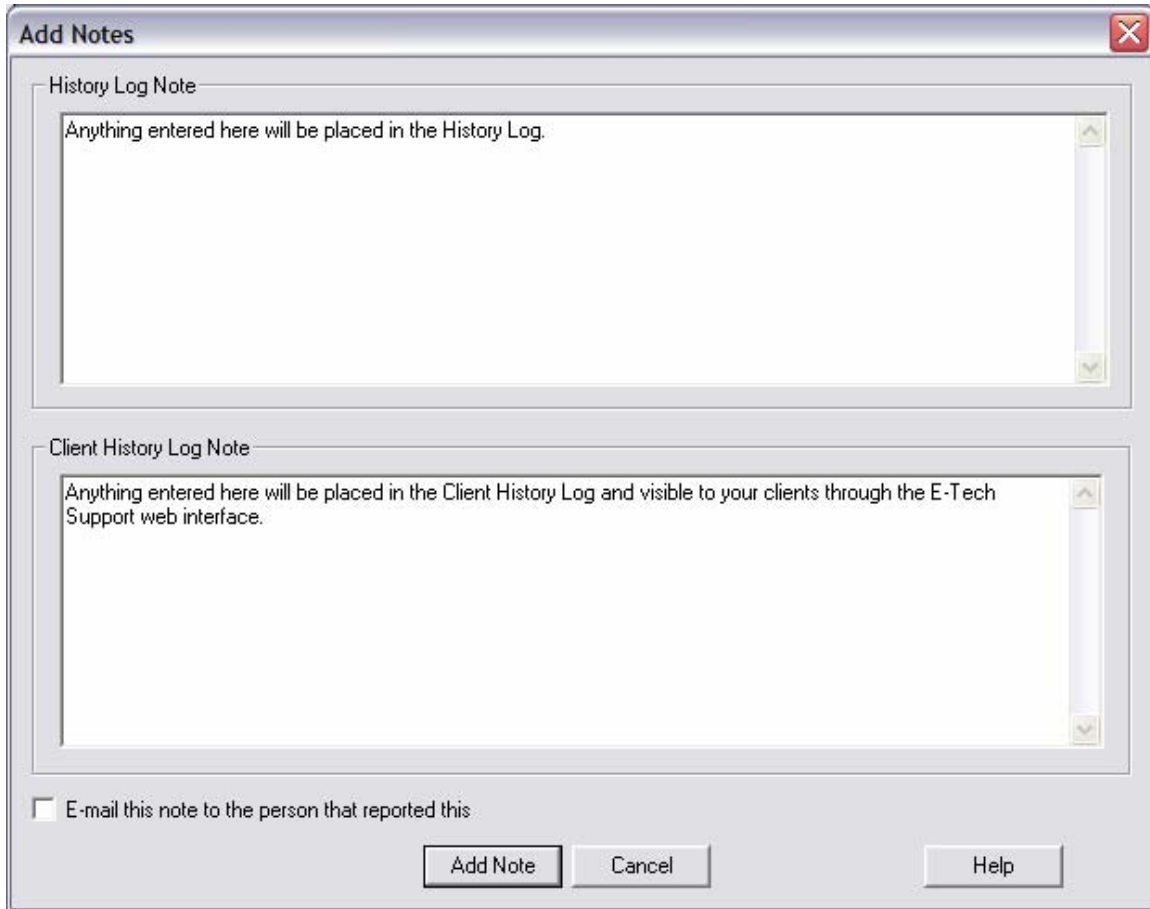


Figure: Adding Notes to the History Logs

There are two enterable fields on this window. They are the **History Log Note** and the **Client History Log Note**. The **History Log Note** field is for you to add comments to the **History Log**. These notes are internal to your company. The **Client History Log Note** field is for you to add comments to the **Client History Log**. These notes are visible to your clients through the E-Tech Support web interface.

If you are not planning on using the E-Tech Support interface, then you can leave the **Client History Log Note** field blank. After you have entered your comments, push the **Add Note** button to save your notes.

Adding Attachments and Links (URLs)

Defect Manager allows you attach an unlimited number of documents or links to an issue item. There are many reasons why you might want to do this, here are just a couple.

- It is more accurate and simpler to attach the original information than to re-key the information. Pictures “speak a thousand words” and original artifacts can better articulate the problem at hand.

- When opening a new issue, your management, technicians, or clients may want to attach relevant error screens or additional documentation that would be helpful in solving the problem. Pictures speak a thousand words and original artifacts can better articulate the problem at hand.
- When implementing enhancements or, design notes, customer comments, could be attached to the issue, so the information would not have to be re-entered into the issue.
- Attached information is unlikely to get separated from the issue item and lost. .

You can attach a document to a issue when:

- You open a new issue as part of the New Issue window.
- Your client opens a issue via the web interface.
- When reviewing the issue after it has been opened using the **Action → Attachment** menu item, or pressing the Add button in the Attachments folder, or dropping in a file from Windows Explorer.
- Pressing the **Add File** button in the Attachments folder.

You can attach a document link to a issue when:

- Pressing the **Add Link** button in the Attachments folder.

One way to add an attachment or a link, is to select the Attachments folder in the Issue Detail window as shown below.

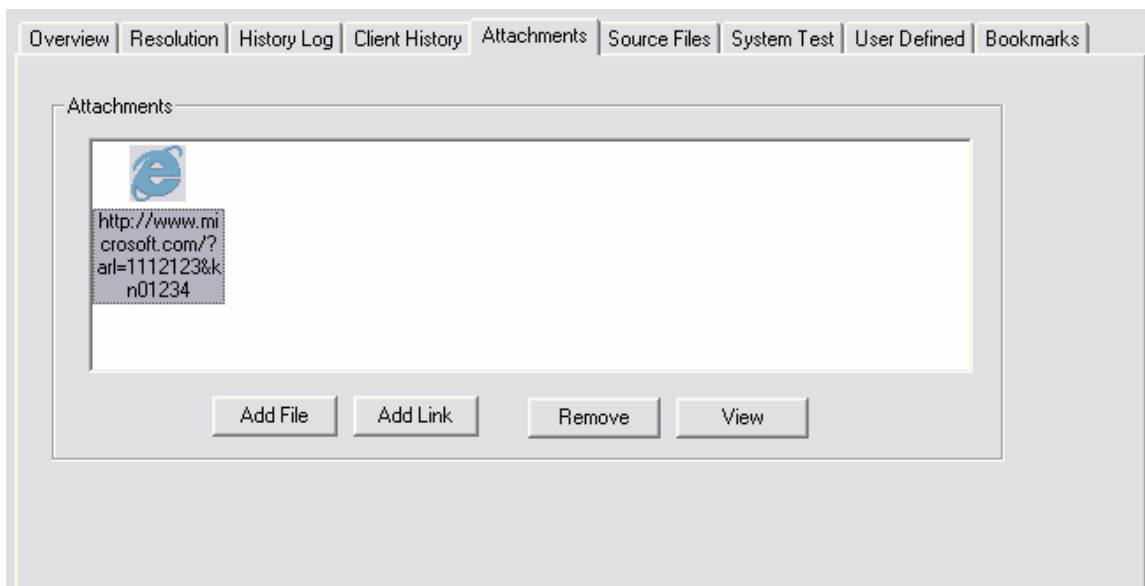


Figure: Adding an Attachment

To add a document, press the **Add File** button in the Attachments folder. To add a document link, press the **Add Link** button in the **Attachments** folder. To remove a

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document or a document link, select the document/document link and press the **Remove** button. To view a document or a document link, select the item and press the **View** button or double-click on the icon.

Defect Manager will log the action and the individual that performed the action in the activity log.

When you add a document or a document link, you will see them displayed in the bottom of the Attachments folder.

Note: You can drag and drop files from Explorer onto the Attachments folder to add documents.

Send E-mail Notification

If you press the **Send Mail** button, you will receive the following prompt.

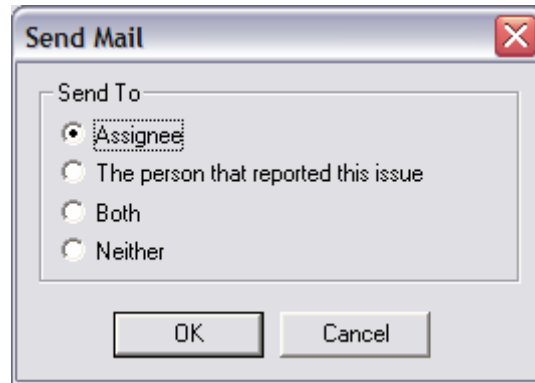


Figure: Select Email Recipient Type

If you check any of the first three choices above, you will be presented with the following Outlook window for you to send your email notification.

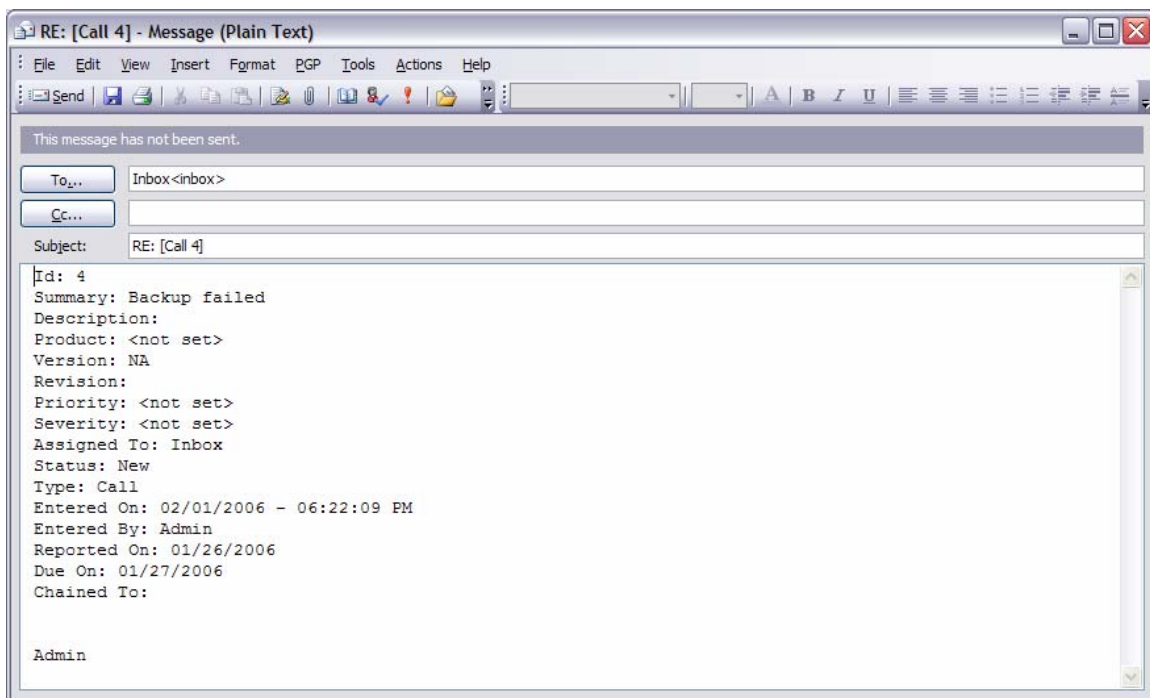


Figure: Send E-mail Notification Window (Outlook window)

This window is the standard Microsoft Outlook window. You can use all the normal features that you would use when using Outlook.

If you have specified an e-mail signature then your e-mail signature will be appended to the end of the message in the Outlook message window.

Copying an Issue

There will be times when you need to copy an issue from one project to another. Defect Manager lets you do this quite easily and provides you some options for the copy. When you select the **File → Copy** menu item, the following window will be displayed.

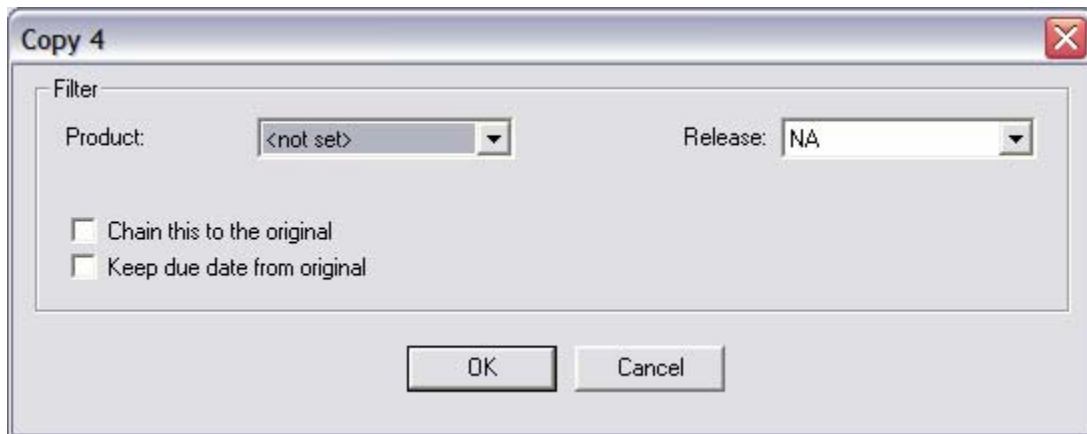


Figure: Copying an Issue Item

Select the **Product** and **Release** you want the current issue to be copied to and press the **OK** button. Optionally you could chain this issue to the original by checking the **Chain this to the original** checkbox. Checking the **Keep due date from original** checkbox will carry the due date from the original to the copy.

Closing an Issue

When you have resolved an issue, you will want to close it, indicating that this issue is resolved. When you select the **Action → Close** menu item, the following window will be displayed.

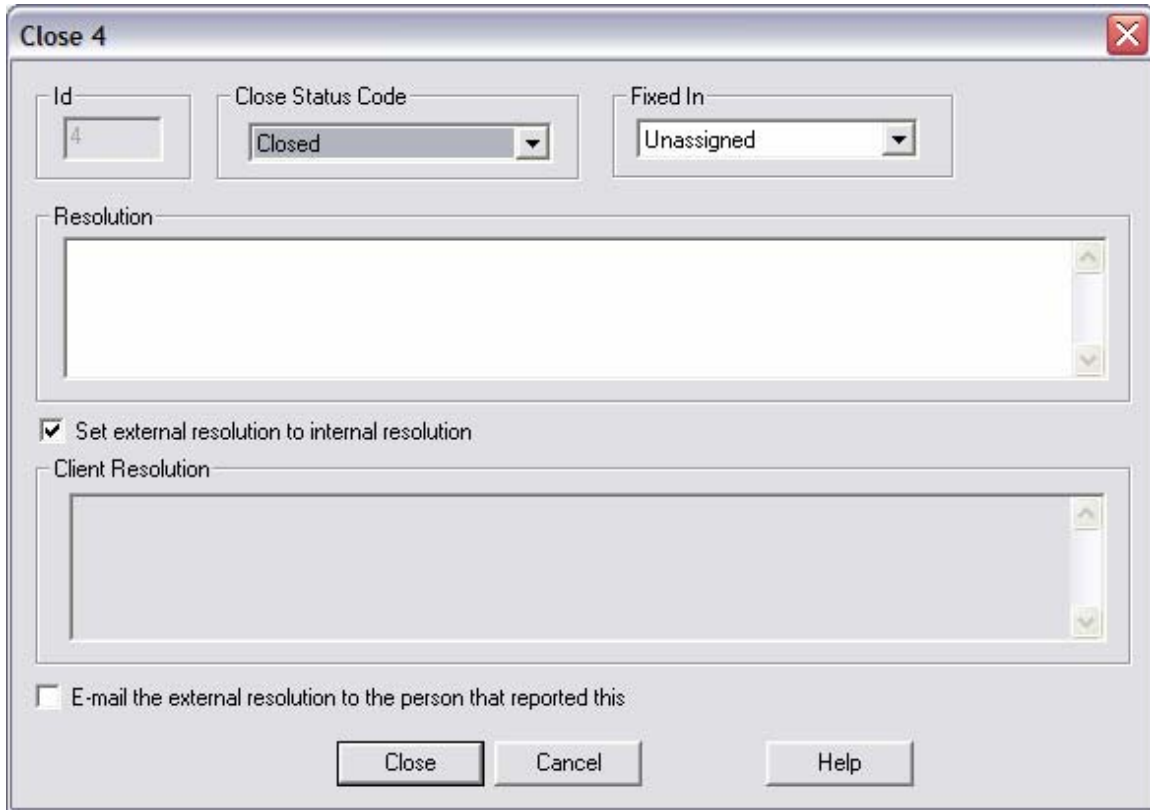


Figure: Closing an Issue

You will need to select the **Close Status Code** from the list, enter the **Resolution** and optionally enter the **Client Resolution** field, select release that this issue is fixed in, and then press the **Close** button.

You select the **Resolution Code** from a list of values that can be tailored to the needs of your organization by your system administrator, as shown in the example above. Your system administrator defines the **Close Status Code** to be meaningful code-values within your organization.

Notice the checkbox labeled “**Email the resolution to the person that reported this issue**” is a convenient way to maintain effective communication and follow-up with your clients.

Remember, the **Client Resolution** will be visible to your clients via the E-Tech Support interface after you complete this operation.

Opening a Closed Issue

After an issue has been closed, you might realize the issue was erroneously closed, and in fact was not resolved. To do this you will select the **Action → Re-open** menu item. The issue will now be open again. You should start working on this issue in search of the real resolution.

Deferring an Issue

There will be times when it is not possible to work on a issue. There can be many reasons for this. One reason might be that you are working on a issue and it requires additional information from the person that reported the issue. Since you cannot actively work on it now, you can defer it until later, when the additional documentation arrives. Then you can re-open the issue and actively pursue its resolution. When you defer and issue with issue manager, it will no longer be visible in your work queue as an open issue. There will be times when you want to take a more proactive role in resuming work on the issue. With Defect Manager you can defer the issue until a particular date. At that time the issue will magically re-appear in the open queue. To defer work on a issue until a later time use the **Action →Defer** menu item.

Chaining an Issue

There will be times when you want associate one or more issues with other issues. There can be many reasons why you link issue items by chaining:

- **Multiple reports of the same issue** – When one issue report is fixed, you would want all the others reporting the same problem to be notified.
- **Avoid Redundant Effort** – When identical issue-items are reported by different sources, chaining allows them to be linked together so they can be treated as one problem to solve.
- **Recognize the Impact of a issue** – By chaining, you can easily see the many different clients that are affected by the same issue.

To chain a issue to another issue, use the **Chain →Chain this Issue** menu item.

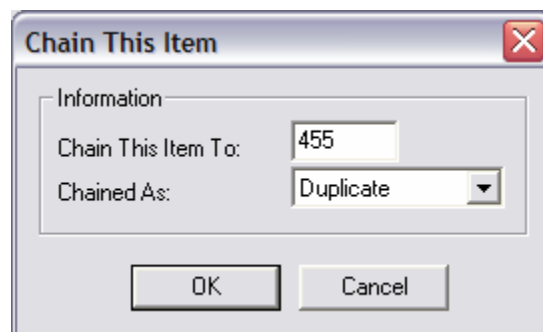


Figure: Using Chaining to Link Two issue Items

The example above shows how the current issue will be chained to issue #5 as a duplicate after the **OK** button is pressed. Once an issue is chained, you can see that the item is chained by looking at the **Chained To** field on the **General Tab** of the **Detail Issue Item** form.

You chain an issue to another issue for one of two reasons. The reasons are:

- This issue is a duplicate of another issue or,
- This issue is a dependent of another issue

When you close a root issue that has duplicates chained to it, all duplicate issues will be closed when the root issue is closed.

You cannot close a root issue until all the dependent issues are closed first.

Advanced System Operations

This section describes additional Defect Manager operations that are available to you.

Adding Bookmarks

Assigning bookmarks to a issue is a good way to index them so they can be found later. You can also think of bookmarks as keywords. Select the **Bookmark** checkbox and you will see the following window.

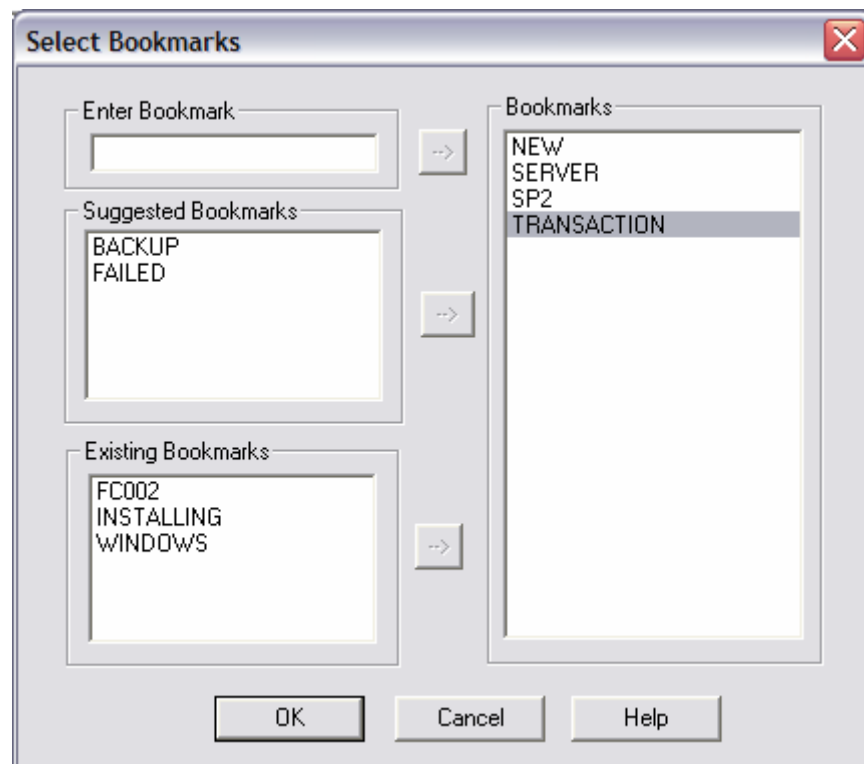


Figure: Assigning a Bookmark to an Issue

Bookmarks can be specified from three possible sources. You can enter them yourself based on a value that you enter (**Enter Bookmark**), or you can use a suggested bookmark (**Suggested Bookmark**) from the suggested bookmark list, or select an existing bookmark (**Existing Bookmark**) that is already defined in the system.

Selected Bookmarks

This lists all the bookmarks that are currently associated with this issue.

Enter Bookmark

To manually enter a bookmark of your own choosing, you can enter the bookmark into this field and press the select (→) button, to add the bookmark to the **Selected Bookmarks** List.

Suggested Bookmarks

The list is created from the description of the issue. To add these bookmarks to the **Selected Bookmarks** list, just select bookmarks from this list, and press the select (→) button.

Existing Bookmark

This list is created from the list of all currently used bookmarks in the system. To move bookmarks from this list to **Selected Bookmarks** list, just select bookmarks from this list, and press the select (→) button.

Press the *Save* button to save your changes.

Searching With Bookmarks

When selecting the **Filter → All Issues by Bookmark** menu item, the following window is displayed:

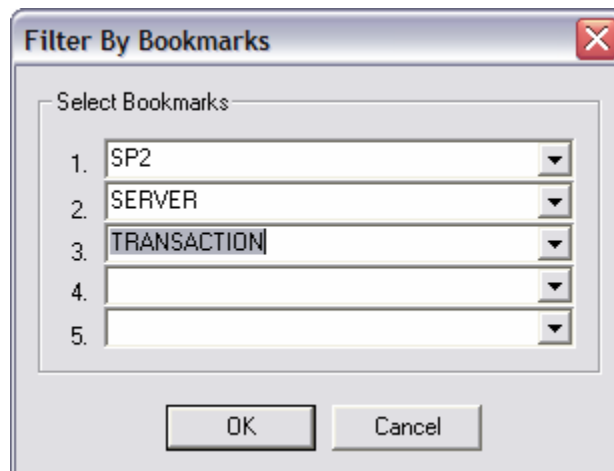


Figure: Finding Issues By Bookmarks

In this window you specify the bookmark(s) that you would like to search for in existing issues.

You can use SQL wildcards such as '?' and '%' in your search term. For example, if you are looking for all issues that have bookmarks of Windows, Windows 98, and Windows

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NT, you could use a search term of **Windows%**, which would retrieve all of the issues that begin with **Windows**.

You can select up to five bookmarks to search for. The bookmark fields will provide you with the current bookmarks as known in the system. You can select any of these or modify existing ones to add wildcards as described above.

Using Filters

As discussed earlier, you use the Defect Manager to review a list of issues based on a selected filter.

For example, if you chose **Filter → Standard Filters → Open Items**, you would get a list of all the open issues like the figure below.

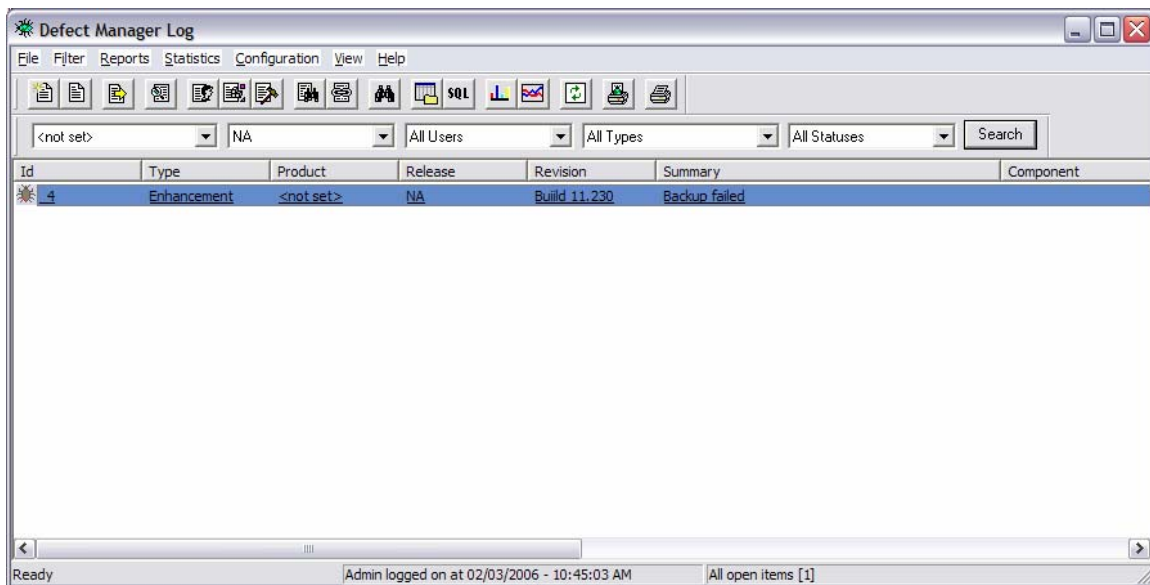


Figure: Viewing All Open Issues

Now that you have a list of open item, you may choose to work on a particular one. Click the specific item and the Issue Detail window will be displayed.

Available Issue Lists

There are many filters that are pre-defined in the system for you. You can also create your own custom filter. Filters are broken into the following categories: **My Filters**, **Standard Filters** and **Public Filters**

My Filters

The My Filters menu item shows the filters that are generated for the system for you, or the filters that you have created. The figure below shows the choices for **My Filters**.

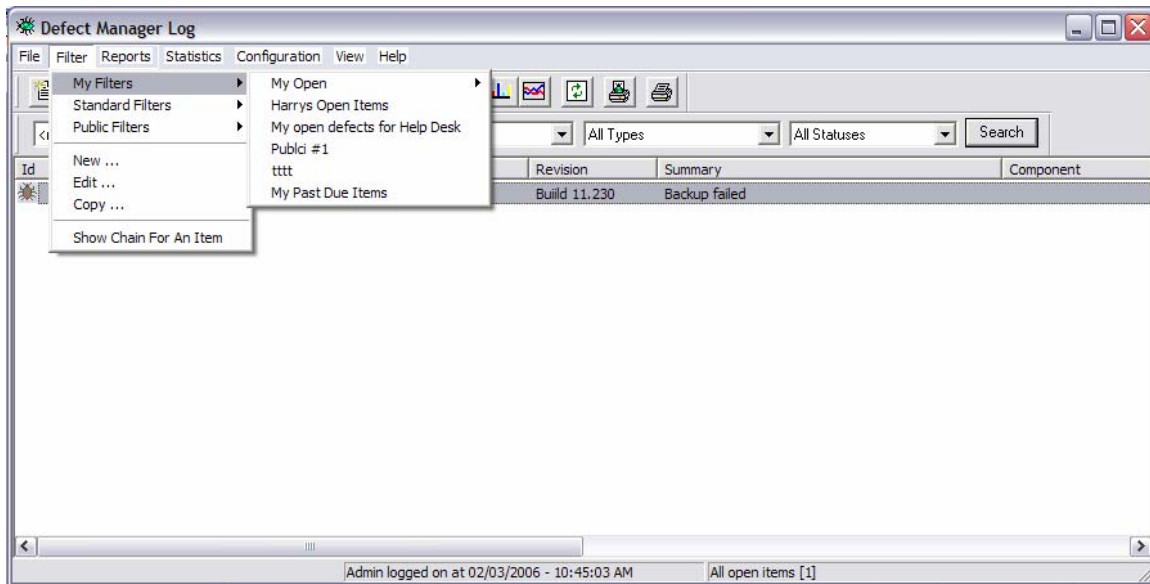


Figure: Menu Of Filters to Select From

When you select the **My Filters** menu item in the Issue Log window, you will see all the system generated filters (such as the **My Open** filter) as well as any custom filters that you have created.

Standard Filters

Standard filters are filters that would be of interest to the vast majority of users. These filters are generated by the system. By selecting the **Standard Filters** menu item, you would see the choices of the following filters.

Listed below are the built-in filters that are available, and a brief description of each.

- **Open Items** – This filter shows all open items in the system
- **Open Items By Work Queue** – This filter allows managers and technicians to view all defects for any or their specific work queue. It allows users to get their assigned issues to process them.
- **Items By Bookmark** – This filter allows a technician/manager to find defects that have been indexed by a bookmark. Think of bookmarks as an alternate way to index defects by a specific keyword. All defects that get published to the knowledge base can be found by their bookmarks.
- **Items For A Company** – This filter allow a technician/manager to view all defects for a particular client/company.
- **Items For A Company Location** – This filter allows a technician/manager to view all defects for a particular department/site location for a particular company.
- **Items Reported By** – This filter allows a technician/manager to view items reported by a specific contact.

- **Search For Search** – This filter lets you search the **Summary, Description, Resolution,** or **Notes** for a text string. You can optionally select a product or project to narrow the search.

Public Filters

Public filters are filters that have been created by other users and have been made public for the user community to sue.

By selecting the **Public Filters** menu item, you would see all the filters that are publicly available to all users of the system.

Custom Filters

Users can create queries and save them for your exclusive use, or you can make them public, allowing other team members to use them. Custom queries are created by selecting the **Filters→New Filter** menu-item. After you create a custom filter, you can always use it later. It will always be under the **Filters→My Filters** menu. If you made it a public filter, then other users would see it under the **Filters→Public Filters** menu item.

Creating Custom Queries

When the user selects the **Filters →New** menu-item, the following window will be displayed:

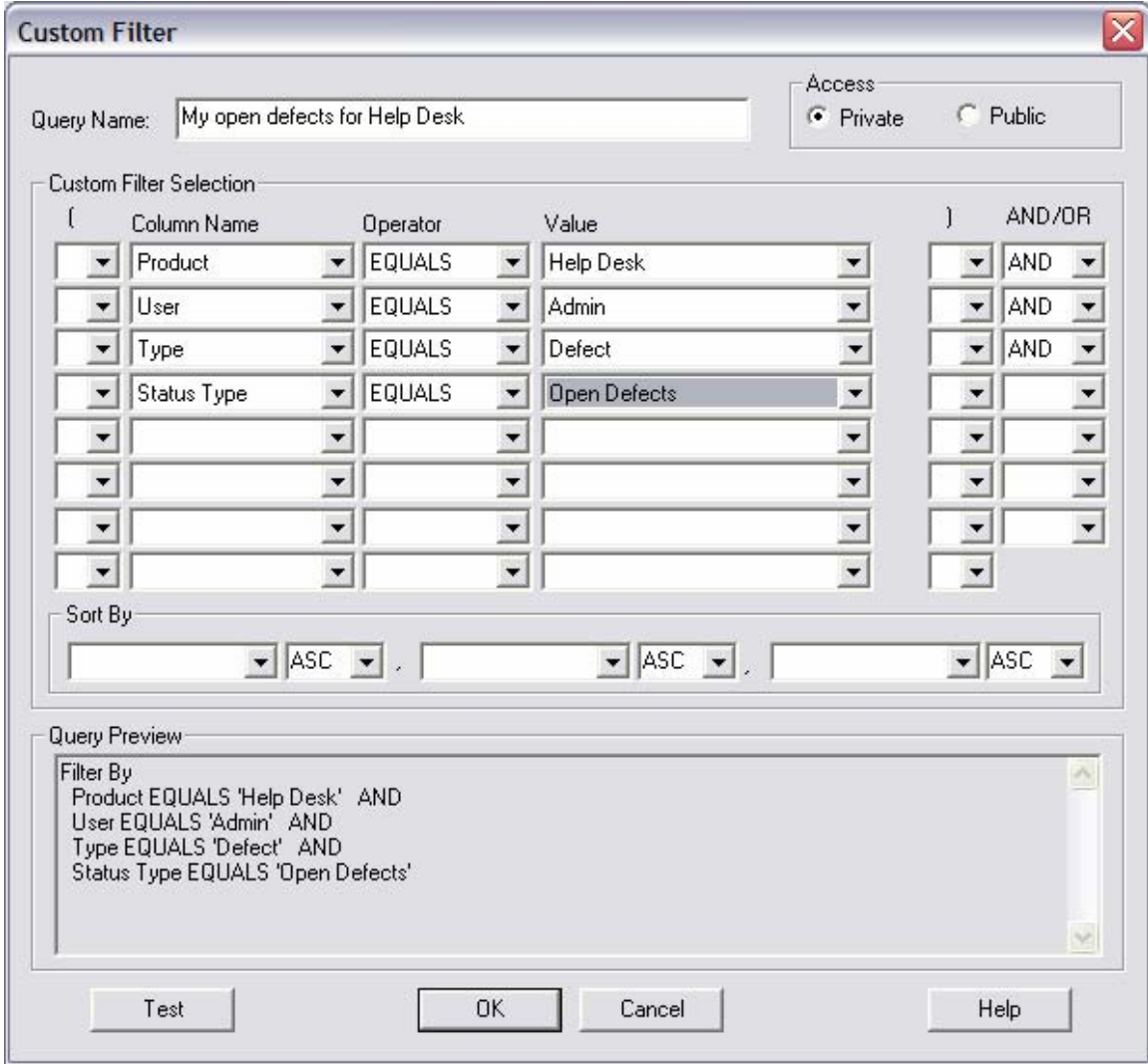


Figure: Defining a Custom Query to Defect Manager

The custom query window will allow you to create a custom query on any field in the system, including user defined fields. Custom queries are either named, or unnamed. Named queries are saved by the system so they can be rerun at a later date. Unnamed queries are temporary and are only valid after the time that you create them.

Hint: All named queries can also be used to create hard copy reports.

To create a named query, just specify a name in the **Query Name** field. If you do not specify a name, then the query will be an unnamed query.

Named queries can be specified as public or private. Private queries cannot be viewed by anyone other than the user that created the query. All users in the system can view public queries.

To create a query, the user starts selecting the specific criteria for the custom query by selecting the **Columns Name**, **Operator**, and **Value** fields. When the user selects certain columns such as date fields, there will be an additional push button to the right of the

Value field. Pressing this button will assist the user in selecting the value for the **Value** field.

The user can also choose to use parenthesis to specify the order of evaluation for each expression in the query. Each expression in the query, must be connected through a Boolean operator such as AND or OR. The user can employ a drop down list containing **AND/OR** to specify this relationship. As the user works with the query-builder dialog selecting different fields that are to be part of the query, the system generates the query syntax and the query text is displayed in the **Query Preview** box.

Additionally, the user can select a list of sort fields that will be used when executing the query. Each sort field can be specified in ascending order (ASC), or descending (DESC) order.

After the user selects all the different criteria for a custom query, a press of the **Test** button will show how many issues match the query.

When the user is satisfied with the query, a press the **OK** button saves the query, or press **Cancel** to discard the query. After pressing the **OK** button, the Defect Manager main window, will be updated displaying all the issues that match the custom query that has just been created.

Running Custom Queries

To run a custom filter, you can select it from the **Filter→My Filters** or the **Filter→Public Filters** menu item. If there are more than 20 filters available, the last menu item will be named **More...** If you select this menu item, you will see all the filters defined to the system as show below.

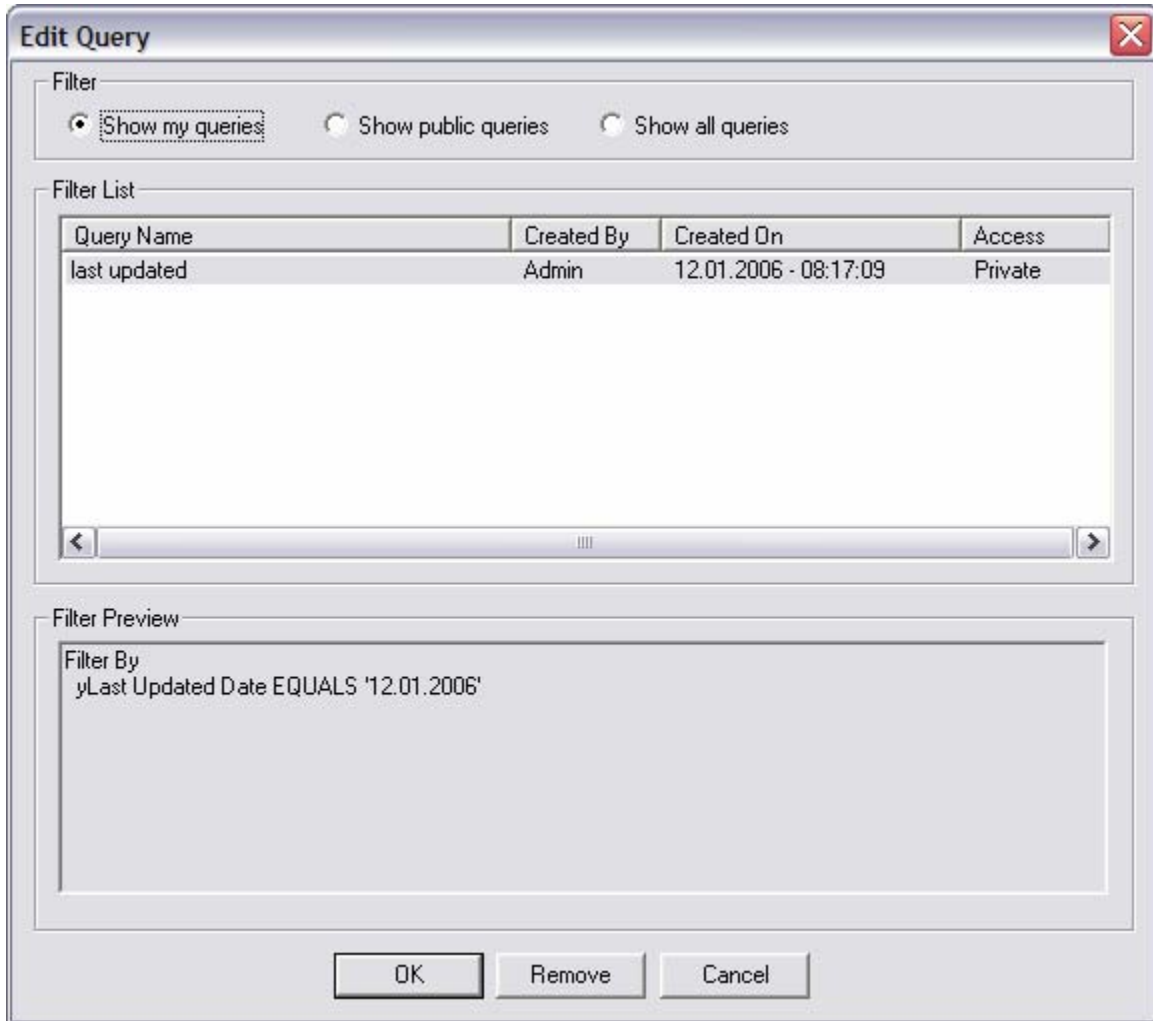


Figure: Selecting a Filter

Once this window is displayed, the user selects the query they would like to run. The following fields are available.

- **Filter** – Limit the amount of filters displayed in the **Filters List** . You can choose to see only your filters, or only public filter, or all filters.
- **Filters List** – The list of all available queries that can be selected.
- **Filter Preview** – The specific selection criteria that this query is based upon.

As the user selects a filter from the **Filters List** , the **Filter Preview** window is updated to show the specific selection criteria for the query.

After the user has selected the query that they want to run, the user presses the **OK** button to run the query that they have selected, or presses the **Cancel** button to close the window.

If the user wants to delete a query that is no longer needed, a press of the **Remove** button after selecting a query will remove the obsolete query. Users can only delete queries that they have created.

Editing A Custom Filter

To edit a filter that you have previously created, select the **Filter → Edit** menu item and the following window will be displayed.

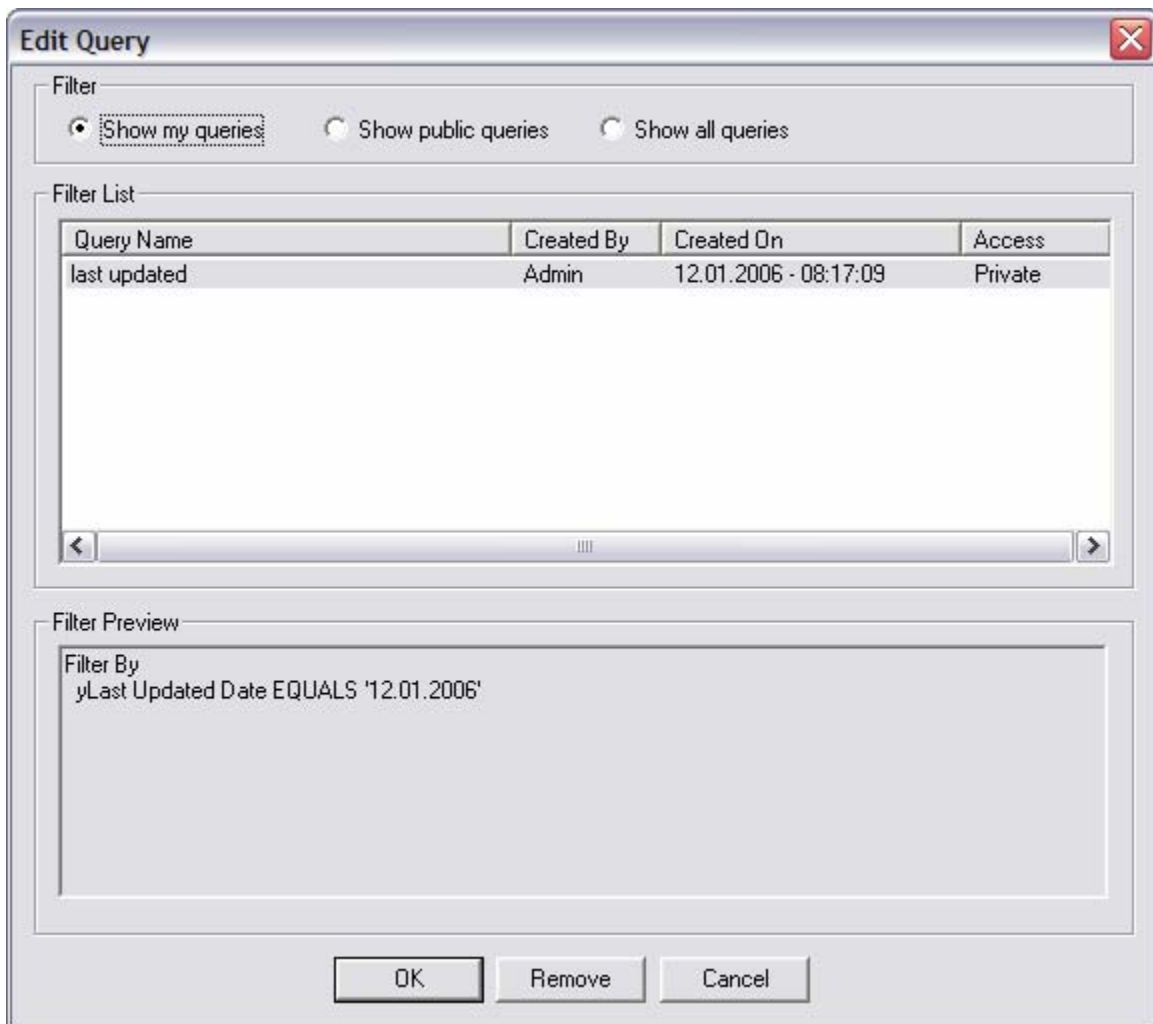
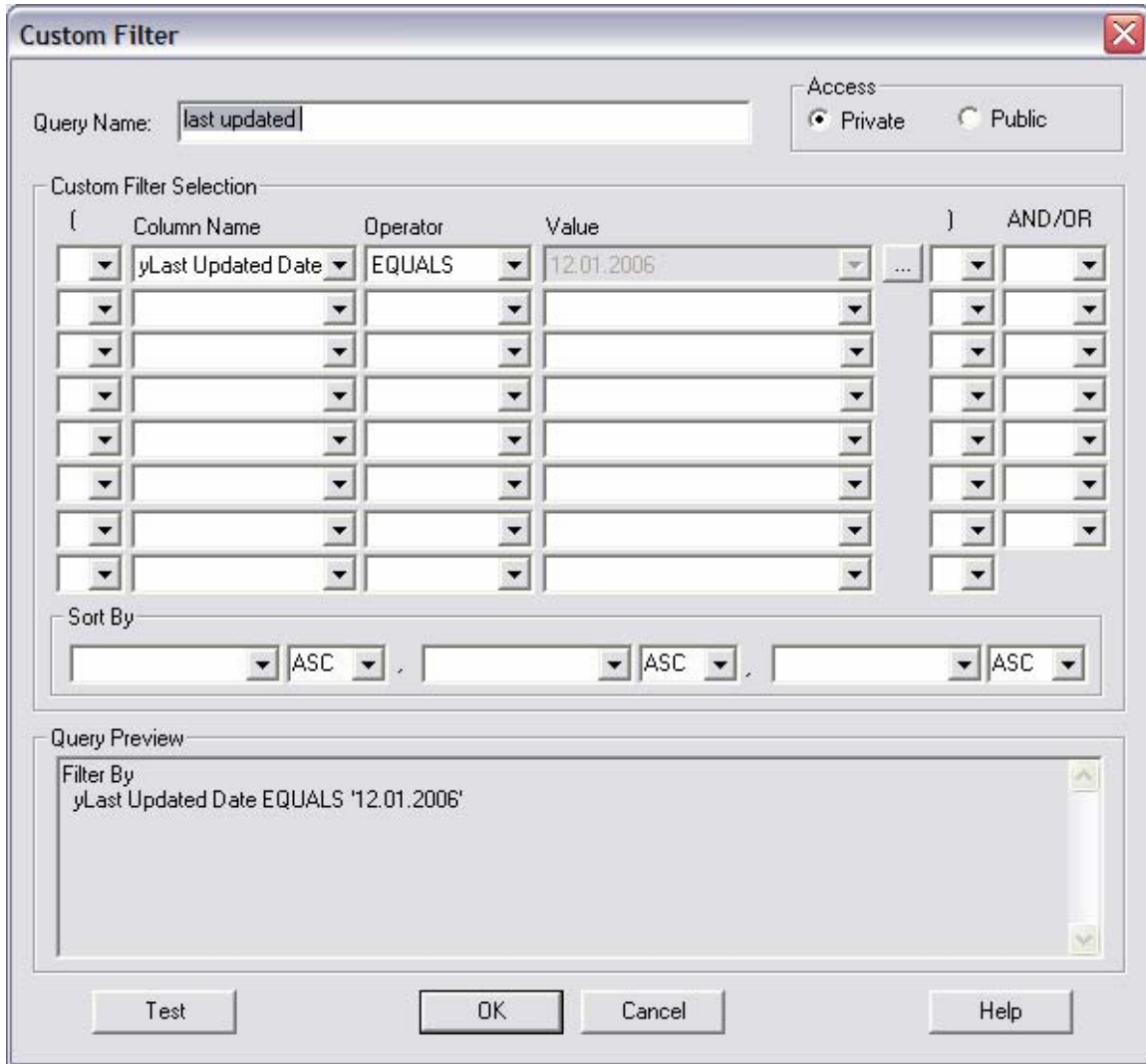


Figure: Editing a Custom Filter

Select the filter that you want to edit and press the **OK** button. The Edit Custom Filter window will be displayed as shown below.



Custom Filter

Query Name:

Access
 Private Public

Custom Filter Selection

(Column Name	Operator	Value)	AND/OR
▼	yLast Updated Date	EQUALS	12.01.2006	...	▼
▼					▼
▼					▼
▼					▼
▼					▼
▼					▼
▼					▼
▼					▼
▼					▼

Sort By

ASC ASC ASC

Query Preview

Filter By
 yLast Updated Date EQUALS '12.01.2006'

Test OK Cancel Help

Figure: Editing a Custom Filter

Make the desired changes to the filter and click the **OK** button. Optionally you can press the **Test** button to see if any items match the selection criteria.

Copying A Filter

Select the **Filter** → **Copy** menu item. Select the filter that you want to copy and press the **OK** button

Deleting a Filter

Select the **Filter** → **Edit** menu item. Select the filter that you want to delete and press the **Remove** button.

Viewing the SQL Query

As you are viewing different issue lists, it may be advantageous to create reports based on the lists you are looking at. By choosing the **View → SQL Query** menu item, you can view the SQL statement that Defect Manager used to create the list. You can then copy the SQL query to one of your favorite reporting tools, to easily generate a report.

Choosing the **View → SQL Query** menu item will display the following window.

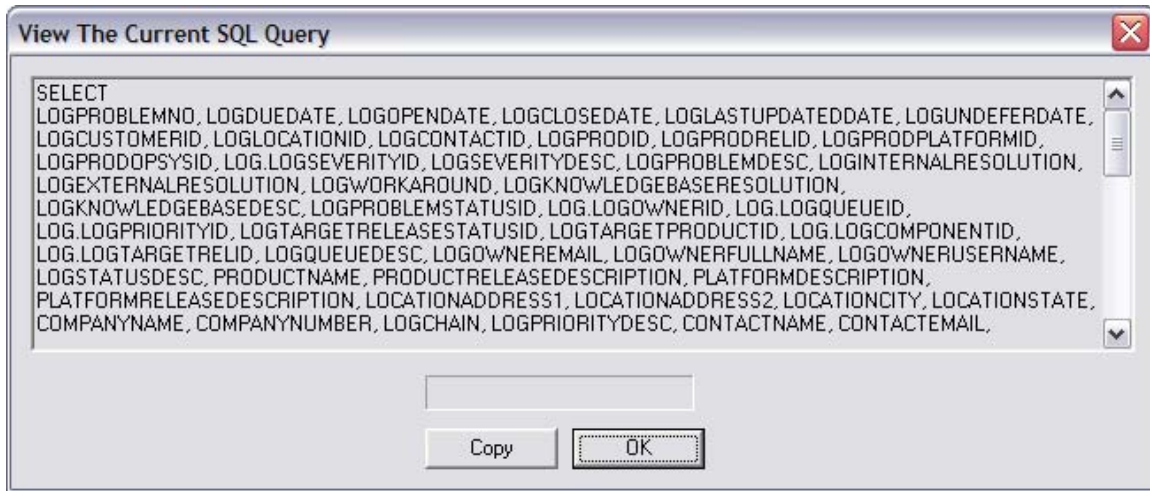


Figure: Viewing the SQL Query that Created a List of Issue Items

Pressing the **Copy** button will copy the SQL query to the clipboard. You can now use your favorite reporting tool and paste the SQL query into it.

Exporting Issues

There might be times when you want to export issues information from Defect Manager. You can do this by using the **File → Export** option from the Defect Manager main window. Defect Manager will export all the data that is being viewed in the Defect Manager Log window. When you export issues, you will be presented with the window shown below:

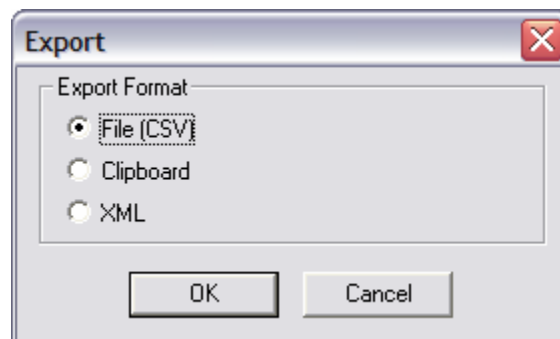


Figure: Exporting Issues to Other Programs

Defect Manager can exports in several formats. You should select the format that is appropriate for you. Defect Manager can export data in Comma Separated Values (CSV), Windows clipboard and Extensible Markup Language (XML) formats.

If you want to be able to be able to copy and paste into Microsoft Office applications such as Word and Excel, select the Clipboard option.

Additional information of configuring Metric and related options in the repository is available in the [Administration Guide](#) for Defect Manager.

System Test Information

Defect Manager can maintain all the associated test case information. Defect Manager can maintain the Test Name, Test Case Name, Test Action, Failure Code, Comment, Run Date, and Test Run Operator. When you select the **System Test tab**, the following window is displayed.

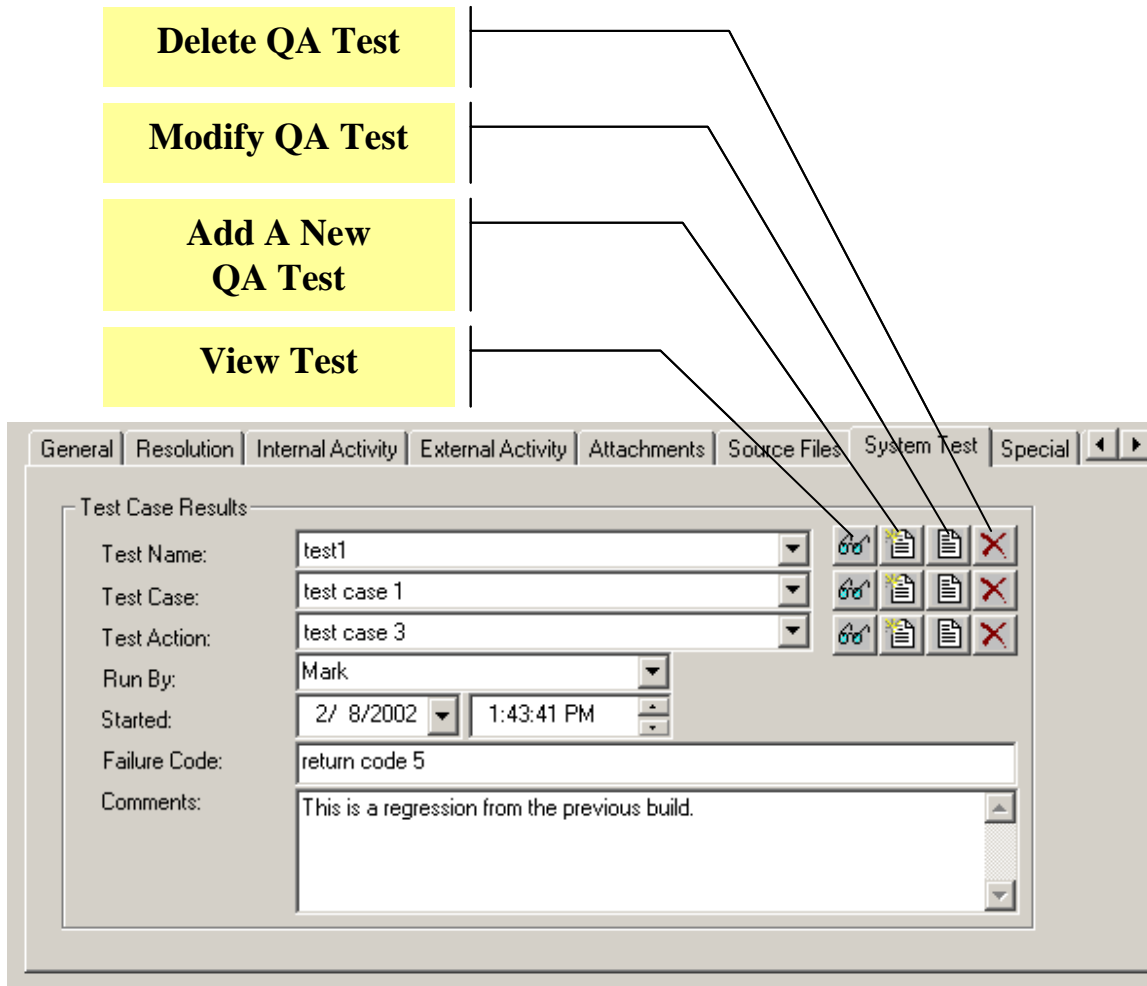


Figure: System Test Information Form

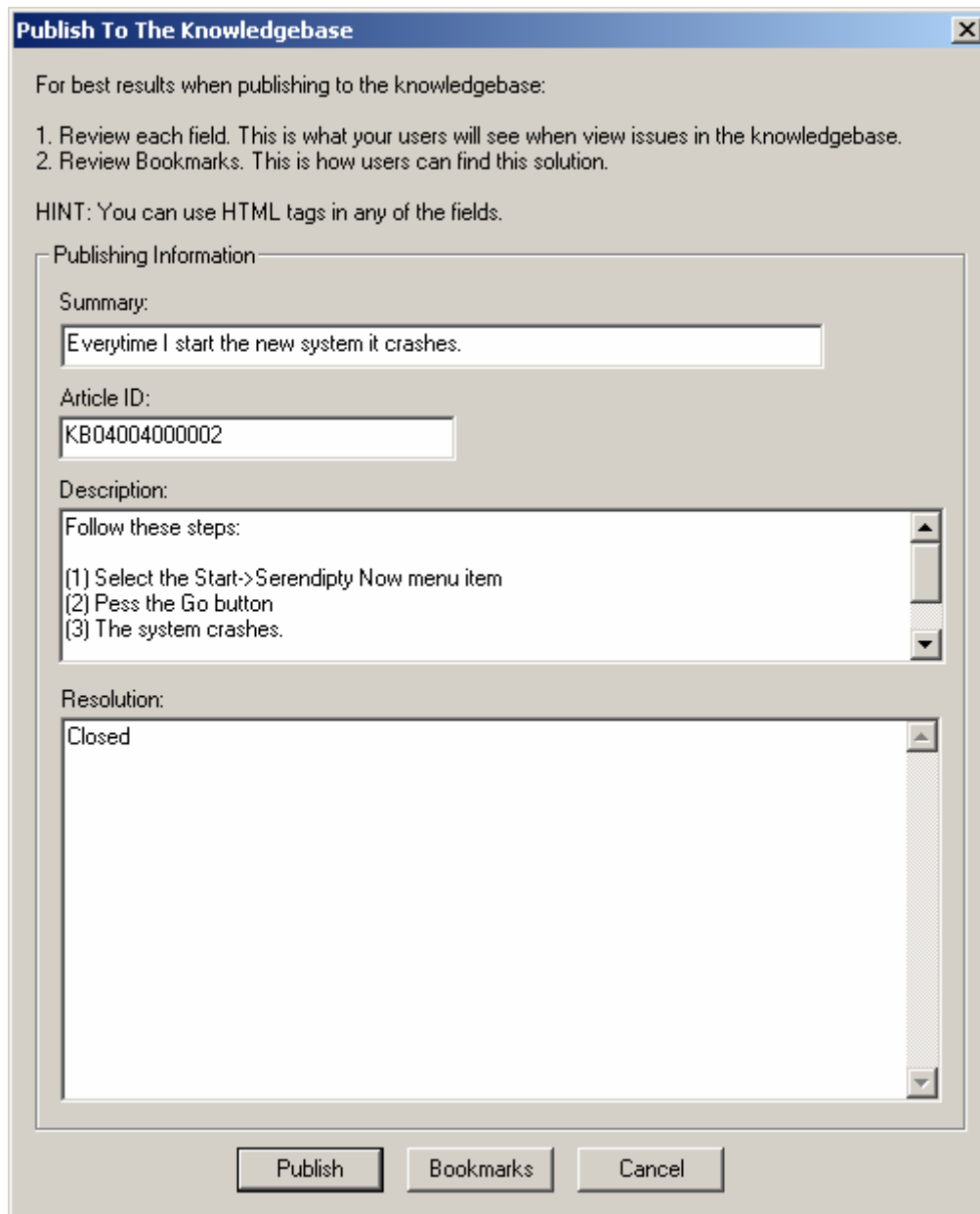
To make it easy to enter repetitive information and keep the data consistent, Defect Manager maintains a list of all the Test Names, Test Case Names, and Test Case Actions in the database. Next to each of these items are four buttons.

The first button is to view more information about the item, such as the description of the actual test, the second button is to define a new item, the third button is used to modify the item and the fourth is to delete an item. Consequently you can assign, add, modify and delete Test Name, Test Case Name, and Test Case Action lists from this dialog.

In the next version of Defect Manager, you will be able to populate this data via an XML link to the regression test provider that you use.

Publishing Issues to the Knowledgebase

After spending countless hours resolving issues that have been reported, you will want to be able to share this knowledge with the rest of the community that uses your product. Defect Manager makes this very easy to do. After a issue has been closed it is eligible to be published. Once it is published, users can specify bookmarks and search the knowledgebase for insight into their own problems. To publish a issue, you would select the **Knowledgebase → Publish To Knowledgebase** menu item. When you select this menu item, the following window will be displayed as shown below.



Publish To The Knowledgebase

For best results when publishing to the knowledgebase:

1. Review each field. This is what your users will see when view issues in the knowledgebase.
2. Review Bookmarks. This is how users can find this solution.

HINT: You can use HTML tags in any of the fields.

Publishing Information

Summary:
Everytime I start the new system it crashes.

Article ID:
KB04004000002

Description:
Follow these steps:
(1) Select the Start->Serendipity Now menu item
(2) Press the Go button
(3) The system crashes.

Resolution:
Closed

Publish Bookmarks Cancel

Figure: Publishing an Issue to the Knowledgebase

You will be able specify the knowledgebase **Summary**, **Article ID**, **Description**, **Resolution** for this knowledgebase item. Since these fields will be available to all E-Tech Support users, make sure these fields are appropriately filled out. These fields will be displayed in a browser, so you can embed html tags in the data. Make sure that you have the proper bookmarks defined for this item so that your client base can easily find it.

The **Article ID** field is automatically generated to make it unique. You can change the **Article ID** to anything you like, just make sure the value is unique.

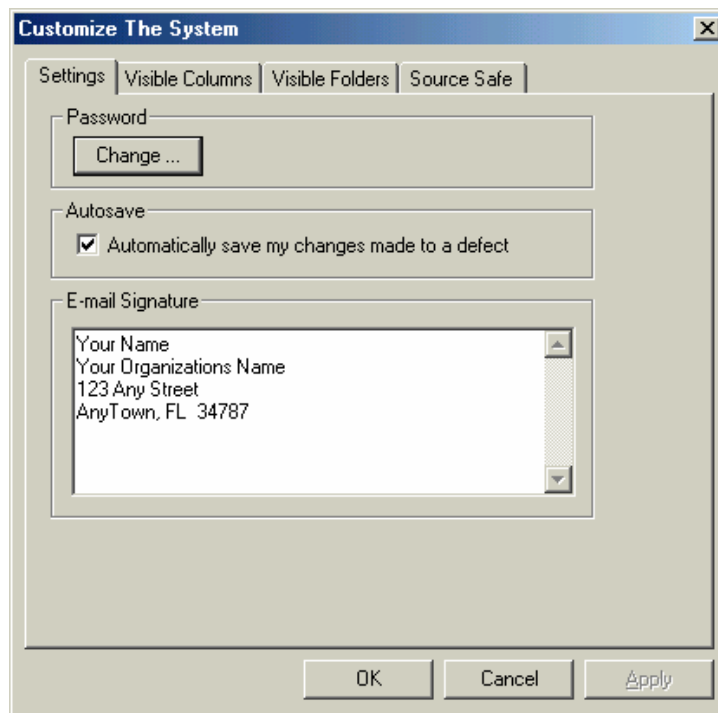
If you have published a issue and no longer want it to be published, select the **Knowledgebase → Remove From Knowledgebase** menu item or the toolbar button.

Customize the System

Pressing the **Customize System** Toolbar button or using the Menu Bar

View→Customize ... on the *Issue-Item Log* window will present the System Settings form with three (3) tabs:

- **Settings** – Allows you to change your Password, Email Signature Block, and Auto Save Option
- **Visible Columns** – Allows you to determine which fields on the *Detail Issue Log* form are visible or not when you use the system
- **Visible Folders** – Allows you to specify which tabbed folders on the *Detail Issue Item* form are visible or not when you use the system
- **Source Safe Tab** –



The screenshot shows a dialog box titled "Customize The System" with a close button (X) in the top right corner. The dialog has four tabs: "Settings", "Visible Columns", "Visible Folders", and "Source Safe". The "Settings" tab is selected and active. It contains three sections: "Password" with a "Change ..." button; "Autosave" with a checked checkbox labeled "Automatically save my changes made to a defect"; and "E-mail Signature" with a text area containing the following text: "Your Name", "Your Organizations Name", "123 Any Street", and "AnyTown, FL 34787". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Apply".

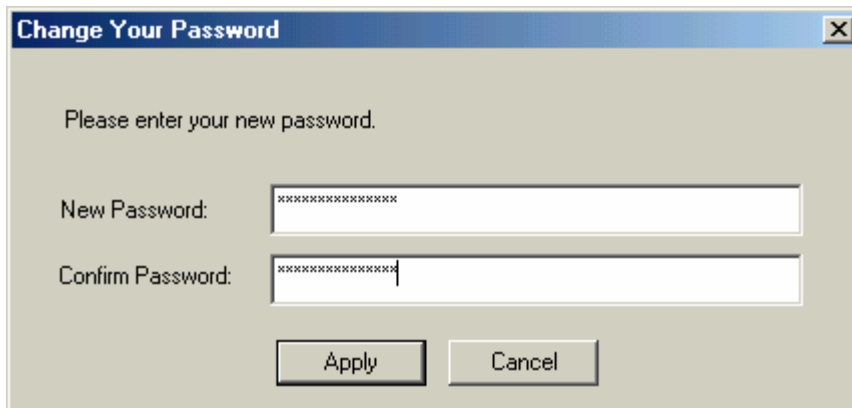
Figure: Customize the System Form – Settings Tab

Settings Tab

The Email Signature field allows you to enter text in a multi-line format, as shown above, to provide a standard-block format for closing all email correspondence that you generate with Defect Manager.

The Auto-Save option, when checked, will automatically save your changes whenever you exit a form without canceling the update. The default setting is unchecked.

The **Password** panel contains a **Change** button that allows you to modify your password to maintain effective security. Pressing this button displays the following form.



The image shows a Windows-style dialog box titled "Change Your Password". It has a blue title bar with a close button (X) in the top right corner. The main area is light gray and contains the text "Please enter your new password." Below this, there are two text input fields. The first is labeled "New Password:" and the second is labeled "Confirm Password:". Both fields contain a series of asterisks to mask the password. At the bottom of the dialog, there are two buttons: "Apply" and "Cancel".

Figure: Settings Tab – Change Your Password Prompt

The example above shows the user entering “MyNewPassword” to establish a new password and a second time to confirm the spelling of the password. The password text is captured but the asterisk display protects the security of the information you are entering. Passwords in Issue Manger are case-sensitive.

Visible Columns Tab

Not all users are from the same industry segment or may not wish to use Defect Manager exactly in the same way. The **Visible Columns** tab allows you to control what columns the user will see when view issues in the Issue Log. You select the items you want to have visible in the **Visible Columns** field as shown below.

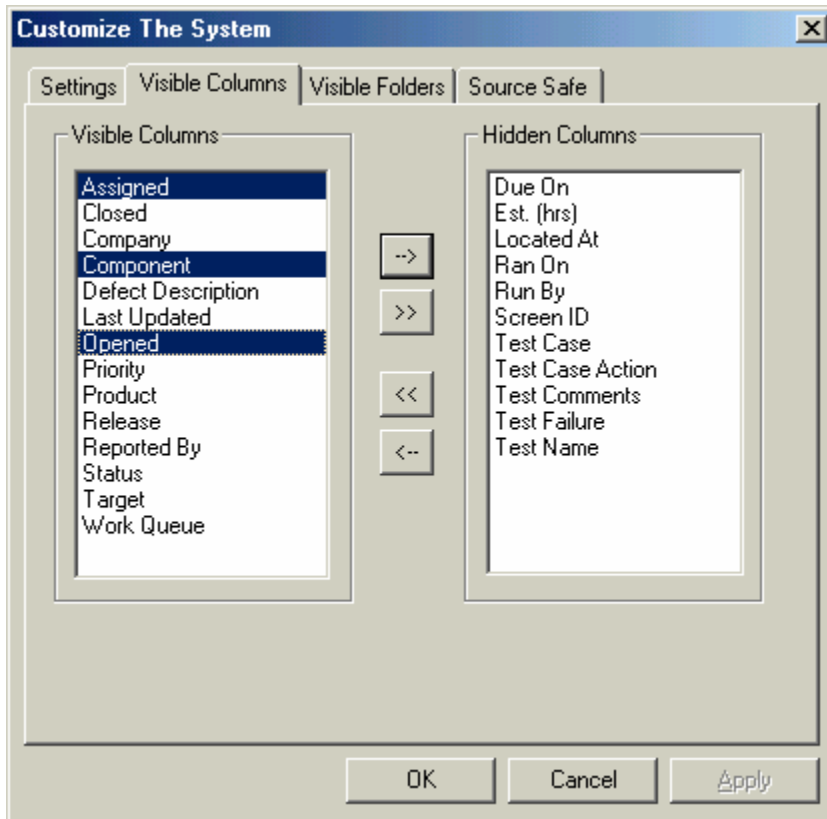


Figure: Customize the System Form – Visible Columns Tab

The Visible Columns appear in the list on the left and the Hidden Columns appear on the right. The buttons allow you to shift fields between the Visible and Hidden lists:

- **Right-Arrow (→)** – Move a selected Visible Field to hide it
- **Right-Double-Arrow (>>)** – Move all selected Visible Fields to hide them
- **Left-Arrow (←)** – Move a selected Hidden Field to make it visible
- **Left-Double-Arrow (<<)** – Move all selected Hidden Fields to make them visible

Visible Folders Tab

This tab allows you to specify which tabbed folders on the Issue Detail window will be visible and available for your use. This is a way to customize the system to fit your personal and your organizations needs.

For example, you might not need to use the Source Files Tab (folder) that works with source code for computer programs if your organization is not a software company or IT organization.

If you are not using User-Defined Fields, you would not need to be bothered with seeing this tab (folder area).

Maybe, you will never need to use the Resolution Tab, but others in your organization will use it. You can hide it from your sight, but it will still be visible to the others.

The **Visible Folders tab** on the form below allows you to control this.

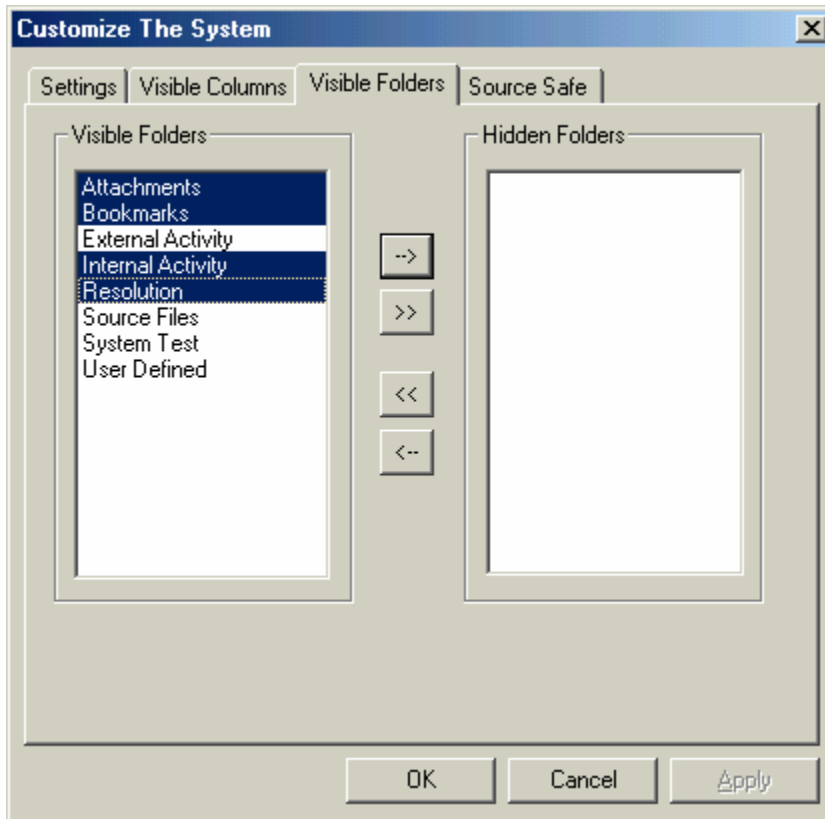


Figure: Customize the System Form – Visible Folders Tab

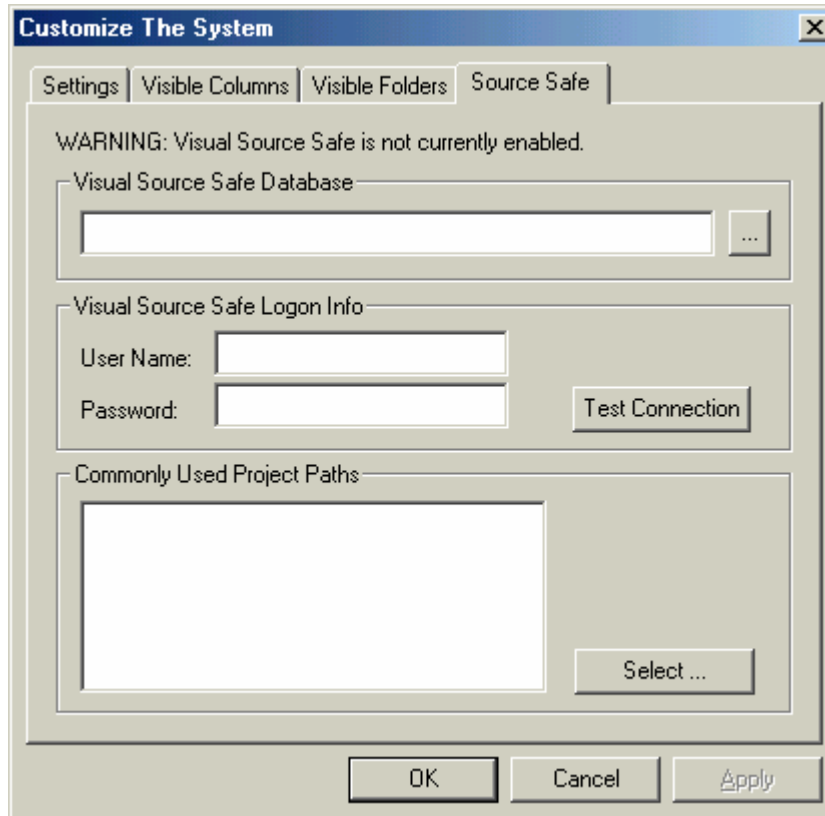
The Visible Folders (Tabs) appear in the list on the left and the Hidden Folders (Tabs) appear on the right.

The buttons allow you to shift fields between the Visible and Hidden lists:

- **Right-Arrow (→)** – Move a selected Visible Folder to hide it
- **Right-Double-Arrow (>>)** – Move all selected Visible Folders to hide them
- **Left-Arrow (←)** – Move a selected Hidden Folder to make it visible
- **Left-Double-Arrow (<<)** – Move all selected Hidden Folders to make them visible

Source Safe Tab

This tab allows you configure Defect Manager to work with program source code managed by Visual Source Safe as you are processing issue items.



The screenshot shows a dialog box titled "Customize The System" with a close button (X) in the top right corner. It has four tabs: "Settings", "Visible Columns", "Visible Folders", and "Source Safe". The "Source Safe" tab is selected. The dialog contains a warning message: "WARNING: Visual Source Safe is not currently enabled." Below the warning are three main sections: 1. "Visual Source Safe Database" with a text input field and a browse button (...). 2. "Visual Source Safe Logon Info" with "User Name:" and "Password:" labels, corresponding text input fields, and a "Test Connection" button. 3. "Commonly Used Project Paths" with a large empty list box and a "Select ..." button. At the bottom of the dialog are "OK", "Cancel", and "Apply" buttons.

Figure: Customize the System Form – Source Safe Tab

The Panels on the above form:

- **Visual Source Safe Database** – You can use the browse button to the right of this field to browse the network directory to tell Defect Manager where the Source Safe database files of managed source-code programs are located.
- **Visual Source Safe Logon** – You can enter the usercode and password necessary to access Source Safe so that Defect Manager can provide the logon for you.
- **Commonly Used Project Paths** – A list of frequently used directory paths is provided here for your selection.

Issue Metrics

In order to assess the effectiveness of your team, you need to know how the issues are distributed across the various users, project and statuses. Additionally, you will want to know if your products/project are improving over time as you prepare to put your system into production.

Defect Manager provides for two distinct types of statistics. They are distribution statistics, and trend analysis.

Distribution statistics and trend analysis data can be viewed as raw data, or a graph. You can export the data to Microsoft Excel (or any other tool that you wish to use) to perform complex analysis of the data.

Distribution Statistics

There are three types of issue distribution data that you can view. They are.

- **User Distribution** – View the distribution of issues across the users of your system.
- **Status Distribution** – View the distribution of issues by primary-status such as open items, closed items or deferred item.
- **Product Distribution** – View the distribution of items across your various products (i.e., products, projects, processes or services).

Each type of distribution has its own menu item under the **Statistics** menu item. Selecting any of these items from the menu will open the Issue Distribution window shown below.

3. The **Distribution Date and Time Period** – Allows selection of the date/time range for the distribution analysis
4. The **Distribution Data Grid** – It lets you view the raw distribution data

Setting the Distribution Criteria

To get distribution statistics, Defect Manager needs the following information..

- **Distribution** – The exact type of distribution you are looking for.
- **Product** – The project this distribution is for.
- **Issue Type** – The issue types that you are looking for.
- **Graph Type** – You can view the data in a Bar Chart, Bar Chart (3D), Line chart or Gantt chart.
- **Time Range**
 - **Today** – Show the defect distribution for the current day.
 - **By Month** -- Show the distribution for a specific month.
 - **By Year** – Show the distribution for an entire year.
 - **Custom** – Show the distribution for a specific date range.
 - **All** – Show the distribution since the system has been in use.

Trends By Product Release

You can also perform trend analysis related to a particular product (i.e., product, project, process or service) and it's set of releases.

To view trend analysis, select the **Statistics → Product Trend By Release** menu item. This produces the following display.

Exporting Statistical Data

There might be times when you want to export statistical data (distribution or trend data) from Defect Manager.

You can do this with the **Export** button or by selecting the **File → Export** menu item.

Defect Manager Reports

Defect Manager gives you a powerful set of predefined reports and the ability for you to create your own reports using a customized query statement within Defect Manager..

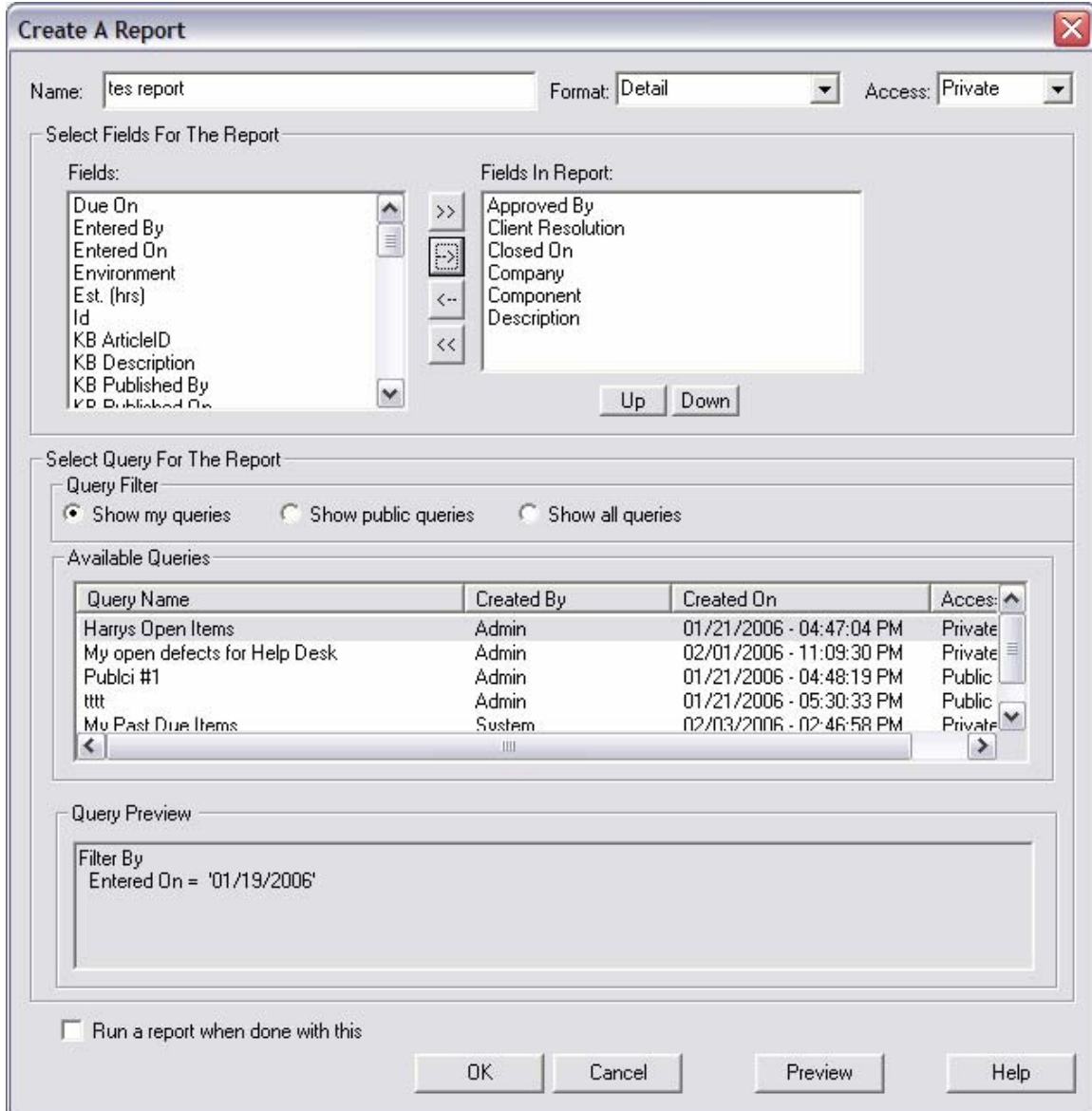
Whether you use predefined reports or create your own Defect Manager report, Defect Manager will allow you to select a list or a detail presentation version of a report.

Defect Manager also allows you to preview your report before you print it.

Creating New Reports

Defect Manager gives you a powerful set of tools to define your own reports based on any query that you have created.

To create a new report, select the **Reports → New** menu item. The following window will be displayed.



Create A Report

Name: Format: Access:

Select Fields For The Report

Fields:

- Due On
- Entered By
- Entered On
- Environment
- Est. (hrs)
- Id
- KB ArticleID
- KB Description
- KB Published By
- KB Published On

Fields In Report:

- Approved By
- Client Resolution
- Closed On
- Company
- Component
- Description

Up Down

Select Query For The Report

Query Filter

Show my queries Show public queries Show all queries

Available Queries

Query Name	Created By	Created On	Access
Harrys Open Items	Admin	01/21/2006 - 04:47:04 PM	Private
My open defects for Help Desk	Admin	02/01/2006 - 11:09:30 PM	Private
Public #1	Admin	01/21/2006 - 04:48:19 PM	Public
tttt	Admin	01/21/2006 - 05:30:33 PM	Public
My Past Due Items	Sustem	02/03/2006 - 02:46:58 PM	Private

Query Preview

Filter By
Entered On = '01/19/2006'

Run a report when done with this

OK Cancel Preview Help

Figure: New Custom Reports

You will review and complete the following panels on the **Create A Report** form.

Report Name

Enter the descriptive name for this report.

Format

Select the format of the report. Reports can be either tabular, list, or detail formats.

Access

You can specify this report to either be private or public. If you specify public, this report can be seen and run by others. If you specify private, only you can see the report.

Fields for Report

Select the fields that you want to be present in the report. The fields will be displayed in the report in the same order they are listed here.

Filter for Report

Select the filter that you want to use for this report.

Run this report when done

Select this option if you want to run the report immediately after saving the report.

If you want to see what the report looks like before saving the report, press the **Preview** button and the report will be built and displayed. Click the **OK.** button to save the report.

Printing a Report

You can choose to run reports that you have created, default reports created by the system, or reports created by others that have elected to share them by making them public. To run your reports select the **Reports → My Reports** menu item and you will see a list of your reports that you can run. To run other reports in the system, select the **Reports → Public Reports** menu item and select the specific report you would like to run.

Deleting a Report

You can delete any report that you have created. To delete a report, select the **Reports → Delete** menu item, select the report you want to delete and press the **OK** button.

Previewing a Report

When you run a report in Defect Manager, you will get a chance to see the report in the Report Pre-viewer window as show below.

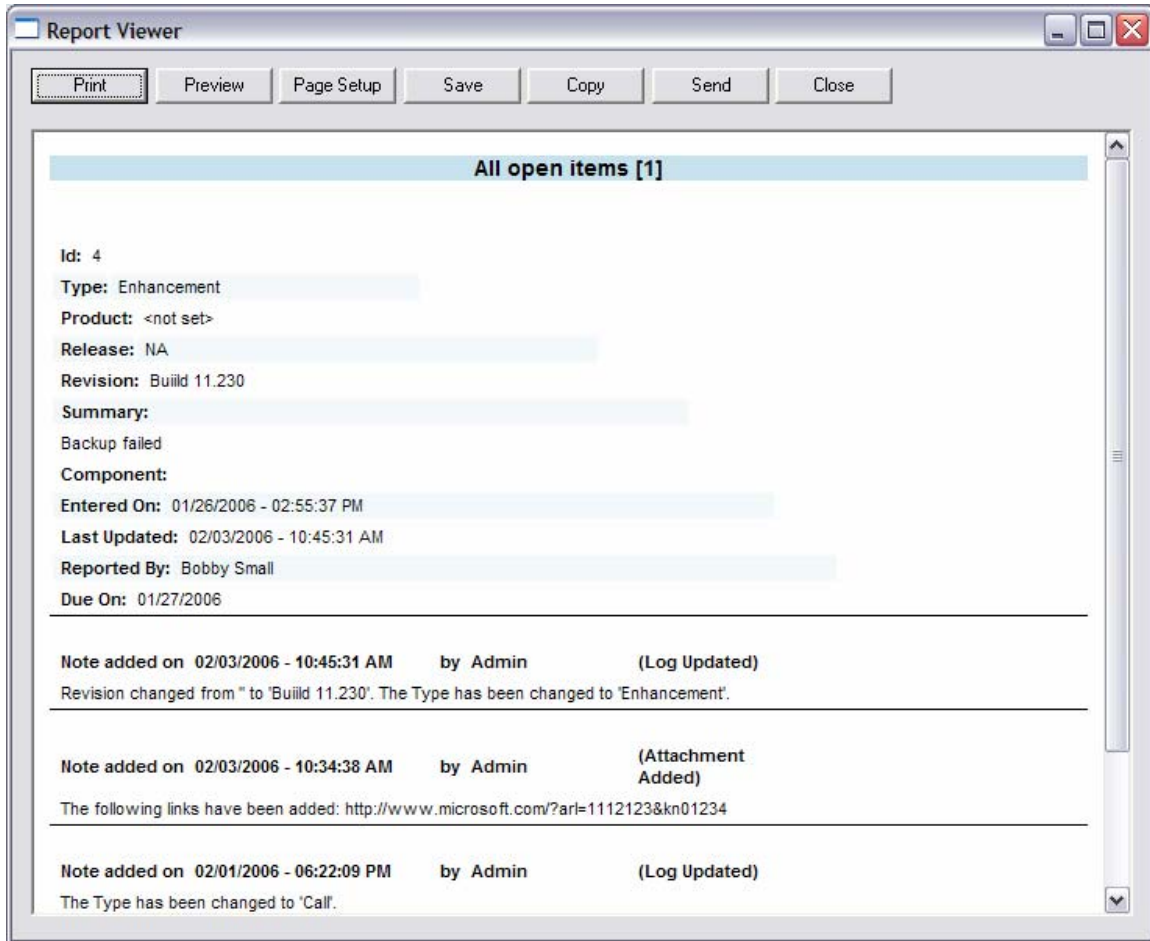


Figure: Report Pre-viewer Window

After the report has been created you can perform the following actions from the button bar on the top of the window:

- **Print** – Print the report
- **Preview** –View the report in Print Preview mode
- **Save**– Save the report to disk
- **Page Setup** – Set printing options
- **Copy** – Copy the report to the clipboard
- **Send** – Sent the report to another person

Using Other Reporting Tools

Defect Manager provides the following ways to access the Defect Manager issue data from other tools. The following ways are described below.

- Using SQL from a third party tool
- Exporting issue data
- Creating SQL from the database schema

Using SQL from a Third Party tool

At anytime you can get the SQL associated with a Defect Manager filter by selecting the **View→View SQL** menu item in the Issue Log. See the section [Viewing the SQL Query](#) section for more information. You can use the SQL query in any SQL compliant reporting tool.

Exporting Issue Data

You can export issues associated with a Defect Manager filter by selecting the **Export** menu item in the Issue Log. See the section [Exporting Issue Items](#) section for more information. After you export the data, you can then import it into any tool that supports the data format that you specified when exporting the data.

Creating SQL from database schema

Defect Manager uses industry standard databases such as Access, SQL Server and Oracle. You can always create your own SQL statements to retrieve the Defect Manager issue data.

For additional information concerning the Defect Manager database schema, see the section: [Database Model](#) in the [Programmer API Guide](#). The database schema layouts for the tables will show you the data names and structures of the repository database so you can create your own SQL queries.

It is imperative that you do not modify any of the data. Doing so could damage the integrity of the repository and you could cause irreversible damage.

Integration with Software Tools

For companies that are using Defect Manager to support software products or IT applications, they can optionally access Defect Manager from within these Microsoft development tools: *Visual Studio* 6.0, Visual Basic 6.0 and *Visual Source Safe*.

Defect Manager 4.1 Add-In for Visual Studio 6.0 and Visual Basic 6.0

The Defect Manager 4.1 Add-In component permits a software developer using Microsoft Visual Studio to interact with Defect Manager from within the Microsoft Interactive Development Environment (IDE). The Defect Manager 4.1 Add-In component provides a toolbar that extends the IDE by allowing users to Report issues/issues, review their issues (open the Defect Manager Log), change system settings (open the Defect Manager Administrator), or view Defect Manager Help.

For IT departments, software developers and support staff, this allows them to process and track their efforts to resolve issues and issues from their primary working environment where programs, program-level documentation and design information is readily available.

Adding Defect Manager To Visual C++ 6.0

Issue Manger 4.0 adds direct integration into the Microsoft product family of development tools. This integration is through the use of a Visual Studio Add-In. The add-in, allows you to report new issues, open the Defect Manager Log application, open the Defect Manager Administrator application, and open the Defect Manager help system, while you are within the Visual Studio environment.

To use the Add-In you need to:

- Register the Add-In object
- Add it to the Visual Studio environment

To register the Add-In object you must run the RegisterVS60.bat file located in the Visual Studio Add-In sub-directory.

To install the add-in Visual Studio 6.0, you should review the Microsoft documentation, but to give you an idea of how easy it is, follow these steps: From within Visual Studio,

1. Select the **Tool → Customize** menu item.
2. Select the **Add-in and Macro Files** tab.
3. Press the **Browse** button.
4. In the **File** dialog, select the **Visual Studio Add-In** directory under the Defect Manager home directory. This default home directory is: **Program Files\Tiera Software\Defect Manager Release 410\Visual Studio Add-In**. Select the **IssueMgrVSAddIn.dll**, and press the **OK** button.
5. The **IssueManagerVSAddIn**, will be listed in the **Add-in and Macro Files** list and it should be checked. If it is not checked, then check it. This will enable the Defect Manager add-in and create the Defect Manager toolbar. To give the toolbar a descriptive name follow the next step.
6. Select the **Toolbars** tab. Scroll to the bottom of the list of the toolbars. The last toolbar will be the newly added Defect Manager toolbar. Select the last toolbar (and check the checkbox to the left of it, if it is not already checked) and specify the descriptive name in the **Toolbar name:** field, such as Defect Manager.
7. Press the **Close** button.

You should now see the toolbar added to the Visual Studio environment, as shown below:

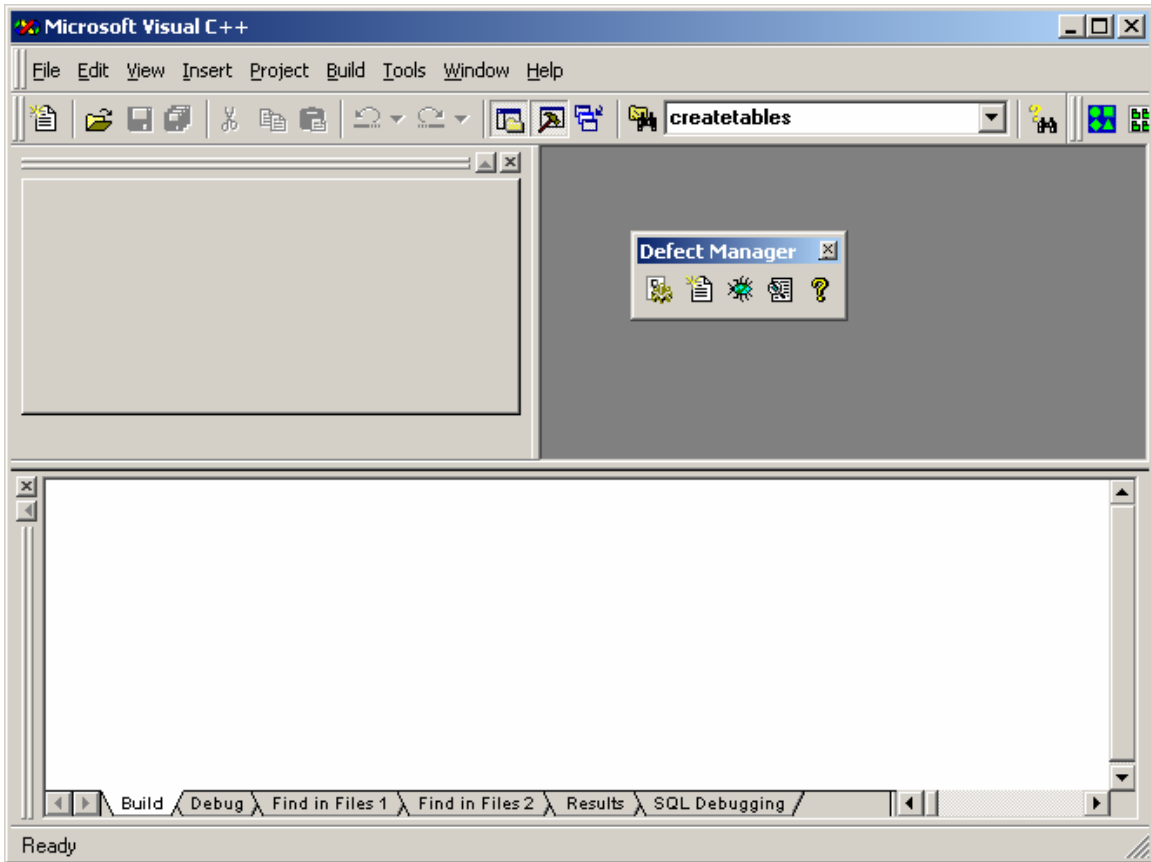


Figure: Defect Manager Toolbar Added to the Visual Studio 6.0 Window

The toolbar has five buttons; they are described below in the order they appear in the toolbar:

- **Settings Button** – There are currently only three settings that can be specified. If you have already used Defect Manager, then the settings below have already been set and you probably should not need to change them. The parameters are:
 - Defect Manager Home – Typically this would be \Program Files\Tiera Software\Defect Manager Release 40\
 - Defect Manager User Name – User Name
 - Defect Manager User Password – Password
- **Report Issue Button** – Opens the Defect Manager Report A Issue window.
- **Defect Manager Log Button** – Opens up the Defect Manager Log.
- **Defect Manager Administrator Button** – Opens the Defect Manager Administrator.
- **Defect Manager Help Button** -- Opens the Defect Manager Help.

Adding Defect Manager To Visual Basic 6.0

To use the Add-In you need to:

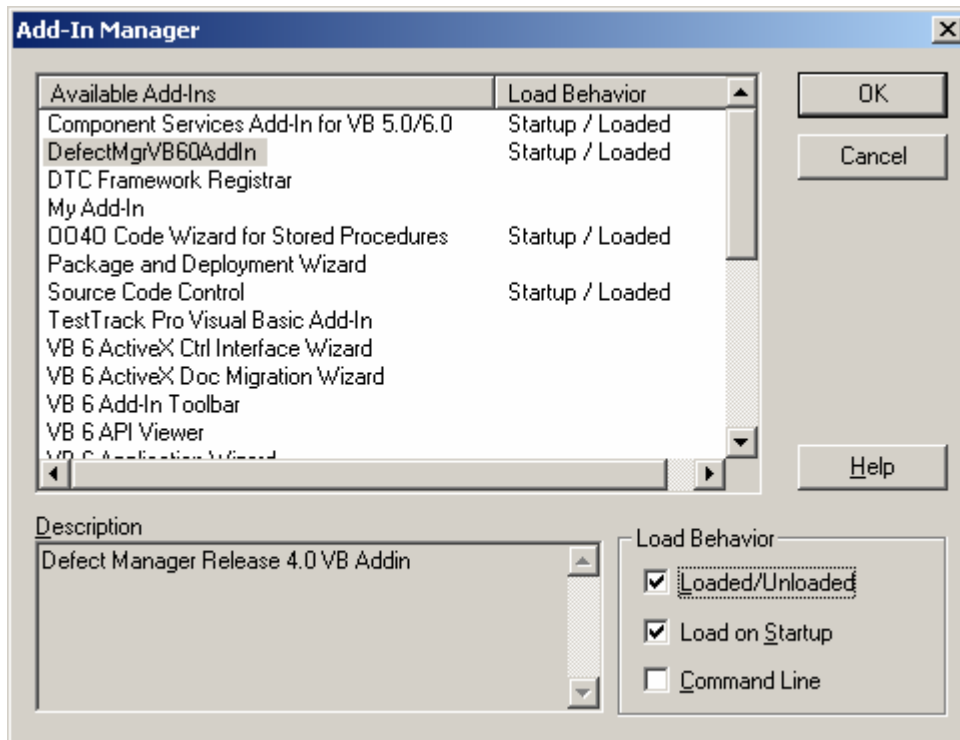
- Register the Add-In object
- Add it to the Visual Studio environment

To register the Add-In object you must run the RegisterVB60.bat file located in the Visual Studio Add-In sub-directory.

To install the add-in to Visual Basic 6.0, follow these steps:

From within Visual Basic 6.0:

1. Select the **Add-In → Add-In Manager** menu item. You will see the following window:



2. Select the IssueMgrVB60AddIn.
3. Check the Loaded/Unloaded button.
4. Check the Load on Startup button if you want the Defect Manager Add-In toolbar to be visible everytime you start Visual Basic.
5. Press the **OK** button.

You should now see the toolbar added to the Visual Studio environment, as shown below:



Figure: Defect Manager Toolbar Added to the Visual Basic 6.0 Window

The toolbar has five buttons; they are described below in the order they appear in the toolbar:

- **Settings Button** – There are currently only three settings that can be specified. If you have already used Defect Manager, then the settings below have already been set and you probably should not need to change them. The parameters are:
 - Defect Manager Home – Typically this would be \Program Files\Tiera Software\Defect Manager Release 40\
 - Defect Manager User Name – User Name
 - Defect Manager User Password – Password
- **Report Issue Button** – Opens the Defect Manager Report A Issue window.
- **Defect Manager Log Button** – Opens up the Defect Manager Log.
- **Defect Manager Administrator Button** – Opens the Defect Manager Administrator.
- **Defect Manager Help Button** -- Opens the Defect Manager Help.

Using Defect Manager 4.0 with Visual Source Safe

Defect Manager 4.1 provides the capability for a software development and support personnel to check source code in and out as well as create a copy of selected portions of the source code related to a reported issue or issue to include as an attachment.

As the reported issue item moves through workflow from one work queue and user to another, the **references** to related source code in Visual Source Safe, attachments, system test results and notes move with along with it as a part of a complete package of work.

At each step in the workflow, users may check related source code modules out for processing and review -- then check the source code modules back in to Visual Source Safe before sending the issue item forward to the next step in workflow. This process can be repeated at different workflow steps concurrent with other development uses of the same module – with all sharing coordinated by Visual Source Safe.