

# "No Problem" Problem Tracking

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## Abstract

*The California State University network (CSUnet) connects the twenty CSU campuses and over thirty additional educational institutions. CSUnet's basic goal is to provide equal access to computing and information resources for all faculty, students, and staff regardless of their location.*

*In an effort to keep track of networking problems, the California State University Network Support Center (NSC) created a system for managing the resulting problem tickets using FileMakerPro. This system, The Problem Tickets Database, provides the capability to keep track of network problems so that they do not fall through the cracks, allow a number of NSC staff to view and update tickets in the same database, and keep tickets in a priority order so that the most recent tickets are at the top of the list.*

*The problem ticket process is initiated when an NSC staff member answers a call. At that time information is obtained to determine if the caller is reporting a network problem, requesting information, or initiating a work order. The NSC staff member*

*then enters the appropriate information, as completely as possible. The ticket is assigned to a particular group such as Operations, Engineering, or User Services. Any activity for this ticket is recorded on the ticket with the most recent entries at the top. When the problem is resolved, an NSC staff member closes the ticket after contacting the original caller.*

*Advantages of this system are that it provides various reporting capabilities for analyzing the information in the problem tickets database. Some of the more common analyses include tracking the calls by affected components or services, time of day, or day of week.*

*Using this system has enabled us to track problems by listing activities and events leading to problem resolution in a timely manner.*

## Introduction

CSUnet is a private wide-area packet switched network inter-connecting more than 50 educational institutions throughout California, including the twenty campuses of the California State University (CSU). Its basic goal is to provide equal access to computing and information resources for all faculty, students, and staff regardless of their location.

CSUnet is entirely funded and operated by the Network Technology Group (NTG) of the Information Resources Technology unit within the CSU's Office of the Chancellor. The statewide network is provided to CSU campuses without cost and to other educational institutions within California for the basic cost of providing the connection.

CSUnet supports many protocols including TCP/IP, AppleTalk, DECnet, X.25, Frame Relay, SNA/SDLC encapsulated in X.25, and Two-way Compressed Video. Dial-up access protocols include Telnet, X.3, SLIP, and AppleTalk Remote Access (ARA).

The Network Technology Group is responsible for managing the network and keeping it operational. To meet this goal the NTG created a database system to keep track of reported problems, work-order requests, and other network related information. This system has enabled the

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NTG to monitor all necessary information on an on-going basis.

A subgroup of the NTG is the Network Support Center (NSC) that performs the actual day-to-day monitoring of the system. The NSC answers the calls, determines if the calls are problems, work requests, or information requests, then creates the appropriate tickets. The tickets are then assigned to the appropriate network groups (Operations, Engineering, Technical, Macintosh, or User Services) for action.

Each action performed for a particular ticket is recorded on that ticket so any NTG staff member can view the progress and update that ticket when necessary. When the problem is solved or the work is completed, the NSC is responsible for contacting the original caller to verify that the caller is satisfied and for closing the ticket.

Using this system enables the NTG to keep track of network problems so that they do not fall through the cracks, view and update tickets in the same database, and prioritize tickets so that the most recent tickets are at the top of the list.

## Description of System

To initiate this process, the Problem Tickets Database is opened when an NSC staff member answers a call. Each NTG staff member has access to this database since it resides on a server on the network. This database was created using FileMaker(r) Pro from CLARIS(r) on the Macintosh. Each NTG staff member has a copy of FileMaker(r) Pro to access the database.

When the NSC staff member answers a call, that person determines if the caller is reporting a problem, requesting information, or initiating a work request. The NSC staff member would normally have the Problem Tickets Database active. At this time, the NSC staff member would open the appropriate new ticket.

A ticket may be opened from any screen in the database. On the Main Menu screen (Figure 3) there are three buttons, one for each function, to generate new tickets. The same three buttons exist on the Problem Ticket Entry screen (Figure 1) and the Ticket Summary screen (Figure 2).

When the ticket is opened the NSC staff member enters all necessary information. (When a color monitor is used, the information is entered into all of the pink boxes.) The ticket number, date, and time are automatically entered into the appropriate boxes. The NSC staff member's name is automatically entered into the Taken by: box.

The caller's name is entered into the box labeled, Caller. Initially a list of names appears when the box is entered; if the name does not exist, it can be entered manually by clicking in the box again.

The next box, Ph, is for the caller's voice telephone number. When this box is entered it automatically searches an *Address Book database for the telephone number. However, if there is no entry in the Address Book database, the phone number can be entered manually.*

If the caller's name did exist in the *Address Book database*, the Site name will be entered on the screen. If the name was not there, a list of site names will appear when this box is entered. The name may be entered by double clicking on it or by clicking in the box again and typing it.

The electronic mail address is entered into the Mail box. It is very helpful to have this address in the event the NSC cannot contact the caller by phone. Sometimes it is used to send information back and forth to the caller while the ticket is open.

A list of groups appears when the Assigned to: box is entered. The group name is entered by double clicking on it or manually entering it, if necessary. Typically most tickets are assigned to Network Operations.

The priority box is automatically set to Standard. If a problem is urgent, then this box is set to Urgent or Critical, whichever is necessary. In the case of an Urgent or Critical problem (e.g., a T1 line is down), the caller is contacted with a status report on an hourly basis. Other options are Minor or Informative.

A complete description is then entered into the Description box. Items of particular interest are: which logical network the caller is using such as X.25, TCP/IP, DECnet, AppleTalk, etc.; the number that the caller dialed; preferably exact text of any error messages that appeared; when the problem occurred including the time of day; how many times the problem occurred (if necessary); what steps were taken to establish contact; and the port number (if the caller connected).

Other questions that are considered include: did the caller try connecting to another site and get connected?; did the caller verify that the host at the other end was up and working?; did the caller use any other method to connect?; if the caller used Telnet, which address was used, the domain name or the numeric address?, whichever type of address was used, was the other type attempted?

After all of the preliminary information has been entered, the ticket is passed on to the appropriate group for action.

Each action taken concerning this ticket is entered into the Action taken box (yellow) with a date, time, and initials of the person who entered the information. The most recent entry is at the top of the box.

When the problem has been resolved or the work completed the blue boxes are filled in with the resolution information. Usually the last entry in the Action taken box is also entered into the Resolution box. Sometimes additional information is added to provide a clear explanation of the solution.

At this point the actual Affected Site, Affected Component, and Affected Service are entered into the appropriate boxes. The ticket is then put into Pending mode to let the NSC know that the ticket should be closed after contacting the original caller.

After the NSC has verified that the original caller (or other person responsible for the problem in some cases) is satisfied that the problem has been resolved, the ticket is set to Closed (at the top of the ticket) and the Date, Time, NSC Person, and person Contacted are entered into the appropriate green boxes at the bottom of the ticket.

The List button located at the top right corner of the ticket allows the NSC to view all of the selected tickets in list form. Each item in this list displays the ticket number, type of ticket (Problem, Request, or Information), site, group assigned to the ticket, NSC staff member who opened the ticket, status of ticket (New, Open, Pending, Closed), brief description, and brief action taken.

(The tickets are selected from the Main menu to view in the list. Closed tickets are only shown when the Closed buttons are chosen. Generally, the New, Open, and Pending tickets are shown. The tickets with a status of New are listed first, the tickets with a status of Open are listed next, and the tickets with the status of Pending are listed last if the Open Pending button or a View By Assigned group button is selected from the Main Menu.

From the Main Menu, various groups of tickets may be selected for viewing. Typically the NSC for the day will select the Open Pending button under View Problems to view the current problems that may need attention. Since the Pending tickets are listed at the end of the list, the NSC can scroll to the end to close those tickets.

Each group can display only those tickets that are designated to it, by selecting the appropriate button with the group initials (NEG, NOG, MAC, NUS, TECH) under View By Assigned. The list of tickets shows all of the New, Open, and Pending tickets assigned to the selected group.

Reports may be generated by selecting one of the Summary Buttons or one of the printing buttons. The Summary Buttons are used for previewing the reports sorted by Affected Sites, Affected Components, or Sites. The printing buttons are used to print all tickets in the designated category; Open/Pending, all tickets, Closed tickets; in ticket form (see Figure 1).

## Problem Analysis

In addition to the advantages for maintaining a Problem Tickets database (e.g., recording calls, centralized access, or current information) is the capacity to do problem analysis.

Analyses have been done on a quarterly basis. Some of the reports show the number of tickets opened by day of week, number of tickets opened by time of day, affected components, reporting sites, and assigned by group.

Using these reports enables the management to make informed decisions about managing the network such as staffing hours or replacing chronically poor performing components. Continued analysis of the Problem Tickets database may potentially lead to changes for improving the network.

## Conclusion

The Problem Tickets Database system has helped meet the need for tracking network outages. The system provides a central location where NSC staff can record problem events and view activities that result in problem resolution.

The system has proved to be one more tool that can be used by the support staff of CSUnet to enhance its basic goal that is to provide equal access to computing and information resources for all faculty, students and staff, regardless of location.

The emphasis on caller satisfaction with the problem resolution process has given our group a more service oriented focus and enhanced reputation with our campus members.

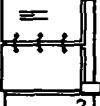
<b>Ticket</b>  2 <b>Records:</b> 7 <b>Found:</b> 2 <b>Semi-sorted</b>	<input type="button" value="New Problem"/> <input type="button" value="New Request"/> <input type="button" value="New Information"/>	<input type="button" value="New Problem"/>		<input type="button" value="Menu"/> <input type="button" value="Help"/> <input type="button" value="Print"/>	
	<input type="button" value="Next"/> <input type="button" value="Previous"/>	<input type="button" value="Problem"/>		<input type="button" value="List"/>	
	# <input type="text" value="93-1003"/> <input type="text" value="Wed"/> <input type="text" value="Jul 7"/> <input type="text" value="14:32"/>	Taken by: <input type="text"/>			
	Caller <input type="text"/> Ph <input type="text"/> Site <input type="text"/> Mail <input type="text"/>				
	Assigned to: <input type="text"/> priority <input type="text" value="3: Standard"/> Affected Site <input type="text"/>				
	<i>Description</i>		<i>Resolution</i>		
	<input type="text"/>		<input type="text"/>		
	Affected Component <input type="text"/>		Affected Service <input type="text"/>		
	<i>Action taken</i>				
	<input type="text"/>				
	On <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Contacted <input type="text"/> and verified problem resolved				

Figure 1. Problem Ticket screen.

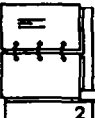






<b>List</b>  2 Records: 7 Found: 2 Semi-sorted	<b>New Problem</b>	<b>New Request</b>	<b>New Information</b>	<b>Ticket Summary</b>		<b>Menu</b>	<b>Help</b>	<b>Print</b>					
	<b>Next</b>		<b>Full Ticket</b>		<b>Previous</b>								
	<table border="1"><tr><td>#</td><td>93-1002 Problem</td><td></td><td>Assigned to:</td><td>Opened by:</td><td>New</td></tr></table>								#	93-1002 Problem		Assigned to:	Opened by:
#	93-1002 Problem		Assigned to:	Opened by:	New								
<table border="1"><tr><td>#</td><td>93-1003 Problem</td><td></td><td>Assigned to:</td><td>Opened by:</td><td>New</td></tr></table>								#	93-1003 Problem		Assigned to:	Opened by:	New
#	93-1003 Problem		Assigned to:	Opened by:	New								

Figure 2. Ticket Summary screen (List).

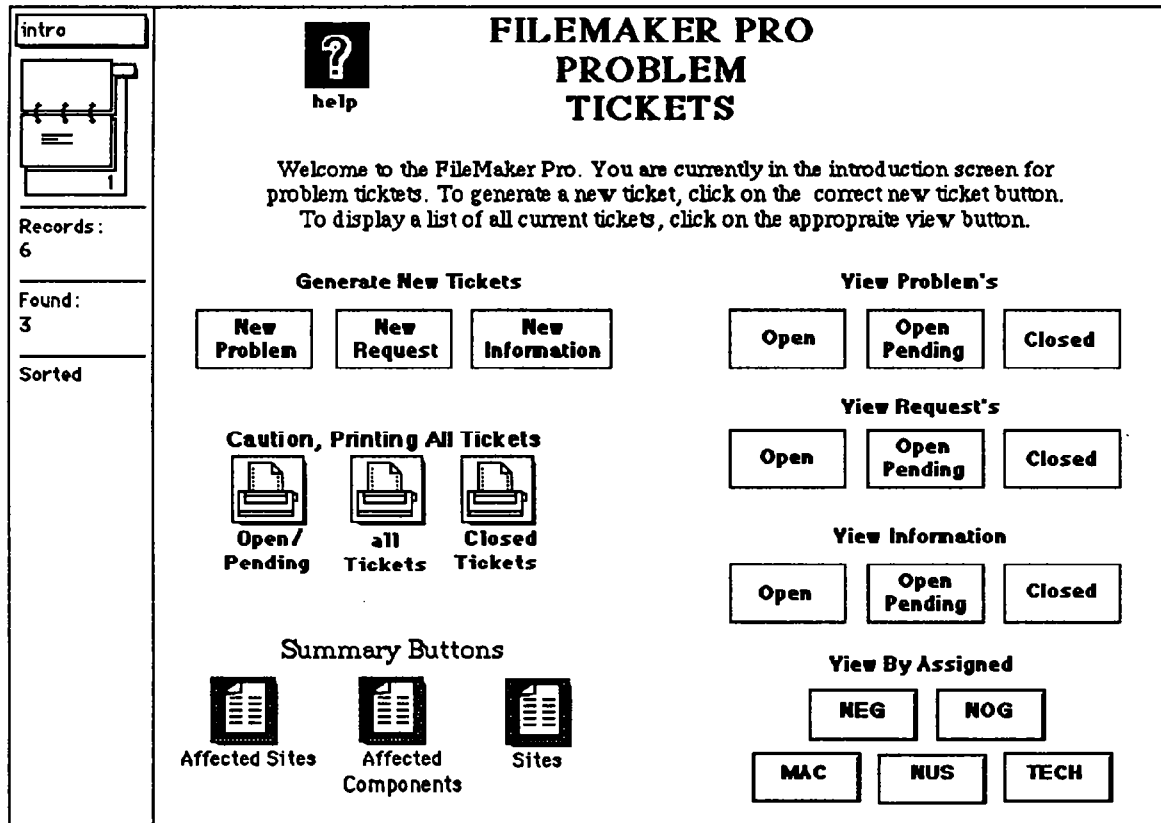


Figure 3. Main Menu screen.