Acceptance Test

Dynamic Network Device
Mapping System

Requested by: Mr. Ken Swarner
Senior Systems Administrator
Siena College
School of Science

Mr. Eric Crossman
Assistant Systems Administrator
Siena College
School of Science

Sonata Software

Prepared by: Christopher Vincek
Heimdall Imbert
Kevin Fealey
Trevor March
Aleksandr Spektor
Nicholas Hogan
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Introduction

1.1 Product Overview and Summary

A web based network device mapping system would allow Mr. Eric Crossman and Mr. Ken Swarner to easily locate network devices and detailed information pertaining to network devices in the School of Science. Sonata Software can offer our clients a solution to this problem. This solution will allow them to locate any device in the school of science and quickly review detailed network device information pertaining to all network devices. Our software will allow our clients to view floor plans containing the layout of network devices within the school of science. Our software will be able to zoom in on specific rooms to see a more detailed network device layout.
Requirements Inventory

2.1 Use Cases

Administrator:

Administrators will be in charge of the Dynamic Network Device Mapping System (DNDMS). An Administrator has the ability to relocate any network device on the floor plan, as well as the ability to place any new devices into any room in Roger Bacon or Morrell Science Center. Only devices that have been entered into our clients’ database first, will be available to be placed on the floor plan. An Administrator is able to view all rooms in the School of Science. The Administrator may mouse over any room on any floor to view the number of computers, printers, wireless access points, and wall boxes are in that room. The Administrator is able to view all information associated with any network device in any room. The viewable information is: Asset Tag #, Priority, VP Code, Building, Room #, Manufacturer, Model, Equipment Type, Monitor Type, Purchase Year, Installed Date, Purchase Order #, CPU, Speed, Disk, Memory, Serial #, User Name, User Type, and Department. The Administrator is able to quickly navigate to any room or any floor, from anywhere in the DNDMS. The Administrator will be able to ping a device to test if the device is functioning properly. The Administrator may search for a network device by any specific device detail. The Administrator will have access to a control panel where the Administrator can create faculty or custom accounts. The control panel will also have the ability to edit the rooms a specific faculty or Department Head may view, as well as edit the device details a Department Head may view. The Administrator will also be able to change the password for any user in the control panel.

Faculty:

Faculty members will be able to access limited information regarding rooms that have been specified to their account. Faculty members will be able to view all devices located in any room the faculty member is allowed to view. All Faculty members will be able to view all individual floors, but may only enter rooms that an Administrator has given them access to. The Faculty member may mouse over any room on any floor they are allowed access, to view the number of computers, printers, wireless access points, and wall boxes are in that room. Faculty members may only view limited device details. The details a faculty user may view are: IP address, MAC Address, Asset tag, User Name, User Type, and Department. Faculty users have access to a search function to view any previously placed network device; but the faculty user may only search by the limited details mentioned earlier. The faculty user’s results of a search will be limited to devices in rooms they are allowed access.
Department Head:

The Department Head has all access rights of a Faculty user by default. This user type is intended for department heads, technicians, or student workers. An Administrator may grant a Department Head the right to view more device details, limited by all fields an administrator may view. The Department Head may be granted access to any room that the Administrator allows. The Department Head will have access to a search function to view any previously placed network device; but the Department Head may only search by the details the administrator has allowed them to view. The Department Head’s results of a search will be limited to devices in rooms that are allowed access.
2.2 Functional Requirements Inventory

Requirements grouped according to Use Case:

Administrator:
- View all four floors in Roger Bacon Hall and all three floors in Morrell Science Center
  - Click a room to zoom in and view all network devices in any specific room
  - Mouse over a room to view how many computers, printers, wireless access points, and wall boxes are in that room
- Access all device details pertaining to any specific network device
  - MAC Address
  - IP Address
  - Asset Tag
  - Priority
  - VP Code
  - Building
  - Room #
  - Manufacturer
  - Model
  - Equipment Type
  - Monitor Type
  - Purchase Year
  - Installed Date
  - Purchase Order #
  - CPU
  - Speed
  - Disk
  - Memory
  - Serial #
  - User Name
  - User Type
  - Department
- Create and manage other user accounts with the control panel
  - Create and delete accounts
  - Edit passwords for all users
  - Upgrade or downgrade a user between Administrator, Department Head, and Faculty
  - Set user permissions
    - Set the rooms a faculty or custom user may view
    - Set the device details a custom user may view
- Access to an Administrator Edit Mode:
  - Read and edit private notes associated with any room
  - Move a device to another part of any room
  - Move a previously placed device to a different room
  - Ping a device to find out if the device is working properly
  - Search for new devices that have not been placed in any room
    - Place a newly found device into any room
• Navigate to a specific room, thorough a navigate function found on any page.
• Search for preexisting devices in the DNDMS based on any device detail

Faculty:
• View all four floors in Roger Bacon Hall and all three floors in Morrell Science Center
  o Navigate to any room that an Administrator has given the Faculty user access to
    and view Limited device details
    ▪ MAC address
    ▪ IP address
    ▪ Asset tag
    ▪ User Name
    ▪ User Type
    ▪ Department
  
o mouse over a room the faculty user is allowed access to and view how many
  computers, printers, wireless access points, and wall boxes are in that room

• Search for preexisting devices in the DNDMS based on any limited device detail
  o Search results are limited to devices in rooms the faculty user has been granted
    access.

Department Head:
• View all four floors in Roger Bacon Hall and all three floors in Morrell Science Center
  o Navigate to any room that an Administrator has given the Department Head
    access to and view any device details an Administrator has allowed access to
  o mouse over a room the Department Head is allowed access to view how many
    computers, printers, wireless access points, and wall boxes are in that room

• Search for preexisting devices in the DNDMS based on any device detail an
  Administrator has allowed the faculty user to view
  o Search results are limited to devices in rooms the faculty user has been granted
    access.
2.3 Non-Functional Requirements Inventory

In addition to the Functional Requirements, we must also ensure that the Non-Functional Requirements are tested to the best of our ability. These requirements are not easily tested, as they are qualitative in nature, unlike the Functional Requirements, which are for the most part quantitative. The following is a list of issues that must be kept in mind during testing in order to ensure that the Non-Functional Requirements are met to the best of our ability.

As stated in the Functional Requirements, the Dynamic Network Device Mapping System (DNDMS) should be supported by platforms Windows, Macintosh, and Linux on the operating systems Windows XP, Windows Vista, and Mac OS X, on the Internet browsers Microsoft Internet Explorer 7.0, Mozilla Firefox 11.4.7, and Safari 2.0.4. But these various platforms, operating systems, and Internet browsers have a tendency to display the same software and programs in different ways. The Dynamic Network Device Mapping System should attempt to maintain consistency in design through these different platforms, operating systems, and especially Internet browsers. If our users use different computers to use our system, they should not be confronted with a difficult time adapting to any differences between how the system is displayed on any computer. Differences in designs due to using different computers should be minimized as much as possible.

The system should be secure. Appropriate pages and information should be viewable only by appropriate users. All information provided by any user should not be displayed publicly, and should only be accessible by the Administrator and the user themselves.

Because the Dynamic Network Device Mapping System is web based, it must be easy to navigate by all users. Confusion about using any and all aspects of the system should be minimized as much as possible by creating a good user interface.
External Design Specifications

3.1 User Displays

**Login Page**

The Login page is a portal to the Dynamic Network Device Mapping System. When the user inputs a valid Username and Password combination, the user will gain access to the system. If the user enters an invalid Username and Password combination, an error message will be displayed on the screen.
Users logging in as Administrator will be brought to this page after the user’s Username and Password combination have been verified. From this page, an Administrator can view or search all users registered to use the system. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
Add User

This page gives Administrators the ability to add new users to a permissions group. The administrator can specify permissions for other users such as room and device information. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page allows administrators to view or change information regarding a user’s permissions. Administrators can also change a user’s password here. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page allows users to see a floor at a glance. The user can mouse over a room to see information regarding that room, or the user can click on a room to go to that room’s Room View page. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page allows the user to view all devices and notes associated with a chosen room. The Administrator can also create new rooms, ping devices, edit room comments, and change room configurations from this page. The Administrator's Quick Navigation side bar is also available on this page. See below for a description of Administrator's Quick Navigation.
Move Device

This page allows administrators to move a device to another room. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page displays all devices registered in the database that have not been placed in any room. The user can also place devices in a room from this page. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
Advanced Search

From this page, Administrators can search for devices with extensive filtering. The user can filter by such attributes as manufacturer, serial #, department, or device type. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page displays the results of the search performed on the Search page. This page also allows the user to view the room in which a device is placed or detailed information regarding that device.

More Details
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This page displays the full details of any device that was searched for. The Administrator’s Quick Navigation side bar is also available on this page. See below for a description of Administrator’s Quick Navigation.
This page allows users to see a floor at a glance. The user can mouse over a room to see information regarding that room, or the user can click on a room to go to that room’s Room View page. The user can also choose to view any other floor they have permission to view from this page.
This page allows the user to view all devices and notes associated with a chosen room. The user can also choose to view any other floor they have permission to view from this page.

Floor Plan – Faculty
This page allows users to see a floor at a glance. The user can mouse over a room to see information regarding that room, or the user can click on a room to go to that room’s Room View page. The user can also choose to view any other floor they have permission to view from this page.

Room View – Department Head
This page allows the user to view all devices and notes associated with a chosen room. The user can also choose to view any other floor they have permission to view from this page.
This side bar is displayed on most pages viewed by a user registered as Administrator. The Quick Navigation Side bar allows the user to view any room or floor with just a few clicks. It also allows users to perform an advanced search.

Environments, Systems and Performance
4.1 Specifications

The Dynamic Network Device Mapping System was developed on a Dell PC running Microsoft Windows XP Professions, Service Pack 2, and a Macintosh running Mac OS X 10.4.9. The project was developed using a combination of Microsoft Notepad, Macromedia Dreamweaver MX 2004, Macromedia Fireworks MX 2004 and an Oracle Database Management System.

4.2 Constraints

Due to constraints, certain function requirements and other features of the Dynamic Network Device Mapping System were not able to be complete. The system no longer includes a Drag and Drop Room View pages due to both time and difficulty constraints. Instead, a grid-based system for placing devices was put into place. In addition, the system was not able to be tested on Mac or Linux systems as originally planned. Finally, while the DNDMS will run on both Internet Explorer 7.0 and Safari 2.0.4 as specified, the user interface is optimized for Mozilla Firefox 2.0 and running the system on the former two browsers may result in small user interface errors.

4.3 Deliverables

The Dynamic Network Device Mapping System will be installed into the Siena College School of Science’s Oraserv web server and will run from there. There will be no extra documentation on how to install or use the program. The program will not be installed on any other computers or webservers aside from the ones specified by the clients.

Test Plan

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5.1 Test Plan Results

The full results for the Dynamic Network Device Mapping System can be found in the attached Test Results document.
### 6.1 Glossary of Terms

*Database* - A collection of data arranged for ease and speed of search and retrieval.

*Linear Sequential Model / Classic Waterfall Model* – Is a systematic sequential approach to software development projects, it begins with planning and progresses to modeling, construction, deployment and finally culminates in the finished software. Our specific approach will begin with this Software Plan and will progress though Requirement Specifications, Preliminary/Detailed and finally Acceptance Tests.

*Network Device* – Any computer, printer, wireless access point or other network accessory connected to the School of Science network.

*MAC address* - Media Access Control address, given to a device in a network. It consists of a 48-bit hexadecimal number (12 characters). The address is normally assigned to a device, such as a network card, when it is manufactured.

*Virtual* – Created, simulated, or carried on by means of a computer or computer network.

*Server* – A computer that processes requests for HTML and other documents that are components of web pages.

*Data Flow Diagram* - A graphical representation of the flow of data through an information system.

*Internet* - An interconnected system of networks that connects computers around the world via the TCP/IP protocol.

*Gantt Chart* - A chart that depicts progress in relation to time, used to track the progress of a project

### 6.2 Timeline (Gantt chart)

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