Hogeschool van Amsterdam
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TEST DOCUMENT
PROJECT NETWORK MANAGEMENT SYSTEM

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Versie 0.3

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Table of Contents

1. Test Items

This chapter describes the different items, which are going to be tested. The testing points are the different program modules, user procedures (component testing), security tests (ACL), and acceptance testing.

1.1 Program Modules

The application consists of different modules. The application consists of a user program module, a devices program module, and a security program module (ACL). The devices program module uses the XML parse module to load templates for generic devices, consisting of different configuration commands.

- Devices Pages
  - Manage Devices
    - Add, Change, Delete
    - Test if communication is possible between a device
    - Test if the XML parser parses the command-set for device 'X' properly, and test if the parsed XML file prints the command-set on the device manage-page.
      - Test if the printed command-set is able to run properly
  - Manage Generic Devices
    - Add, Change, Delete (device type, device model, OS, OS type, device templates, device vendors, XML files, combination OS/generic device, combination OS/generic device
  - Device History
- Access Control List (ACL)
  - ACL Groups (Device Groups / User Groups)
    - Add, Change, Delete
    - Add a user to user and/or device groups; Remove a user from a user and/or device groups
    - Change the rights of user and/or device groups
    - Add or remove a device from the device group
    - Grant user(s) access to different groups/Remove access from user by removing user from group
  - ACL Users
    - Add, Change, Delete
    - Add a user to a user and/or device group; Remove a user from a user and/or device group
    - Kick a user from the system (forced log out)
    - Review User History
  - ACL Devices
    - Add, Change, Delete
    - (Change) Add or remove a device to a Device Group
    - Review Device history

- General User Pages
    - Register user
        - Register a user account
        - Activate user account
    - User Settings
        - Change Password
        - Update User Information
    - Sign in/Sign Out
    - User History

2. Approach

This chapter describes the approach of the different kind of tests. It describes the component testing and the security testing in detail. With component testing the team tested if all components of the application were working in order and if the output/result was as expected.

2.1 Component Testing

The application consists of different components/modules. In order to test them properly, the team divided the components in different tests. The Devices test, in which we are going to add a device, change settings of a device, delete a device, and test if the XML parsers does its work properly.
When you are adding a new device to the application with incorrect user credentials, you can still add the device to the application, but you will not be able to connect to the device.
Using the change device settings you can change the incorrect user credentials, to the right ones. If you change the settings, it should be corrected in the database. After correcting the credentials, it should be possible to connect to device 'X'.
The XML file consists of a command-set for device 'X'. If the XML parser works properly, it will display a set of possible configuration commands on the device manager page. And if the XML file is correctly written, the application will be able to send legitimate commands to device 'X'.
When you want to remove a device from the application, it should be completely removed from the database. The application stores automatically every action that a user does with a device. When you remove a device from the application, the history should also be removed from the database.
When you perform a configuration change using the application, it should be recorded to the device history.

2.2 Security Testing

(Testing done to ensure that the application systems control and auditability features of the application are functional.)
To add some security to the application, an advanced ACL component is added. With the ACL component, an admin user can add, change, and remove ACL User and/or Device groups. An admin user can change the different rights of user and/or device groups. When one of the rights is removed from one of the groups, the content of the application, for users in the specific group, will change. When, e.g. the 'List Devices' right is removed from a device group, users within that device group will not be able to list devices anymore. The button in the menu bar will be invisible, and the page will not be reachable when a user tries to access it by manually going to the URL.

2. Pass / Fail Criteria

Whether a test fails or passes depends on the pass criteria. We have decided that for a test to pass, ALL the pass criteria must have been met. If one of the pass criteria is not met, the test will fail.

Database test

- The system has multi database support
    - Test at least 2 different databases to see if the system is compatible with multiple databases.

Devices pages

Manage devices

Pass criteria

- A device can be added
    - Visually confirm the addition of the device, check the change in the database
- A device can be Changed
    - Visually confirm the change of the device, check the change in the database
- A device can be deleted
    - Visually confirm the deletion of the device, check the change in the database
- Communication between a device and the server needs to be possible
    - Try running a command on a test device and check the history of the device itself to see if it worked.
- The XML parser parses the command set for device X properly, and the commands run as they are supposed to.
    - Try putting at least two commands in a XML file and see if it gets parsed correctly. Then try running those commands and see if they work.

Manage generic devices

Pass criteria

- The following can be added, changed or deleted: device type, device model, OS, OS type, device templates, device vendors, XML files, combination OS/generic device
    - Visually confirm the change, check the change in the database

Device history

Pass criteria

- All the actions performed on a device by users must be visible in the history. Perform a few actions (at least 10 different actions) and see if they show up in the history.
    - Visually confirm the change, check the change in the database.

Access Control List (ACL)

ACL Groups

Pass criteria

- A device / user group can be added
    - Visually confirm the addition of the group, check the change in the database
- A device / user group can be Changed
    - Visually confirm the change of the group, check the change in the database
- A device / user group can be deleted
    - Visually confirm the deletion of the group, check the change in the database
- A user can be added to a user and/or device group
    - Visually confirm the addition of the user, check the change in the database
- A user can be removed from a user and/or device group
    - Visually confirm the removal of the user, check the change in the database
- The rights of a user and/or device group can be changed
    - Visually confirm the change, check the change in the database
    - Visually confirm if the content of a page involved will change
- A user can be granted access to different groups
    - Visually confirm the change, check the change in the database
    - Visually confirm if the content of a page involved will change
- Remove user access by removing a user from a group
    - Visually confirm the change, check the change in the database
    - Visually confirm if the content of a page involved will change

ACL users

Pass criteria

- A user can be added
  - Visually confirm the addition of the user, check the change in the database
- A user can be Changed
  - Visually confirm the change of the user, check the change in the database
- A user can be deleted
  - Visually confirm the deletion of the user, check the change in the database
- A user can be added to a user and/or device group.
  - Visually confirm the change, check the change in the database
- A user can be removed from a user and/or device group.
  - Visually confirm the change, check the change in the database
- A user can be kicked from the system (forced log out)
  - Visually check if the user is actually logged out
- All the user actions are logged
  - Perform at least 10 actions and check if they are logged, also check the database

ACL devices

Pass criteria

- A device can be deleted
  - Visually confirm the deletion of the device, check the change in the database
- A device can be added or removed from a device group.
  - Visually confirm the change, check the change in the database
- All the actions on a device are logged.
  - Perform at least 10 actions and check if they are logged, also check the database.

General User Pages

Register user

- A user can register an account
    - The account is NOT active after registration
- An admin can activate a registered account
    - Check if the user can login after activation

User settings

Pass criteria

- The user password can be changed
    - Check if the password change works, also check the database if the password hash changed
- User information can be changed
    - Check if the change works, also check the database

Sign in/Sign out

Pass criteria

- Sign in
    - Check if logging in works properly
- Sign out
    - Check if signing out works properly

User History

Pass criteria

- All the actions the logged in user performs are logged
    - Perform at least 10 actions and check if they are logged, also check the database.

3. Testing Process

3.1 Test Deliverables

The results of the tests will be documented in the Testing results report. This document will contain a brief overview of the tests, and their results.

3.2 Testing Tasks

All test will be performed by hand, because of this no extra software is required. Most, if not all, tests can be run on the system itself. It's then possible to confirm whether or not the defined operation worked. Conformation will be done by checking for the change on the system itself, and by checking the change in the database.

4. Environmental Requirements

4.1 Hardware

In order to test the yaNMS there is a need for a testing platform. The development team used a server with a CentOS platform for running the Apache/Django/Python instance, and an Ubuntu machine for virtualizing some network devices using GNS3. The servers were both connected to the Internet, in order to access it remotely. For testing purposes the team used their own computers to run tests on the front-end of the environment.

4.2 Software

For testing the application there are not a lot of software requirements needed to complete the testing activities. For testing the front-end of the website a browser is mandatory. In order to check if the changes made in the front-end of the website are processed, a database viewer tool is needed. For Mac users you can use Liya, for Windows users you can use SQlite Database Browser. With these tools you can read the content of the database easily, without the need to query everything by hand.