**System Documentation**

**Group 15**

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**Team Members**

Domonic Neal

Ny Tran

Ronny Soto

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**Revision History**

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| **Version** | **Date** | **Name** | **Description** |
| 1 | 04/23/2020 | Domonic | Initial Document |
| 1.1 | 04/26/2020 | Ronny, Ny | Finalizing Document |

1 Introduction

The purpose of this project is to build a secure network for our clients 5 satellite offices and 1 corporate office. This document will provide instructions for setting up the network and active directory. The network allows users to work in a secured environment in between offices and the active directory allows administrators to set up accounts for users.

2 Set-up Network

This company will be using MikroTik RouterOS to manage switches, routers, firewalls and other network hardware over a single interface using RouterOS. The purpose of using RouterOS is for ease of troubleshooting, patching, and other network functionality over the internet for a cloud base solution. The setup for RouterOS should be done by the MikroTik team as they will provide the installation and set up for the company due to the purchase of the hardware and licensing agreement, however, MikroTik provided links on how to install the products and set up the network.

Software Specifications

<https://help.mikrotik.com/docs/display/ROS/Software+Specifications>

First Time Configuration

<https://help.mikrotik.com/docs/display/ROS/First+Time+Configuration>

Basic Configuration Examples

<https://help.mikrotik.com/docs/display/ROS/Basic+Configuration+Examples>

ConfigurationManagement <https://help.mikrotik.com/docs/display/ROS/Configuration+Management>

Netinstall

<https://help.mikrotik.com/docs/display/ROS/Netinstall>

Web Configuration (WebFig)

<https://help.mikrotik.com/docs/display/ROS/Webfig>

3 Set-up Active Directory

The company will be using Amazon Web Services Directory Services (AWS Directory Services) for ease of set up, maintenance and high availability.

*3.1 Set-up AWS Managed Microsoft Active Directory*

1. Sign up for a new account or sign in to your existing account
   1. <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/setting_up_aws_account.html>
   2. <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/setting_up_create_iam_user.html>
2. Launch a free AWS Managed Microsoft AD directory
   1. <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/directory_microsoft_ad.html>
3. Create users and groups
   1. <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/ms_ad_manage_users_groups.html>
4. Join an Amazon EC2 instance to your domain
   1. <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/what_is.html>
5. Test single sign-on to a domain joined EC2 instance
   1. <http://d0.awsstatic.com/whitepapers/simpledomainjoin.pdf>

4 System Maintenance

*4.1 MikroTik*

Maintenance on MikroTik is done using their own software called RouterOS. This software is very useful when it comes to maintaining firewalls, router, access points, and switches. When it comes to staying up to date, we can easily access the latest software and firmware updates. RouterOS also allows for network administrators to troubleshoot any problem they may encounter.

Upgrading and Installation <https://help.mikrotik.com/docs/display/ROS/Upgrading+and+installation>

Firewall Employment

<https://help.mikrotik.com/docs/display/ROS/Firewall+Employment>

Load Balancing

<https://help.mikrotik.com/docs/display/ROS/Load+balancing>

Quality of Service

<https://help.mikrotik.com/docs/display/ROS/Quality+of+Service>

Computer Networks

<https://help.mikrotik.com/docs/display/ROS/Computer+Networks>

*4.2 AWS Directory Services*

Amazon Web Services Directory Services maintenance is all handled by Amazon as AWS Managed Microsoft AD runs on AWS managed infrastructure with monitoring that automatically detects and replaces domain controllers that fail. In addition, data replication and automated daily snapshots are configured for you. Network Admins only have to worry about creating users and groups.

No passwords or user data is retained on the proxy server. AWS Managed Microsoft AD runs on AWS managed infrastructure with monitoring that automatically detects and replaces domain controllers that fail. There is also no need to install any extra software either. AWS will be able to handle any software updates and patches on their end for us.

Amazon does provide documentations for deleting directories and troubleshooting.

Amazon Documentations <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/ad_connector_how_to.html>

Secure AD Connector Directory <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/ad_connector_security.html>

Maintain Your AD Connector Directory <https://docs.aws.amazon.com/directoryservice/latest/admin-guide/ad_connector_maintain.html>