



Senior Design Project in Electrical & Computer Engineering



Secure Outlook Web Access

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Sponsor: USCG TISCOM

Project Background

The Coast Guard Telecommunications and Information Systems Command (TISCOM) has requested a design to determine whether the Common Access Card (CAC) provides enough security to access Outlook Web Access (OWA) from an internet-enabled computer. Coast Guard personnel are currently limited to accessing email via one of two methods: being directly logged on to the Coast Guard Data Network (CGDN+), or using remote access server (RAS) tokens to remotely access the network. By providing an alternative method for service personnel to securely access email remotely, the benefits of such a system could easily increase productivity.

Project Plan

Rather than evaluating the merits of using smart cards versus RAS tokens, this project will assess the feasibility of installing and configuring a hardware-based network device to establish secure connections to users from the Coast Guard Data Network for remote email access. The project's primary objective is to provide a proof-of-concept design that determines whether the CAC is an effective method to authorize and authenticate users to Microsoft Outlook Web Access.



The proof-of-concept design involves designing and implementing a prototype network according to TISCOM's specifications for the CGDN+, creating an SSL VPN connection for secure access, and enabling secure logins with a user's CAC. Once a secure method is in place for users to be able to remotely access the network, they will be greeted by a splash screen allowing them to login to OWA.

Project Deliverables

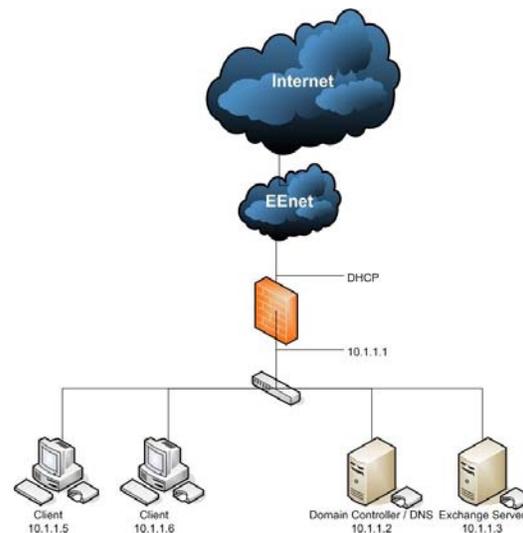
At the conclusion of this project, we hope to deliver to TISCOM:

- A documented and working implementation of the software utilized in the development of this project.
- A list of all of the hardware resources used and their running configurations.

After receiving these items, we hope TISCOM is able to fully recreate our network and software environments for future implementation into the Coast Guard Data Network.

Project Work

Currently, we have constructed a prototype network consisting of an Active Directory server, and Exchange 2003 server, and two client computers running Microsoft Windows XP Professional. The Active Directory server manages all of the user accounts and seamlessly integrates all of the other servers and computers that will be attached to the network. The Microsoft Exchange server handles the email accounts accessible from any client computer, as well as access to email through a web-enabled portal known as Outlook Web Access (OWA). The figure below is a visual representation of the physical network configuration.



Current configuration of prototype network

In the remaining part of the semester, we have made plans with the EE section and Academy IS to enable access to our project's Outlook Web Access portal from the internet. By navigating to the address: <https://pece.uscga.edu/exchange>, users that are part of the prototype domain and have a valid Coast Guard Common Access Card, CAC reader, and a connection to the internet will be able to securely access their email from a remote computer that is not directly connected to the domain.

