

**PENN STATE MONT ALTO**

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Information Technology Department

# ResCom Report

Submitted by:

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## About This Report

The campus Information Technology Services (ITS) Department supports the ResCom service locally. The Mont Alto ITS Department attempts to provide innovative solutions to assure a high level of customer service and ease of use. Due to the complexity of the registration process, this is difficult, time consuming, and frustrating.

The ResCom service is currently provided in each of the three residence halls at Mont Alto. This includes Mont Alto Hall, Penn Gate I, and Penn Gate II.

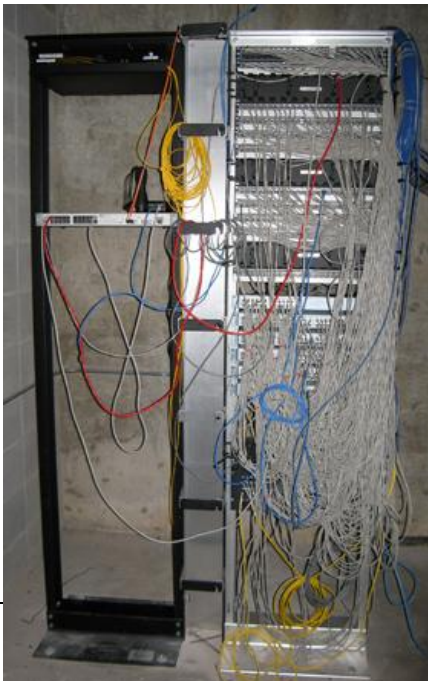
The purpose of this report is to provide statistics regarding technical and user-related problems experienced with the ResCom service at the Penn State Mont Alto campus during the start of the fall 2006 semester.

This report will be provided to the local campus leadership and Auxiliary and Business Services Department as a reference and guide as it relates to product support and future product development.

This report was written by the Mont Alto IT Student Supervisor under the supervision of the Director of Information Technology.

## Overview

The report documents the technical and user-related issues experienced in relation to the ResCom service. Topics include:



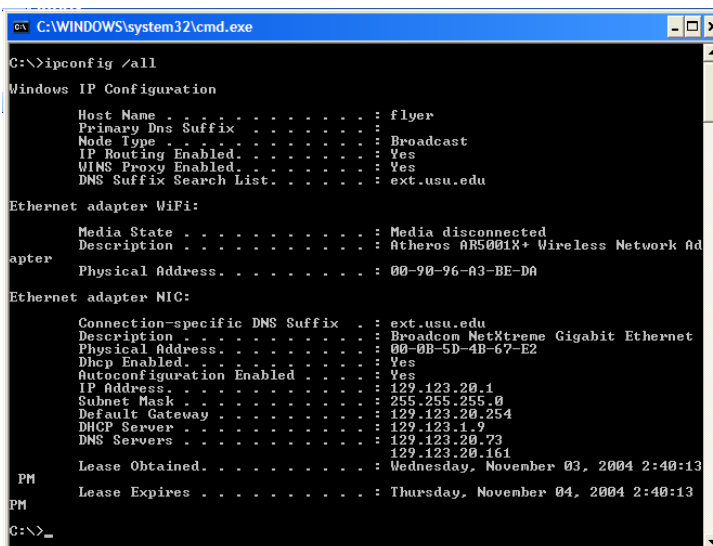
- User responsibility leading to frustration and inefficiency
- Old and poorly maintained jacks and wiring in the residence halls
- Viruses
- Limitations related to the number of network devices connected in each room
- Network administration and registration process issues

## A Complicated Process

Computers and networks are incredibly powerful and vital to education. Unfortunately, that power comes with problems. Students get their very first impression of Penn State technology on move-in day when they begin setting up their computers. Based on the issues the staff sees with the ResCom service, the students are given a poor first impression. The process of setting up a student internet connection in residence halls involves having students run a DOS command that they've likely never used before. Then, they have to interpret their Ethernet Address. The Ethernet address contains 6 pairs of characters that uniquely identify the computer. If the student doesn't enter the Ethernet address exactly as it is displayed, or writes down the wrong one, he or she will not be able to access the internet in their residence halls.

## Increasing Confusion

Over the years, more students have purchased laptops. Wireless has become a standard option. This allows students to utilize the campus wireless network. Presently, the campus offers wireless throughout the campus and in the lobbies of Penn Gate II and Mont Alto Hall. When computers come with multiple network devices built in, such as



```
C:\WINDOWS\system32\cmd.exe
C:\>ipconfig /all

Windows IP Configuration

Host Name . . . . . : flyer
Primary Dns Suffix . . . . . : 
Node Type . . . . . : Broadcast
IP Routing Enabled. . . . . : Yes
WINS Proxy Enabled. . . . . : Yes
DNS Suffix Search List. . . . . : ext.usu.edu

Ethernet adapter WiFi:

Media State . . . . . : Media disconnected
Description . . . . . : Atheros AR5001X+ Wireless Network Adapter
Physical Address. . . . . : 00-90-96-A3-BE-DA

Ethernet adapter NIC:

Connection-specific DNS Suffix . . : ext.usu.edu
Description . . . . . : Broadcom NetXtreme Gigabit Ethernet
Physical Address. . . . . : 00-0B-5D-4B-67-E2
Dhcp Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
IP Address. . . . . : 129.123.20.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 129.123.20.254
DHCP Server . . . . . : 129.123.1.9
DNS Servers . . . . . : 129.123.20.73
Lease Obtained. . . . . : Wednesday, November 03, 2004 2:40:13 PM
Lease Expires . . . . . : Thursday, November 04, 2004 2:40:13 PM

C:\>_
```

both a wired and wireless network adapter, they have multiple Ethernet addresses. This only adds to the confusion for students and on many occasions they enter the wrong address. At least 30-40 students incorrectly entered their Ethernet address at the beginning of the Fall 2006 semester. Because of the large number of support requests the staff receives during the first week of the semester, it could be up to a week before a student can be provided with support. The ResCom system only adds new users four times a day so ResCom technicians have to wait

several hours to see if a student's connection will work. This delay makes resolving multiple issues difficult.

## Providing Information

The Mont Alto ITS Department is committed to informing and educating students about the procedure for accessing the network in the residence halls. The staff attempts to clearly explain the process of obtaining the computer Ethernet address step by step with screen shots. Each student in the residence halls receives a yellow bag which contains a Penn State CD-ROM with useful software, a packet that explains the process of connecting to the network, and a door hanger that students can hang on the outside of their door if they need assistance. During move-in, student technicians are in the residence halls assisting as many students as possible with the ResCom registration procedure. Because students need internet access to register with ResCom, online laptops are placed in the lobbies so that students may use them for registration. Student technicians help answer any questions that students and parents may have. During the first several days of the semester, student technicians walk through the residence halls looking for the door hangars so that they can assist students that need help. After move-in weekend, students may

call the help desk and open a trouble ticket.

In addition to the information students receive during move-in, the staff provides the requirements and features of ResCom during FTCAP and student orientation which most new students attend. There is a session of FTCAP in the computer lab where a staff member from the IT department reviews important technology and websites at Penn State. The ResCom website is one of them.



### Finding the Ethernet Address in Win XP / 2K

Use this page as a guide to find your Ethernet Adapter Address that you need to register in order to have an ethernet connection. The MAC Address instructions for XP and 2000 are essentially the same; you'll just notice a difference in looks for the first step.

**STEP 1 (For Windows 2000)**

Start by clicking on the START button and then on RUN.



**STEP 1 (For Windows XP)**

Start by clicking the START button and then click on RUN.



**STEP 2**

A small window will open. Use this one, and type in CMD, as show, then click OK.



**STEP 3**

When the CMD window opens, type in IPCONFIG/ALL and press enter. Leave a space after IPCONFIG.



**STEP 4**

If you have an Ethernet Card installed, you should see a heading of ETHERNET ADAPTER, and there should be an item called PHYSICAL ADDRESS. That is your MAC Address. Make sure that you are not getting the MAC address for a wireless connection (Under description it will mention wireless if it is wireless adapter).



Note: You may have to maximize the window to see all items, but be sure to select the correct one.



For more one page printable documents, other self-help material, or computer questions, go [www.rescom.psu.edu](http://www.rescom.psu.edu).

**I NEED HELP WITH MY COMPUTER!**

Please display this door hanger if you require assistance with your personal computer or ResCom Internet connection.

**Welcome First Year Students**



## Access Limitations

One of the biggest complaints from students is that they cannot use multiple network devices to access the internet in their dorm rooms. This means that they can only use one computer and that computer must match the Ethernet address entered in the system. Registering multiple computers with ResCom is not an option. Gamers are

particularly disappointed that they can not plug their Xbox or Playstation 2 consoles into the network and play games online. Currently, the only solution is to register a router's Ethernet address with ResCom so that one network connection can be shared. The student would then have to configure their router to use the correct IP information. Not only is it difficult for a novice user to set up a router with ResCom, it is not allowed and not supported. In comparison, some universities allow students to use hubs in their rooms and register gaming consoles through a web-based form so that they can play online.



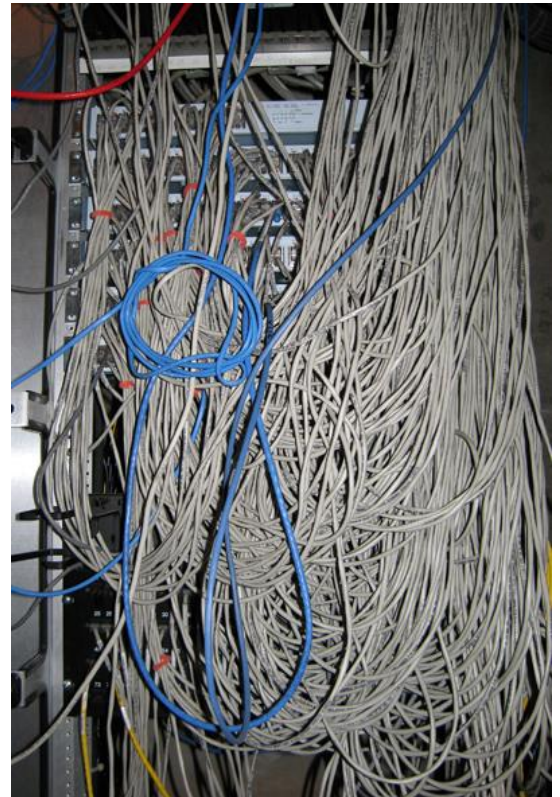
## Network Maintenance



Most of the wiring in the residence halls at Mont Alto is poorly maintained. The wiring is older and each semester the staff finds failed cables and jacks. Jack-related issues include bent or missing pins, cracked jacks, and jacks that have been pushed into their box as pictured on the left. The boxes that hold the jacks are typically placed beside beds where they are often pushed against, hit, and damaged. Some of the electrical boxes that are mounted to the walls are in bad shape as well. Several boxes are missing screws, loose, or have fallen off the wall entirely. This puts even more stress on the wiring. Approximately 55 jacks have been replaced since the beginning of the semester.

## Switch Rooms

In each residence hall there is a switch room. This is basically a central location where all of the connections in the residence hall are terminated. For the most part, these rooms and their wiring and equipment have not been maintained. The picture to the right shows the tangled mess of patch cables hanging from the switches in Mont Alto Hall. During the first 10 days of the semester the staff had to replace 6 patch cables that had failed. Because of the mess of wires, the cables can be very difficult to untangle. Also, trying to remove patch cables causes other cables to be tugged on which can potentially damage them. There were two cables that failed in Penn Gate I.



# Viruses

During the semester the staff receives e-mail notifications from the Security and Operations Services Office (SOS) when they lock out a student because of a virus-infected system. When a student gets a virus and it is detected on the network, their internet connection is shut off and they must reformat their computer before their internet connection will be enabled again. During the first 10 days of the semester, 6 students lost their internet connection because of viruses on their computers. A technician will set up a time with the student to come to their room, backup important

**Resolved issues in residence halls from 9/05/06 to 9/15/06**

Issue	MAH	PG1	PG2	Totals
MAC/IP/Misconfiguration (PEBKAC)	22	11	7	<b>40</b>
Bad Cable	2	2	0	<b>4</b>
Bad Jack	2	2	0	<b>4</b>
NOC Issue	11	0	0	<b>11</b>
Mislabeled (Jack or Cable)	1	3	1	<b>5</b>
Virus	3	0	3	<b>6</b>
Unknown	9	7	3	<b>19</b>
<b>Totals</b>	<b>50</b>	<b>25</b>	<b>14</b>	<b>89</b>

files, and reformat their computer. A reformat typically takes at least 1 hour and 30 minutes but it could take longer depending on how much data needs to be saved. After that it is highly recommend to the student that they turn on automatic updates, install a free copy of Symantec Antivirus from the Penn State download site,

and install an anti-spyware application. Although students are **not** required to install these applications, the department highly recommends their use. Because students can choose not to use antivirus software and leave their system un-patched there are typically repeat offenders who lose their internet connection multiple times a year because of viruses.

Cisco manufactures a system made that automatically checks a computer to ensure antivirus software is installed, the system has all critical patches, and automatic updates are turned on. In the event that one of these requirements is not completed by the user, the system automatically prevents them from accessing the internet until all requirements are made. The system also helps the user download and install the antivirus software and change settings. This is just an example of how to prevent viruses before they occur and also simplify the connection process for the end user.

# Network Issues

At the beginning of this semester a network issue prevented 11 users from connecting to the internet in Mont Alto Hall. The users previously had an established internet connection but after calling the Network Operation Center (NOC) to solve an issue

with a student's computer, several other students in the Residence Hall lost their internet connection. For some reason the switches in Mont Alto Hall had misinterpreted Ethernet addresses even though they were accurately entered in the database. After a few days and several calls to the NOC a script was executed to tell the switch to 'relearn' the Ethernet addresses. After this, the issue was resolved and it seems that the students affected could once again access the internet. Even though the local staff had done everything accurately, there were still issues beyond our control.

## Conclusion

The ResCom service can be frustrating for both staff and customers. During the first two weeks of the semester staff is required to troubleshoot connections throughout the evening due to the complexity of the problems and student availability. This is both frustrating and time consuming considering the multitude of issues that arise during the start of the semester.

From a parental viewpoint, the process is often confusing, and irritating. Staff members typically receive several calls from angry parents and students regarding unresolved ResCom issues. There are concerns that the impression of the ResCom service does not bode well for retaining students.

From researching residence hall networks at other universities, there is a strong feeling that better solutions exist for both the staff and the customer. Improvements to the service are vital to providing a high level of customer service and a quality product.