Departmental IT Staff
(CatNet OU Admin)
Guide to Exchange 2010

Submitted to:
University of Arizona

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Active Directory

Overview and Terminology

- Active Directory (AD) is a centralized system for managing identities and security permissions for users and computers in a Microsoft Windows based environment. Without AD, Windows computers must be managed individually and user accounts must be created and managed on each individual computer. AD also allows administrators to publish security and operational settings, such as password length and desktop appearance, to many computers at one time. This keeps administrators from having to make the same changes to multiple computers, effectively eliminating the need for many repetitive tasks required for desktop and server setup and administration.

- AD maintains information about users and computers as AD objects. A user will always have a user object and a computer has a computer object. Additional specialized objects include contacts, rooms, and printers.

- Objects are assigned to groups to aid in the application of permissions. Instead of granting each user permission to a file it is recommended that administrators assign permissions to a group and then add users to the group. Each user in a group will inherit the permissions granted to that group.

- Objects are also organized in Organizational Units (OUs). OUs hold all Active Directory object types in order to make them easier to find and manipulate in the Directory. OUs are also designed as points for applying policies for users and computers or granular permissions for role based administration.

- Group Policies are sets of modifications that are configured to change the way Windows computers operate and the way users that are using Windows computers view and use the OS.

*For more detailed information on Active Directory please access one of the following:

- UACBT course Microsoft MCTS (Exam 70-640): Creating & Maintaining AD Objects and Microsoft MCTS (Exam 70-640): Group Policy
**CatNet Architecture**

- CatNet is the University of Arizona central Active Directory. It follows a single forest, single domain model. Forest and domain functional levels are at Windows Server 2008. There are two Active Directory sites configured in CatNet; one in Tucson and one in Phoenix. Exchange is only deployed in the Tucson site.

- CatNet contains a mirror of NetID. Each NetID is tied to an Active Directory user account and is granted permission based on job role and the organization to which they belong. NetID changes are synced in real time to CatNet. This is a one-way sync from NetID; changes cannot be made to NetID accounts directly in CatNet. All NetID accounts are all located in the NetID OU in the CatNet Active Directory. Only Enterprise Administrators have direct access to the NetID OU.

- CatNet also has a departmental OU assigned for each organization with objects that are managed in CatNet. These OUs are controlled by departmental IT staff and can hold all necessary accounts needed for operation. Departmental Administrators (OU Admins) are granted permission to fully control their Department OU.

- Users with departmental administrative permissions in Active Directory can perform most or all administrative actions against objects that are in their departmental OU. This includes, but is not limited to, adding and removing computers, changing and creating new Group Policies that are assigned to the department OU, and creating additional OUs.

- Important Notes:
  - **All objects created within department OUs must follow CatNet naming conventions.** This ensures that each object has a unique name within the directory and prevents objects from being overwritten by automated processes.
  - Departmental accounts and service accounts are the only types of user accounts supported within department OUs. All other users must be assigned accounts via NetID.
  - Group Policies that modify password requirements should not be applied to any OUs. Doing so can cause the policy to apply to the entire Active Directory. Department OU Admins should coordinate with UITS to create granular (fine-grained) password policies for objects in Department OUs.
  - Group Policies normally apply to the OU they are linked to and all OUs below it. This means that linking OUs in the wrong location can impact more objects than intended, and may affect the entire departmental OU.

*For more information on CatNet please access the [CatNet entry on the UITS services site](#).*
Microsoft Exchange

- Microsoft Exchange is Microsoft’s enterprise messaging application. Exchange’s main function is providing email services, but also includes other features such as calendaring, task list development, collaboration, contact tracking and grouping, and several other features.
- Each user in Exchange is assigned a Mailbox that serves as a delivery point for email and as storage for their calendar, personal contacts, and other information that they may need.
- Exchange allows the use of Distribution Lists. Distribution Lists allow multiple users to be grouped together with a single email address. Emails sent to a distribution list are sent to all members of the Distribution List. This allows for easy email distribution to multiple people without needing to type in multiple email addresses.
- Exchange Calendars can be shared between users or groups of users. Users can grant specific or broad permissions to their calendars to allow other users to see their appointments or add additional appointments depending on the level of permissions granted.

Exchange Terminology:

Server Types:

Exchange 2010 utilizes three main server types, Client Access, Hub Transport, and Mailbox. Each server type performs a specific type of job.

Client Access Server (CAS)

The Client Access Server is used to provide users with access to their mailboxes in a variety of ways. The primary methods of access are Outlook and Outlook Web Access. Outlook is the mail client developed by Microsoft that provides full integration with the Exchange server to allow users to view and modify their email, calendar, tasks, and contacts with ease. Outlook Web Access is a Web Based version of Outlook that allows users to have the same functionality through a web browser without having to install additional software on their computer.

Hub Transport Server

The Hub Transport Server is used to provide a transport mechanism for incoming and outgoing mail. All email that comes from the Internet or that is sent from mailboxes inside the organization will be routed through a Hub Transport server before being delivered to a user’s mailbox.
Mailbox server

The Mailbox Server holds one or many large databases that contain all the information stored in each user’s mailbox. Users that connect to Exchange will read the data stored in the database by communicating first with a Client Access Server.

Outlook Web Access (OWA)

Outlook Web Access is included in Exchange server as a way to allow all users to access their mailboxes no matter where they are (as long as they have an Internet connection) or what web browser or Operating System they are using to access it. The UA OWA can be accessed by navigating to https://mail.catnet.arizona.edu/owa in any web browser.

Exchange Management Tools

In order to manage Exchange 2010 from a computer that is not an Exchange server, it is necessary to install the Exchange 2010 Management tools.

Exchange Management Tools Pre-requisites

The following prerequisites must be met before it is possible to install the Exchange 2010 Management tools:

1. Computer must be a member of the CatNet Domain
2. The Operating System must meet the following minimum requirements
   a. Windows Vista/7 64Bit (Management tools will not install on a 32 bit OS)
   b. Powershell 2.0
   c. .Net Framework 3.5
3. The version of the Management Tools installed must match the version of Exchange in use (Currently Exchange 2010 Service Pack 2)

Installing the Exchange 2010 Management tools

The installation files necessary to install the Exchange 2010 Management tools are available through Secure FTP transfer at the following location:

sftppublic.CatNet.arizona.edu/Exchange 2010

Connection to the FTP site is done over port 22 and the login credentials are the Delegated Administrative account username and password.

If you do not currently have any version of the management tools installed they can be installed using just the service pack installer (Exchange2010-SP2-x64.exe). If you have a previous version of the management tools installed you will need to use the service pack installer to upgrade them to the appropriate service pack level.

**Using the Exchange Management Tools**

Exchange 2010 allows administrators to manage Exchange through a Graphical User Interface (GUI) as well as a Command Line Interface (CLI). The GUI is referred to as the Exchange Management Console and the CLI is the Exchange Management Shell.

**Exchange Management Console (EMC)**

Most administrative tasks, such as creating, deleting, and disabling mailboxes, can be performed easily through the Exchange Management Console. A sample view of the Exchange Management Console is shown in Figure 1.

![Exchange Management Console](image)

Figure 1

The EMC is navigated with the use of a tree view in the left window of the console. This tree view is separated into three sections; Organization Configuration, Server Configuration, and Recipient Configuration. OU Admins in CatNet will not have any access to the Server Configuration tree of controls and only read access is granted for the Organization Configuration tree. Full access is granted to the Recipient Configuration tree. It is important to note, however, that OU Admins will only be able to apply changes to users, contacts, and distribution lists that are in their own Department. Any users that are shown in the Mailbox section of Recipient Configuration that do not belong to the OU or Groups that the
admin has control over will show in the console and all attributes can be viewed, but attempts to apply changes to these objects will fail.

One of the more important things to know about the EMC is that settings are not changed until the user presses the Apply or OK button. Closing the settings window with the Cancel button or the X in the upper right corner of the window will result in all changes being lost.

Note that not all functions can be accomplished through the Exchange Management Console. The EMC only provides a graphical method for passing PowerShell Commands to the Exchange Servers. PowerShell is a relatively new Command Line Interface that is used to perform tasks in Windows systems and is the heart of the management system for Exchange 2010. Because of Exchange’s reliance on PowerShell for configuration, the EMC is very limited in what it can do, since not all functions could be easily presented with a GUI. As a result, Microsoft also allows direct CLI management of Exchange 2010 through the Exchange Management Shell.

**Exchange Management Shell (EMS)**

The Exchange Management Shell is a Command Line Interface (CLI) for Exchange 2010. It allows administrative users to read, manipulate, and modify settings and properties for all aspects of Exchange using PowerShell. When managing Exchange through the EMS it is possible to perform all actions without the constraints of the limitations of a Graphical Interface. However, the EMS is more difficult to learn than the EMC.

**Using the Exchange Management Shell**

The EMS is fairly straight-forward once you have a basic understanding of PowerShell. This section will go over some of the Basics of PowerShell and give guidance on how to use the EMS to perform some common administrative tasks.

**PowerShell Basics**

PowerShell is a task automation framework that is built on top of and integrated with the .NET framework. It provides both local and remote access to administrative tasks via COM and WMI integration. It allows users to perform simple functions by running simple commands or script complex functions with multiple commands tied together.

Running PowerShell is simple enough and can be accomplished by typing PowerShell at the command prompt or through the Run window (Windows Button + R in any version of Windows) and hitting enter. Once the PowerShell console is open you can begin performing operations with PowerShell. PowerShell is installed by default in all versions of Windows after Windows Vista. It can be installed in Windows XP by installing the Windows Management Framework tools available here:  
[http://support.microsoft.com/kb/968929](http://support.microsoft.com/kb/968929)
PowerShell commands follow a verb-noun notation. For instance, `get-service` will show a list of services running on a computer. `Set-date` will allow you to change the date. `Get-command` will list all commands that can be used in PowerShell. It’s possible to get more information about a specific command and how to use it by typing `get-help <command>`. `Get-help set-date` will give you information on how to use the `Set-date` command.

Each PowerShell command includes a number of switches that can modify the way the command works. For instance, running `get-service` with the `–include` switch will limit the list of services that show. Running `get-service –include “s*”` will return only the services that begin with the letter S. You can also use switches to get more information from the `get-help` command. Running `get-help set-date –full` will give you a lot of additional information about using `set-date`, including examples.

It’s possible to tie commands together by using a function called pipelining. A pipeline takes the output of one command and uses it as input for another command. This allows you to perform actions on multiple objects at once. A pipeline is initiated by using the “|” character (the pipe character, located just above the enter key on most keyboards or Shift + \\). A pipeline must be initiated after the first command you enter, so initiating a pipeline at the start of a command will do nothing. As an example, you can display all of the attributes returned by a `get type` command by piping the output of the command to the `Format-list` command. For example, running `get-date | format-list` will return the date and a number of other things including the number of days into the current year, day of the week, and others. As an example of what the pipeline is capable of doing, it’s possible to start all of the services on a computer by running `get-service | start-service` (Don’t do this, though, as it can cause a crash depending on what services are installed on the computer).

**UA Exchange PowerShell for OU Admins**

Once the Exchange Management tools are installed, it’s possible to open the Exchange Management Shell by going to Start->All Programs->Microsoft Exchange Server 2010->Exchange Management Shell. Once the EMS is open and a prompt is displayed as shown in Figure 2, it is possible to begin using the Shell to administer Exchange.
OU admins have been granted access to a subset of PowerShell commands to administer Exchange objects. The commands are divided into specific roles and organized into role groups intended to facilitate management of objects in the Departmental OUs and the NetID accounts of users OU admins are responsible for supporting.

The roles specified for OU administration are designed to provide OU admins with full control over Exchange objects located within their OU.

The roles specified for NetID administration are designed to provide OU admins with visibility into the settings of NetID accounts in Exchange as well as the ability to perform some common tasks on behalf of the users they support such as setting folder permissions or granting send-as rights.

A full list of the PowerShell cmdlets that have been delegated to OU Admins can be found at: [http://uits.arizona.edu/sites/default/files/Commands%20Available%20to%20OU%20Admins.docx](http://uits.arizona.edu/sites/default/files/Commands%20Available%20to%20OU%20Admins.docx)

Additional information about these commands is available by running `get-help <command>` in EMS or visiting [Microsoft Technet](https://technet.microsoft.com).
Exchange Recipients

Recipients in Exchange 2010 are separated into three categories; Mailboxes, Contacts, and Distribution Groups. Each type differs in purpose and implementation.

Mailboxes

Mailboxes are Recipients that have an Active Directory Account with an Exchange Mailbox assigned to it. These users can receive and send mail by connecting to the Exchange server with a Mail client (Outlook, OWA, etc.). Users’ affiliation with the university determines whether or not they will have a mailbox in CatNet. All faculty and staff receive Exchange mailboxes by default at the time of NetID creation. Student employees and department sponsored visitors (DSV) or designated campus colleagues (DCC) can receive an Exchange mailbox upon request.

Mail User

Mail users are Active Directory user objects that have external e-mail addresses (users that have access to resources via CatNet login credentials, but do not have a mailbox in Exchange). This includes primarily includes students that are not employees and DSV or DCC accounts that did not request an Exchange mailbox.

Contacts

Contacts are meant to give External Email recipients an Email Address within the local Exchange Environment. Emails addressed to an email address that belongs to a Contact are redirected to the external email address assigned to the contact. Contacts can also be applied to user’s mailboxes as a way to forward emails to an external email address. All contacts in CatNet are required to be hidden from Exchange address lists.

Room Resource

A room mailbox is a resource mailbox assigned to a meeting location, such as a conference room, auditorium, or training room. Like any other object created in CatNet, room resources must follow the CatNet naming conventions. Room names should begin with the department abbreviation, followed by a dash, then “Room”, another dash and finally the room number (i.e. UITS-Room-101)

Equipment Resource

An equipment mailbox is a resource mailbox assigned to a resource that's not location specific, such as a portable computer, projector, microphone, or a company car. Equipment resources are also expected to follow CatNet naming conventions. Equipment names should begin with the department abbreviation, followed by a dash, and end with a descriptive name of the resource (i.e. UITS-Projector1).
Distribution Groups

Distribution Groups in Exchange 2010 serve a dual purpose. First, they are meant to allow users to send emails to multiple recipients by using a single Email address. They can also be used to assign permissions for shared resources like Calendars. There are two types of Distribution Groups in Exchange 2010, Standard and Dynamic.

Standard Distribution Groups

Standard distribution groups operate just like a normal Active Directory Security group. The group is created, assigned an Email address, and users are added to the group manually by the administrator. Standard distribution groups can hold as few or as many users as needed.

Dynamic Distribution Groups

Dynamic Distribution Groups allows administrators to automate membership in the distribution group. There are a number of attributes that can be used to define membership in these groups and only users that match all of the requirements set during the group’s creation will receive emails sent to a Dynamic Distribution Group.

Distribution Group Naming

UA Policies require that all groups follow a specific naming convention. This prevents multiple groups with the same name being created and causing errors. The naming convention for UA is the Department abbreviation followed by a dash and then the group name. For example, UITS-Administrators would be the group name for the Administrator’s group in the UITS department. In addition, it is necessary to add “distgroup” to the Custom Attribute 1 property of the distribution group. Once the custom attribute is added, the distribution group should be assigned an email address of groupname@distribution.arizona.edu.

Distribution Group Moderation

It is possible to configure Distribution Groups so that only emails that are approved by an assigned moderator are sent to the members of the group. Once this is configured, an Arbitration email is sent to the configured moderator. If the moderator approves the message it is sent to recipients. If not, the email is not transmitted. This helps to prevent unauthorized use of Distribution Groups.
Practical Applications

Default Exchange Policies in CatNet
The following are settings configured in CatNet’s as dictated by default Exchange policies. They are applied by default to all mailboxes.

Mailbox Quotas
The default mailbox quota is in CatNet is **10GB**.

The following quota related actions are configured by default on user mailboxes:

- Warn: 9800 MB
- Prohibit send: 10000 MB
- Prohibit send/receive: 10200 MB
- Quota messages will be generated once a day at 1:00 AM

Maximum Message Size
The following are the maximum message size settings in CatNet:

- Maximum receive size: **50MB**
- Maximum send size: **50MB**
- Maximum number of recipients: **5000**

E-mail Address Policies
Mailboxes in CatNet are assigned two SMTP addresses. All mailboxes receive an alias of [netid@uaconnect.arizona.edu](mailto:netid@uaconnect.arizona.edu) which is used for routing purposes (the only time this alias will ever be visible to the user is if the Exchange server generates an NDR). In addition to the routing alias all faculty and staff mailboxes have [netid@email.arizonia.edu](mailto:netid@email.arizonia.edu) as the primary SMTP address and all student employees have [netid@catworks.arizona.edu](mailto:netid@catworks.arizona.edu) as the primary SMTP address. The SMTP addresses are assigned to the mailboxes based on email address policies that examine the value of Custom Attribute 1. The following values are programmatically written to Custom Attribute 1 based on EDS data:

- Employee
- Employeeandstudent
- Student-employee
- Student
- Retiree
The following values can be manually written to Custom Attribute 1 in order to take advantage of the default email policies for departmental/service accounts and distribution groups:

- deptacct
- distgroup

**ActiveSync Mailbox Policy**

The following are the default Exchange ActiveSync Mailbox policies for mobile devices:

- Allow non-provisionable devices
- Include all past calendar items and past e-mail items
- Allow Direct Push when roaming
- Allow HTML-formatted e-mail
- Allow attachments to be downloaded to device
- The following are Allowed: removable storage, camera, Wi-Fi, infrared, Internet sharing from device, remote desktop from device, desktop synchronization
- Allow Bluetooth
- Allowed: browser, consumer mail, unsigned applications, unsigned installation packages

**Outlook Web App (OWA) Policy**

OWA mailbox policies determine the features and functionality available to the end user in OWA.

In CatNet, the following are enabled:

- Premium Client
- All Address Lists
- Calendar
- contacts
- Journal
- Junk E-Mail Filtering
- Reminders and Notifications
- Notes
- Exchange ActiveSync Integration
- Search Folders
- E-Mail Signature
- Spelling Checker
- Tasks
- Theme Selection
- Rules
- Public Folders
- S/MIME
- Recover Deleted Items
- Instant Messaging
- Text Messaging
- Direct file access
- WebReady Document Viewing
Custom Address Lists in CatNet

Address lists are a collection of recipient and other Active Directory objects. Each address list can contain one or more types of objects (for example, users, contacts, groups, public folders, conferencing, and other resources). Address lists also provide a mechanism to partition mail-enabled objects in Active Directory for the benefit of specific groups of users.

In CatNet we have created the following custom address lists:

- Faculty and Staff
- Student Employees
- Students

These address lists are being populated using the same custom attribute values that are used to apply email address policies.

It is important to note that the GAL has been customized to exclude student employees. Student employees will only be displayed in the Student Employees address list.

Accepted Domains

Accepted domains are the SMTP namespaces for which Exchange is able to send and receive mail. In CatNet there are four accepted domains currently in use.

The following are the domains and the users they are by default set for:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email.arizona.edu</td>
<td>• Default for faculty/staff and departmental/service accounts</td>
</tr>
<tr>
<td>Catworks.arizona.edu</td>
<td>• Default for student employees</td>
</tr>
<tr>
<td>Distribution.arizona.edu</td>
<td>• Default for distribution groups</td>
</tr>
<tr>
<td>Uaconnect.arizona.edu</td>
<td>• Domain for routing purposes only</td>
</tr>
</tbody>
</table>
Sharing Policy

By default any authenticated user can view another user’s free/busy calendar information.

Based on the configured sharing policy users have the option to share additional calendar information which can include details such as the meeting/appointment subject, location and body. The same sharing policy also permits users to share contacts.

Internet publishing for calendars is also available. Internet calendar publishing provides increased flexibility allowing users a mechanism for sharing their calendar outside of the Exchange organization.

How to Publish a Calendar to the Internet

The user can open their Outlook Web App session and click on Calendar, and then click on Share menu, as shown in Figure 01. The user will have two useful items: Publish This Calendar to Internet and Change Publishing Settings. Click on Publish This Calendar to Internet...

Figure 01

In the new window called, Calendar Publishing – Calendar, we can define a couple of settings to publish the Calendar, as follows:

- **Publishing Detail**
  We can define three different levels: Availability Only, Limited Details (which will show Appointment Subject, Date and time and also location), and Full details (which adds everything that we have in the Limited Details plus description of the appointment).

- **Publish my calendar**
  User can define how many months/weeks/days before and after today that will be published.
  The standard is 3 months.

- **Access Level**
  It will define if the URL created by the wizard will be easily searchable (Public) or hard to guess (Restricted).
After choosing the options click on Start Publishing (Figure 02).

![Calendar Publishing - Windows Internet Explorer](image)

**Figure 02**

The results can be seen in the Figure 03, the only difference is that now we have two URLs one link to subscribe to the calendar (a link to the calendar.ics file that can be consumed by any Calendar application) and the second one is to the Calendar virtual directory created during Service Pack 1 installation/upgrade process. The user can also click on Copy links to the Clipboard... to have both addresses in memory. The Internet Calendar Sharing can be stopped anytime by just clicking on Stop Publishing.
If the mailbox user sends the link to an external user, the external user will be able to see the calendar using the link to view the calendar in a really nice way (Figure 04). Let’s analyze the Calendar view: first it is totally anonymous. It is also HTTP not HTTPS, there is no way to access user mailbox data, it’s just calendar information based on the configuration defined in the previous step.

Let’s also analyze what an Anonymous user that has the link can do:

- Remote user has access to the calendar using Outlook Web App experience
- On the upper left side the name of the user will be displayed, this provides additional confirmation as to whose calendar the remote user is viewing.
- On the upper right side the full time range available to the remote user is displayed; in the figure below the remote user won’t see any data before 11-May-2010 or after 12-November-2010
• Remote user can change the time zone by clicking on Time Zone section and it will change the appointments view to the desired Time Zone on the fly

• Remote user can choose daily, weekly and monthly views of the calendar

• Remote users can click on Subscribe and a file called calendar.ics will be available to download to use in your favorite software.

• Remote users have the ability to print the calendar (day, week or month) just a couple of clicks away

![Outlook WebApp](image)

Figure 04

If the mailbox user goes back to the “Change Publish Settings...” option and makes changes such as reducing the available time range or even configuring the *Publishing detail* to Full Details the changes will be reflected on the Internet view of the Shared Calendar.

If the user selects Restricted Access level a difficult to guess URL will be created; it is the user’s responsibility to share the URL with his personal contacts. If the user wants to stop sharing with a specific external user, the user must stop publishing and start publishing again to create a new URL and then inform only the contacts he wants to share with of the new URL.

The user can go back any time to the Publishing Calendar settings, click on Share and then Change Publishing Settings to manipulate the sharing settings for his calendar. But, if the user simply wants to invite a new external user to view his calendar, he can click on Share and then click on Send links to this calendar... as shown in figure 05.
A new window will be displayed containing an invitation including the links to view and subscribe to the user calendar (Figure 06).
Step-by-step Examples of Common Tasks

Creating Mailboxes

In CatNet you have the ability to create departmental accounts and service accounts.

- Departmental accounts are mailboxes to which multiple users have been delegated access such as send-as or full control. Passwords assigned to departmental accounts should NOT be shared with any of the delegated users; all delegates should access departmental accounts via Outlook or OWA.
- Service accounts are mailboxes that are used in configuring applications that need to send and/or receive email. Like departmental accounts, access to service accounts may be delegated. Passwords assigned to departmental accounts should only be shared with the individual who will be configuring the application. Any delegates should access service accounts via Outlook or OWA.

Via Exchange Management Console

1. In the console tree, click **Recipient Configuration**.
2. In the action pane, click **New Mailbox**.
3. On the **Introduction** page, select **User Mailbox**.

![New Mailbox](image)

4. On the **User Type** page, select **New User** (This will simultaneously create a new user in Active Directory and mail-enable the user; you'll need to provide the required user account information on the User Information page of this wizard)

![User Type](image)

5. Complete the following fields on the **User Information** page:

- **Specify the organizational unit rather than using a default one** You will need to set this to your delegated OU in CatNet. To select a different OU, click **Browse** to open the **Select Organizational Unit** dialog box. This dialog box displays all OUs in the forest that are within the specified scope. Select the desired OU, and then click **OK**.
- **First name** Use this box to type the first name of the user. This field is optional and should be left blank for departmental and service accounts.
- **Initials** Use this box to type the initials of the user. This field is optional and should be left blank for departmental and service accounts.
- **Last name** Use this box to type the last name of the user. This field is optional and should be left blank for departmental and service accounts.
- **Name** Use this box to type a name for the user. This is the name that's listed in Active Directory. By default, this box is populated with the names you enter in the First name, Initials, and Last name boxes. Type in a value beginning with your Department abbreviation an followed by a descriptive name (i.e. UITS SupportDesk). The name can't exceed 64 characters.
- **User logon name (User Principal Name):** To complete this field, copy the value you used in the Name field and concatenate it with a dash (i.e. uits-supportdesk). The suffix is the domain name in which the user account resides and should be left as @catnet.arizona.edu (this is NOT the email address for the account).

- **User logon name (pre-Windows 2000)** Use this box to type the name for the user that is compatible with the legacy versions of Microsoft Windows (prior to the release of Windows 2000 Server). This field is automatically populated based on the **User logon name (User Principal Name)** field. This field is required and limited to 20 characters.

- **Password** Use this box to type the password that the user must use to log on to his or her mailbox.

- **Confirm password** Use this box to confirm the password that you typed in the Password box. This box won't be available if you're creating a room, equipment, or linked mailbox.

- **User must change password at next logon** Select this check box if you want the user to reset the password when they first logon to the mailbox. This option should not be selected for departmental or service accounts.
6. On the **Mailbox Settings** page, you will see the following options:

- **Alias**  This field is automatically populated with the text that you specified in the Name box and does not need to be changed. The alias can’t exceed 64 characters and must be unique in the forest.
- **Specify the mailbox database rather than using a database automatically selected:** You should not select this option. Because all of the mailboxes in CatNet are treated equally it is best to allow Exchange to select the database automatically.
- **Retention policy:** Leave this box un-checked and allow the default retention policy to be applied.
- **Exchange ActiveSync mailbox policy** Leave this box un-checked and allow the default ActiveSync policy to be applied.
- **Address book policy** Leave this box un-checked and allow the default address book policy to be applied.

7. On the **Archive Settings** page, you will see the following options:

- **Don’t create an archive** Click this button if you don’t want to create an archive for the mailbox *(this is selected by default and should not be changed)*
- **Create a local archive** Click this button to create a personal (also known as a local or on-premises archive) for the mailbox.
  If you create a personal archive, mailbox items will be moved automatically from the primary mailbox to the archive, based on the default retention policy settings or those you define. (This is not available in CatNet)
- **Create a remote hosted archive** Click this button to create a cloud-based archive. To create a cloud-based archive, you must first configure Exchange Online Archiving. (This is not available in CatNet)

8. On the **New Mailbox** page, review your configuration settings. To make any configuration changes, click Back. To create the new mailbox, click New.

9. On the **Completion** page, review the following, and then click Finish to close the wizard:
   1. A status of Completed indicates that the wizard completed the task successfully.

**A status of Failed indicates that the task wasn’t completed. If the task fails, review the summary for an explanation, and then click Back to make any configuration changes.**

**Via the Exchange Management Shell**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```
   $password = Read-Host "Enter password" –AsSecureString
   ```
This command creates a variable ($password) that will hold the password information as a secure string to be used in the next command. You will be prompted to enter a value for the password – type it in and press enter.

3. Enter the following command (Make sure the entire command is on one line):

   New-Mailbox -UserPrincipalName uits-test1@catnet.arizona.edu -Alias uits-test1 -Name “UITTS Test1” -OrganizationalUnit "catnet.arizona.edu/Delegation/DelegatedOUs/UITTS/ExchangeTraining/TrainingOU" -Password $password -DisplayName "UITTS Test1"

   This command will create a new mailbox named “UITTS Test1” in the TrainingOU with the password you entered in the previous command. You can modify the values for the –UserPrincipalName, -Name, and –DisplayName parameters to create an account with a different name.

4. Enter the following command (Make sure the entire command is on one line):

   set-Mailbox -Identity uits-test1@catnet.arizona.edu -CustomAttribute1 "deptacct"

   This command will set the CustomAttribute1 value to deptacct which will allow the default email address policy for departmental accounts to be applied. This should only be used if your departmental account should have an @email.arizona.edu address.

**Set Mailbox Permissions**

When you create a new mailbox, Exchange Server uses information from the mailbox store to create the default permissions for the new mailbox. The default folders in the new mailbox inherit permissions from the mailbox itself. Users can modify the permissions on folders in their mailbox using Outlook. Outlook uses MAPI permissions, which Exchange Server automatically converts to Windows Server permissions when it is storing the changes.

OU Admins have the ability to modify mailbox permissions for departmental and service accounts they have created and for NetID accounts they are responsible for supporting. Permissions can be modified via the EMC or the EMS.

**Via Exchange Management Console**

1. In the console tree, navigate to Recipient Configuration > Mailbox.
2. In the result pane, select the mailbox or use the Find option in the Actions pane to search for the mailbox for which you want to grant Full Access permission.
3. In the action pane, under the mailbox name, click Manage Full Access Permission. The Manage Full Access Permission wizard opens.
5. In Select User or Group, select the user to which you want to grant Full Access permission, and then click OK.

6. Click Manage.

7. On the Completion page, the Summary states whether Full Access permission was successfully granted. The summary also displays the Shell command used to grant Full Access permission.

8. Click Finish.

**Via Exchange Management Shell**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```
   Add-MailboxPermission " Anna Nicole" -User " James DeBarge" -AccessRights FullAccess
   ```

   This example grants the user James DeBarge Full Access permission to Anna Nicole's mailbox. In the TrainingNetID OU you will find other users you can practice setting permissions on.

**Set Mailbox Folder Permissions**

End users have the ability to set permissions to individual folders within their mailbox via the Outlook client. OU Admins have also been delegated the ability to set permissions on folders within mailboxes that they either created (departmental or service accounts) or are responsible for supporting. Folder level permissions can only be administratively set via the EMS.

**Via Exchange Management Shell**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```
   Add-MailboxFolderPermission -Identity "trn-annnicole:calendar" -User "trn-sherlinejoans" -AccessRights Owner
   ```

   This example grants the user Sherline Joans Owner rights to Anna Nicole's calendar.

   ```
   Set-MailboxFolderPermission -Identity "trn-annnicole:calendar" -User "trn-sherlinejoans" -AccessRights Reviewer
   ```

   This example changes Sherline Joans' rights on Anna Nicole’s calendar to Reviewer.

   ```
   Remove-MailboxFolderPermission -Identity "trn-annnicole:calendar" -User "trn-sherlinejoans"
   ```

   This example removes Sherline Joans' rights on Anna Nicole’s calendar.
**Set Send-as Access to a mailbox**

Send-as permissions allow users other than the mailbox owner to send messages that appear as if they were sent by the mailbox owner. This is useful when working with departmental accounts and it can also be useful for admin assistants who directly manage another user’s mailbox. Send-as permissions can be set via both the EMC and the EMS.

**Via Exchange Management Console**

1. In the console tree, click **Recipient Configuration**.
2. In the result pane, select a recipient. You can manage Send As permission for the following recipient types:
   - Discovery mailboxes
   - User mailboxes
   - Resource mailboxes
3. In the action pane, click **Manage Send As Permission**.
4. On the **Manage Send As Permission** page, select the users or groups to which you want to grant the Send As permission or from which you want to remove the permission.
   - **Add**  Click this button to open the **Select User or Group** dialog box. Use this dialog box to select the users or groups to which you want to grant the Send As permission.
   - Select a user or group, and then click this button to remove the Send As permission from that user or group.
5. On the **Completion** page, review the following, and then click **Finish** to close the wizard:
   - A status of **Completed** indicates that the wizard completed the task successfully.
   - A status of **Failed** indicates that the task wasn’t completed. If the task fails, review the summary for an explanation, and then click **Back** to make any configuration changes.
6. Click **Finish** close the wizard.

**Via Exchange Management Shell**

Use the **Add-ADPermission** cmdlet to manage Send As permissions for a mailbox. When you use the **Add-ADPermission** cmdlet, you must specify the name of the mailbox on which the Send As permission should be added and the mailbox that should be granted the permission. Because the **Add-ADPermission** cmdlet controls many permissions, you must also specify the Send As permission with the **ExtendedRights** parameter.

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```powershell
   Add-ADPermission "Rachel Norton" -User "catnet\trn-samanthakenwald" -ExtendedRights "Send As"
   ```

   This command will allow the user Samantha Kenwald to send as the user Rachel Norton. Note that this command will only accept the DisplayName value when specifying the mailbox on which send-as rights will be added.
Set Send on Behalf of Access to a Mailbox

Send on behalf of access is similar to send-as access in that it permits users to send messages from a mailbox for which they are not the owner. However, when a user sends a message using send on behalf of rights the recipient of the message will clearly see that the message was sent from one user on behalf of another user. The end user can use delegation options within Outlook to configure send on behalf of rights, or an administrator can use either EMC or EMS to configure a user to send on behalf of another user.

Via Exchange Management Console

1. Open the EMC and go to Recipient Management, select the mailbox you want to set permissions on or use the Find option in the action pane to find the mailbox.
2. Right click on the mailbox and choose Properties
3. Go to the Mail Flow Settings Tab and choose Delivery Options and click properties.
4. Click the Add button
5. Select the user(s) you wish to grant access to and click Ok
6. Click Ok twice more to complete the change and close the properties dialog.

Via Exchange Management Shell

3. Open the Exchange Management Shell
4. Enter the following command (Make sure the entire command is on one line):

   `Set-Mailbox "trn-JasonShay" -GrantSendOnBehalfTo "trn-JennaGreen"`

   This command will allow Jenna Green to send on behalf of Jason Shay.

Rename Existing Accounts

Changing business needs in a dynamic environment can make it necessary to rename an account to better reflect current operations. OU Admins have the ability to rename the departmental or service accounts they have created.

Via Exchange Management Console

1. In the console tree, navigate to Recipient Configuration > Mailbox.
2. In the result pane, select the mailbox or use the Find option in the Actions pane to search for the mailbox you want to rename
3. On the General tab you will need to change the display name and the Alias
1. On the **User Information** tab you may need to change the name in the following fields:
   - First Name:
   - Last Name:
   - Name:

   - **First name:**
     - John
   - **Last name:**
     - Doe
   - **Name:**
     - John Doe

   Simple display name:

   Web page:

   Notes:
2. On the Account tab you will need to change the User logon name for both the UPN and pre-Windows 2000 boxes

![User logon name](image)

3. After the name has been changed in all the appropriate fields you can hit apply and the e-mail address policy should pick up the new Alias and modify the default smtp address

![E-Mail Addresses](image)

4. You will still have the old SMTP address and can leave it on the account for whatever period of time is deemed necessary before removing it
E-mail to the previous address will continue to come into the renamed account until the old SMTP Address is removed.

**Via Exchange Management Shell**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```
   set-Mailbox -Identity uits-test1@catnet.arizona.edu -Alias uits-dev1 -Name "UITS Dev1" -UserPrincipalName "uits-dev1@catnet.arizona.edu" -DisplayName "UITS Dev1"
   ```

   This command will rename the UITS Test1 account to UITS Dev1. As long as an email address policy is applied to the account the email addresses will be automatically updated to include aliases with the new name (the aliases with the old name will still be on the account).

**Remove an Existing Account**

If a mailbox is no longer in use, it should be removed from Exchange in order to make best use of the storage resources available. You can remove an existing user’s mailbox only, leaving the Active Directory account or delete both the Active Directory account and mailbox. OU Admins have been delegated the ability to do both for departmental or service accounts they have created.

**Remove mailbox via Exchange Management Console**

The following will remove the Exchange mailbox leaving the Active Directory account intact:

1. In the EMC navigate to Mailbox under Recipient Configuration
2. Right-click on the account and select Disable
3. Click yes on the dialog box telling you that the Exchange mailbox will be removed from the Active Directory account and marked for deletion.

![Enable](image)

Disabling the mailbox will remove the Exchange properties from the Windows user object and mark the mailbox in the database for removal. Are you sure you want to disable Document Test User?

Yes  No

4. The mailbox is now removed from the Active Directory account.

**Remove mailbox via Exchange Management Shell**

1. Open the EMS and type the following command:

```
Disable-Mailbox -Identity catnet\uits-dev1
```

Type y at the prompt if you are sure.

This command will remove all Exchange attributes from the account UITS Dev1 and mark the mailbox for deletion. It will leave the Active Directory account intact.

**Remove Exchange mailbox and delete the Active Directory account via Exchange Management Console**

1. In the EMC navigate to Mailbox under Recipient Configuration.
2. Right-click on the account and select Remove.
3. Click Yes on the dialog box telling you that the Active Directory account will be removed and the Exchange mailbox deleted.

![Remove Dialog Box]

Removing the mailbox will remove the Windows user object and mark the mailbox in the database for removal. Are you sure you want to remove 'Document Test User'?

![Yes and No Buttons]

4. The Exchange mailbox and Active Directory accounts are now removed.

*Remove Exchange mailbox and delete the Active Directory account via Exchange Management Shell*

1. Open the EMS and type the following command:

```
Remove-Mailbox -Identity catnet\uits-dev1
```

Type `y` at the prompt if you are sure.

This command will remove all Exchange attributes from the account UITS Dev1, mark the mailbox for deletion and remove the Active Directory account.

*Create Room Resources and Equipment Resources*

A room mailbox is a resource mailbox assigned to a meeting location, such as a conference room, auditorium, or training room. An equipment mailbox is a resource mailbox assigned to a resource that’s not location specific, such as a portable computer, projector, microphone, or a company car. You can use the Exchange Management Console (EMC) and the Exchange Management Shell to create a room or equipment mailbox.

*Via Exchange Management Console*

1. Right-click on Mailbox under the Recipient Configuration in the EMC and select New Mailbox.

![Exchange Management Console]

Modify the Maximum Number of Recipients to Display...

New Mailbox...

Export List...

View

Refresh

Help
2. Select Room Mailbox or Equipment Mailbox and click Next

- **Room Mailbox**
  The room mailbox is for room scheduling and is not owned by a user. The user account associated with resource mailbox will be disabled.

- **Equipment Mailbox**
  The equipment mailbox is for equipment scheduling and is not owned by a user. The user account associated with the resource mailbox will be disabled.

3. On the Mailbox Information page, complete the following fields:
   - **Specify the organizational unit rather than using a default one**: You will need to set this to your delegated OU in CatNet. To select a different OU, click **Browse** to open the **Select Organizational Unit** dialog box. This dialog box displays all OUs in the forest that are within the specified scope. Select the desired OU, and then click **OK**.
   - **First name, Initials, and Last name**: Because this mailbox will be used as a resource, it isn't necessary to complete these fields.
   - **Name**: Use this box to type a name for the user. This is the name that's listed in Active Directory. By default, this box is populated with the names you enter in the First name, Initials, and Last name boxes. Type in a value beginning with your Department abbreviation an followed by a descriptive name (i.e. UITS Room 555). The name can't exceed 64 characters
   - **User logon name (User Principal Name)**: To complete this field, copy the value you used in the Name field and concatenate it with a dash (i.e. uits-room-555). The suffix is the domain name in which the user account resides and should be left as @catnet.arizona.edu (this is NOT the email address for the account).
   - **User logon name (pre-Windows 2000)** Use this box to type the name for the user that is compatible with the legacy versions of Microsoft Windows (prior to the release of Windows 2000 Server). This field is automatically populated based on the **User logon name (User Principal Name)** field. This field is required and limited to 20 characters.
   - **Password/ Confirm password** A password is not required for resource mailboxes.
4. On the Mailbox Settings page, complete the following fields:

- **Alias**  The alias will be populated with the value from the Name field on the previous screen by default. The alias can't exceed 64 characters and must be unique in the forest.

- **Specify the mailbox database rather than using a database automatically selected**: You should not select this option. Because all of the mailboxes in CatNet are treated equally it is best to allow Exchange to select the database automatically.

- **Retention policy**: Leave this box un-checked and allow the default retention policy to be applied.

- **Exchange ActiveSync mailbox policy**  Leave this box un-checked and allow the default ActiveSync policy to be applied.

- **Address book policy**  Leave this box un-checked and allow the default address book policy to be applied.

- **Exchange ActiveSync mailbox** Leave this box un-checked and allow the default activesync policy to be applied.
5. On the New Mailbox page, review your configuration settings. To make any configuration changes, click Back. To create the mailbox, click New.

6. On the Completion page, review the following, and then click Finish to close the wizard:
   - A status of Completed indicates that the wizard completed the task successfully.
   - A status of Failed indicates that the task wasn’t completed. If the task fails, review the summary for an explanation, and then click Back to make any configuration changes.
Via Exchange Management Shell

To create a Room Mailbox:

```bash
new-mailbox -alias "UITS-Room-555" -Name "UITS-Room-555" -OrganizationalUnit "catnet.arizona.edu/Delegation/Delegated OUs/UITS/ExchangeTraining/TrainingOU" -UserPrincipalName "UITS-Room-555@catnet.arizona.edu" -room -ResourceCapacity 10
```

To create an Equipment Mailbox

```bash
new-mailbox -alias "UITS-ConfPhone1" -Name "UITS-ConfPhone1" -OrganizationalUnit "catnet.arizona.edu/Delegation/Delegated OUs/UITS/ExchangeTraining/TrainingOU" -UserPrincipalName "UITS-ConfPhone1@catnet.arizona.edu" -equipment
```

Resource Mailbox Properties

There are a number of settings that are configurable for resource mailboxes. The settings can be modified via either the EMC or the EMS.

Via Exchange Management Console

Here is a brief description of the different settings you can configure on the properties tabs of a resource mailbox

- **Resource General** - This tab allows you to configure resource custom properties as well as the resource capacity value. Additionally, it is on this tab that you configure whether you enable the Resource Booking Attendant for this mailbox or not.
• **Resource Policy** - The Resource Policy tab allows you to configure specific policies that apply to the resource mailbox, such as whether repeating meetings can be booked and the maximum duration of a meeting. Additionally, you can configure resource mailbox delegates from this tab.

<table>
<thead>
<tr>
<th>Mailbox Features</th>
<th>Resource General</th>
<th>Resource Policy</th>
<th>Resource Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifying when the resource mailbox can be scheduled:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Allow canceling meeting requests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Allow repeating meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Allow scheduling only during working hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Reject repeating meetings that have an end date beyond the booking window</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Booking window (days):</td>
<td></td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>Maximum duration (minutes):</td>
<td></td>
<td>1440</td>
<td></td>
</tr>
<tr>
<td>Maximum conflict instances:</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Conflict percentage allowed:</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Specify delegates of this mailbox:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ Add...</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Organizational Unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward meeting requests to delegates</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• **Resource Information** - This tab controls the meeting information that is available in the resource mailbox’s calendar, such as attachments, comments, subject and so on. It also allows for the configuration of additional text sent to the meeting organizer.
- **Resource In-Policy Requests** - Here you can configure those users who are allowed to submit in-policy meeting requests, which can be either automatically approved or approved by a resource mailbox delegate.

  

- **Resource Out-of-Policy Requests** - This tab allows you to configure those users who are allowed to submit out-of-policy meeting requests which need to be approved by a resource mailbox delegate.
Via Exchange Management Shell

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   ```powershell
   Set-CalendarProcessing -Identity "UITS-Room-555" -AutomateProcessing AutoAccept -
   DeleteComments $true -AddOrganizerToSubject $true -AllowConflicts $false -
   AllowRecurringMeetings $true -BookingWindowInDays 1080 -DeleteNonCalendarItems $true -
   TentativePendingApproval $true
   ```

   This command will set the calendar for the room named “UITS-Room-555” to auto-accept invitations, to remove all details in the body of the invitation, add the meeting organizer to the subject line of the meeting, to disallow conflicting appointments, to allow recurring meetings, to allow the resource to be reserved for up to 1080 days in the future, to delete all non-calendar items from the resource mailbox and to mark pending items as tentative on the calendar.

   ```powershell
   Set-CalendarProcessing -Identity "UITS-Room-555" -ResourceDelegates "UITS-Group1"
   ```

   This command will set all members of the group “UITS-Group1” as delegates for the room “UITS-Room-555”

   ```powershell
   Set-CalendarProcessing -Identity "UITS-Room-555" -ResourceDelegates "trn-Robertlowry"
   ```

   This command will set the user Robert Lowry as the only delegate for the room “UITS-Room-555”

   ```powershell
   Add-MailboxFolderPermission 'UITS-Room-555:\non_ipm_subtree\freebusy data' -User trn-Robertlowry -AccessRights PublishingEditor
   ```

   This command provides Robert Lowry with sufficient rights to access and modify the free/busy data for the room “UITS-Room-555”

Creating Distribution Groups

Distribution groups can be created in either the EMC or EMS, however, it is recommended that they be created in the EMS as this method is generally quicker. Techniques for creating Standard and Dynamic groups in EMC and EMS are below:

Creating Standard Distribution Groups in EMC

1. Open EMC and navigate to Recipient Configuration\Distribution Group
2. Click “New Distribution Group”
3. Select New Group and click Next
4. Select Distribution Group
5. Put a Check mark next to Specify and Organization Unit rather than using a default one and click browse.
6. Select the Departmental OU this Group should be placed in, then click OK
7. Enter a Name for the group under Name, this should be in the format <dept>-<group> (i.e. UITS-Testing)
8. Name (Pre-Windows 2000) should auto populate.
9. Enter the Name again under Alias and click Next.
10. Ensure that all the fields are properly filled out as shown below

11. Click Next, then New. This will create the Distribution Group.
12. Once the group is created, select it in the list of Distribution groups, right click it, then select Properties.
13. Click the Custom Attributes Button.
14. Enter “distgroup” without quotes into the field labeled Custom Attribute 1 and hit OK, then Apply.
15. Click the Email Addresses tab and select any Email Addresses other than groupname@distribution.arizona.edu and click the red X button to remove them. Then hit OK
16. Once the group is created, users can be added on the Members tab of the Group Properties
Creating Standard Distribution Groups in EMS

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):
   
   ```
   New-distributiongroup “UITS-Group1” –organizationalunit "catnet.arizona.edu/Delegation/Delegated OUs/UITS/ExchangeTraining/TrainingOU" -primarysmtpaddress uits-group1@distribution.arizona.edu
   ```
3. Once the command has completed, enter the following command to set the Custom Attribute:
   
   ```
   Set-distributiongroup UITS-Group1 –customattribute1 ‘distgroup’
   ```
4. Users can be added to the group in EMS using the following command
   
   ```
   add-distributiongroupmember UITS-Group1 –member trn-jasondaniels, trn-kennywald, trn-lesyaannson
   ```

Creating Dynamic Distribution Groups in EMC

Dynamic Distribution Groups can be created in both the EMC and EMS, however, EMS allows much greater flexibility when building conditions for dynamic groups. EMC only allows the use of OUs, Custom Attributes, State, Department, or Company for limiting membership. To create a Dynamic Distribution Group in EMC, do the following:

1. Open EMC and navigate to Recipient Configuration\Distribution Group
2. Click “New Dynamic Distribution Group”
3. Put a Check next to “Specify the Organization unit rather than using a default one” then click browse and select the departmental OU
4. Enter the group name under Name and Alias in the format <dept>-<group> (i.e. UITS-Group1) and click Next
5. If the users that should belong to the group are in a single OU, click Browse to select the OU where the users are located.
6. Select All Recipient Types, then click Next
7. The Conditions screen allows you to set specific conditions that determine the members of the group if they are not all grouped by OU. In order for the Conditional Group Member system to work, the users must have the attributes selected as part of their user account. For instance, if the group will hold all members with a Custom Attribute of User, all users that are to belong to the group should have the Custom Attribute setting on their mailbox set to equal User.
8. Select the Appropriate Condition, enter a value for the condition that meets your requirements, and click Next, then click New.
9. Once the group is created, select it in the list of Distribution groups, right click it, then select Properties.
10. Click the Custom Attributes Button.
11. Enter “distgroup” without quotes into the field labeled Custom Attribute 1 and hit OK, then Apply.
12. Click the Email Addresses tab and select any Email Addresses other than groupname@distribution.arizona.edu and click the red X button to remove them. Then hit OK.
13. Once the group is created, you can view the resulting group membership by going to the Conditions tab of the group’s properties and clicking Preview.

Creating Dynamic Distribution Groups in EMS

Creation of Dynamic Distribution Groups in EMS is significantly more complex than creating them in EMC, but is much more flexible since any Active Directory Attribute can be used as a part of the filter to limit the users in the group. For instance, you can create a Distribution Group that only includes users that have the First Name of Sam. This is referred to as Recipient Filtering. Because of the complexity of this topic, this guide will not cover it, but will focus instead on using the EMS to create a dynamic group that uses an OU or Custom Attribute to limit membership. It is possible to learn more about using recipient filtering here: http://technet.microsoft.com/en-us/library/bb124268.aspx

1. Open the EMS and enter the following Command to create a Dynamic Distribution Group (All commands should be entered on the same line):

To limit Membership with an OU:

```
New-dynamicdistributiongroup UITS-DynGroup1 –includedrecipients allrecipients –organizationalunit "catnet.arizona.edu/Delegation/Delegated OUs/UIITS/ExchangeTraining/TrainingOU" –recipientcontainer "catnet.arizona.edu/Delegation/Delegated OUs/UIITS/ExchangeTraining/TrainingNetID" –primarysmtpaddress UITS-DynGroup1@distribution.arizona.edu
```

To limit Membership with a Custom Attribute:

```
New-dynamicdistributiongroup UITS-DynGroup2 –includedrecipients allrecipients –organizationalunit "catnet.arizona.edu/Delegation/Delegated OUs/UIITS/ExchangeTraining/TrainingOU" -conditionalcustomattribute1 ‘deptacct’ –primarysmtpaddress UITS-DynGroup2@distribution.arizona.edu
```

2. Once the group is created, run the following command to add the necessary custom Attribute to it:

```
Set-distributiongroup UITS-DynGroup2 –customattribute1 ‘distgroup’
```
Remove Distribution Groups

Via Exchange Management Console

1. In the console tree, navigate to Recipient Configuration > Distribution Group.
2. In the result pane, select the distribution group that you want to remove.
3. In the action pane, under the name of the distribution group, click Remove.
4. A warning appears confirming that you want to remove the distribution group. Click Yes.

Via Exchange Management Shell

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   Remove-DistributionGroup -Identity "UITS-Group1"

   This example removes the distribution group UITS-Group1.

Creating Contacts

Contacts essentially provide a pointer to an external email address. Contacts are the only way you can include external email addresses in an Exchange distribution group. OU Admins are free to create contact objects within their OU, however, it is required that all contact objects created in CatNet be hidden from Exchange address lists.

Via Exchange Management Console

1. In the console tree, click Recipient Configuration.
2. In the action pane, click **New Mail Contact**.

   ![Exchange Management Console](image)

   - On the **Introduction** page, under **Create a mail contact for**, select **New contact**

3. Complete the following fields on the **Contact Information** page:
   - **Specify the organizational unit rather than using a default one**: You will need to set this to your delegated OU in CatNet. To select a different OU, click **Browse** to open the **Select Organizational Unit** dialog box. This dialog box displays all OUs in the forest that are within the specified scope. Select the desired OU, and then click **OK**.
   - **First name**  Use this box to type the contact’s first name. This field is optional.
   - **Initials**  Use this box to type the contact’s initials. This field is optional.
   - **Last name**  Use this box to type the contact’s last name. This field is optional.
   - **Name**  Use this box to type a name for the contact. This is the name that’s listed in Active Directory. By default, this box is populated with the names you enter in the **First name**, **Initials**, and **Last name** boxes. If you didn’t use those boxes, you must still type a name in this field. The name can’t exceed 64 characters.
• **Alias**  Use this box to type a unique alias (64 characters or less) for the contact. This field is required.

• **External e-mail address**  To specify the external e-mail address, perform one of the following tasks:
  To specify a SMTP e-mail address, click **Edit**. In the **SMTP address** dialog box, type the SMTP e-mail address.
  To specify a custom e-mail address, click the arrow next to **Edit**, and then click **Custom Address**. In the **Custom Address** dialog box, use the **E-mail address** box to type the e-mail address and the **E-mail type** box to specify the e-mail type. For example, you can specify an X.400, GroupWise, or Lotus Notes address.

4. On the **New Mail Contact** page, review your configuration settings. To make changes, click **Back**. To create the new mail contact, click **New**. Click **Cancel** to close the wizard without creating the new mail contact.

5. On the **Completion** page, review the following, and then click **Finish** to close the wizard:
   • A status of **Completed** indicates that the wizard completed the task successfully.
   • A status of **Failed** indicates that the task wasn’t completed. If the task fails, review the summary for an explanation, and then click **Back** to make any configuration changes.

6. Click **Finish** to close the wizard.

7. Find the contact you just created, right click on it and choose properties.

8. On the General tab check the box to “Hide from Exchange address lists”

9. Click **OK**.

**Via Exchange Management Shell**

1. Open the Exchange Management Shell

2. Enter the following command (Make sure the entire command is on one line):
New-MailContact -Name "Ted Bremer" -ExternalEmailAddress ted@tailspintoy.com -OrganizationalUnit "catnet.arizona.edu/Delegation/DelegatedOUs/UIITS/ExchangeTraining/TrainingOU"

This command creates a mail contact for Ted Bremer.

Set-MailContact -identity "Ted Bremer" -HiddenFromAddressListsEnabled $true

This command hides Ted Bremer’s contact object from Exchange address lists.

**Advanced PowerShell Examples**

In the previous step by step examples you had the opportunity to practice basic Exchange PowerShell commands. The basic commands allow you granular control over creation, manipulation and deletion of individual Exchange objects. More advanced PowerShell commands will allow you to administer objects based on output from other commands, search criteria, and file content among other things. This section provides some examples of more advanced PowerShell commands.

**Bulk Hide Contacts**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   Get-MailContact -OrganizationalUnit "catnet.arizona.edu/Delegation/DelegatedOUs/UIITS/ExchangeTraining/TrainingOU" | Set-MailContact -HiddenFromAddressListsEnabled $true

   This command finds all of the contacts in the TrainingOU then hides them from the Exchange address lists.

**Bulk Set Custom Attribute**

1. Open the Exchange Management Shell
2. Enter the following command (Make sure the entire command is on one line):

   Get-DistributionGroup -OrganizationalUnit "catnet.arizona.edu/Delegation/DelegatedOUs/UIITS/ExchangeTraining/TrainingOU" -filter {alias -like 'UIITS-*'} | Set-DistributionGroup -customattribute1 'distgroup'

   This example searches the TrainingOU for all distribution groups that begin with “UIITS-“ then sends the results of the search to another command which sets the custom attribute 1 value to “distgroup”. This will enable you to quickly configure your distribution groups to get the default email address policy for distribution groups.
Bulk Create Room Accounts

1. Create a CSV file in the root of c: \ with the following column format: Dept, No, Capacity, Phone
2. Enter several rows of data in the CSV where Dept=department abbreviation, No=room number, Capacity=total number of people the room can hold, Phone=phone number for the room.
3. Open the Exchange Management Shell
4. Enter the following command (Make sure the entire command is on one line):

   ```powershell
   import-csv c:\rooms.csv | foreach {new-mailbox -alias "$(($_.Dept)-Room-$($_.No))" -Name "$(($_.Dept)-Room-$($_.No))" -OrganizationalUnit "catnet.arizona.edu/Delegation/DelegatedOUs/UIITS/ExchangeTraining/TrainingOU" -UserPrincipalName "$(($_.Dept)-room-$($_.No))@catnet.arizona.edu" -room -ResourceCapacity $_.Capacity -phone $_.Phone}
   ```

   This command imports the data from the CSV file you created and sends it to a command that will create a new room resource in the TrainingOU for each line in the CSV. It will set all the required parameters for the room resources as well as populating the optional capacity and phone number attributes for each room.

Bulk Configure Calendar Processing

1. You can use the same CSV created for “Bulk Create Room Accounts, or create a new one that contains the column format: Dept, No
2. Open the Exchange Management Shell
3. Enter the following command (Make sure the entire command is on one line):

   ```powershell
   import-csv c:\rooms.csv | foreach {Set-CalendarProcessing -Identity "$(($_.Dept)-Room-$($_.No))" -AutomateProcessing AutoAccept -DeleteComments $true -AddOrganizerToSubject $true -AllowConflicts $false -AllowRecurringMeetings $true -BookingWindowInDays 0 -DeleteNonCalendarItems $true -TentativePendingApproval $true}
   ```

   This command imports the data from the CSV file you created and attempts to set calendar processing parameters for the rooms on each line of the CSV file. This command can be used if you have standard calendar processing requirements you’d like to set for a large number of rooms.