Intro to Users and Groups - Anthony Adams

Module 4

Module Objectives

- Understand authentication methods
- Understand the terms domain, tree and forest
- Know the advantages of single sign-on and different ways to logon
- Understand group account types and scopes
- Become familiar with commonly used default users and groups
- Understand the function of special identity groups

Activity - Prepare the environment

1. Boot the computer at your seat – this is your ***local*** *host*
2. Login
3. Navigate to ***D:\Courses\COMP-10041***
4. Open the folder ***AcmeCoreDC2019***
5. Double Click on ***AcmeCoreDC2019.vbox*** *(the blue icon)* to open your domain controller
6. Open the folder ***Client10-PC.vbox***
7. Double Click on ***Client10-PC.vbox*** *(the blue icon)* to open your client machine
8. Start the ***AcmeCoreDC2019***, and then start the

Client10-PC

9. Login to the workstation as ***Anthony.Green@acme*** using the password ***AdminP@ss*** Anthony Green is the Domain Administrator

•**Perform this procedure immediately at the start of every class unless told otherwise**

User Accounts

User accounts are needed to authenticate users, which in turn allows the user to:
-Log on to the network
-Access network resources

You CAN log on with a user account
You CANNOT log on using a group account

Group accounts

Group accounts can ease administration and management of multiple users

Typically, multiple users need the same access to various network resources so managing can be done more efficiently by the following procedure:

1 Make multiple users members of a group
2 assign resource access to the group

Modifying group access immediately impacts all group members

Two types of user accounts

Windows server supports 2 types of user accounts:

1 Domain user accounts:
- Accounts created and maintained in Active Directory

2 Local user accounts:
- Accounts created and maintained on a local computer in SAM

User Authentication

In a Windows server domain, authentication is a 2 part process:

1 interactive logon

2 network authentication

Authentication: Interactive Logon

The first authentication stage happens at logon
-Press CTRL,ALT,DEL then enter username and password

System verifies the user by username and password BEFORE being allowed to log on

If user specifies logon to the local computer then a local username and password must be used which gives access only to this local computer

If user specifies logon to the domain then a domain user account and password must be used which give access to network resources

Interactive Logon VS Non-Interactive Logon

Interactive Logon

When you are sitting at the keyboard of the computer you are logging in on

Non-Interactive Logon

When you connect to a network resource and are authenticated across the network

Authentication: Network Authentication

Successful interactive logon gets the user “in the door” but this process doesn’t provide any access to network resources

Network authentication (second part of authentication process) is used to determine whether the user has permission to access a given network resource

Network authentication process happens automatically whenever the user tries to access network resources
– User is NOT asked for a username and password

Single Sign-on

Single Sign-on is a feature that allows the user to enter an appropriate domain username and password once (at logon) then the following occurs:
– User is logged onto the network
– User automatically allowed to access various network resources without having to provide a username and password again during that logon session
• Access success is subject to the user having appropriate permissions to access the resource
• Access is also subject to the Windows Firewall settings
  – Start Menu Screen
  – Search for Windows Firewall with Advanced

Security

- Windows Firewall Properties
- Inbound connections Block

Activity: Confirming the Single Sign-on Feature

Here we will confirm that if logged on with a domain account, you can access network resources without having to re-enter a domain username and password

From the Windows 10 Virtual Machine:

1. If necessary, logon to acme.com with the domain Administrator account
   - Antony.Green@Acme
2. Open Computer Management
3. Connect to acmeserver (i.e. domain controller)

• Notice you didn't have to provide a domain username and password

4. Log off and then log back on to the local computer with the local administrator user account

– Client10-PC\Tony
– password: P@ssw0rd

5. Open Computer Management and attempt to connect to the domain controller (i.e. acmeserver)
6. At first this seems to work but try to open Event Viewer

– System Tools\Event Viewer
– You will get an Access denied message

7. Close the Computer Management console

Logon Names

All user accounts are associated with a logon name which has two parts:

1. User name
2. Domain

Logon Name Formats

You can combine these two when logging on using one of two formats:

1. username@domain
   – E.g. tony.green@acme
   – This works only for domain accounts, not local accounts

2. domain\username
   – E.g. acme\tony.green
   – This format is referred to as the Pre-Windows 2000 logon name and follows the logon name format used in Windows NT domains

Activity: Logging On Using the Logon Name Format

1. Log off, select Switch User and then Other User
2. Log on using Anthony.Green@acme (caps are optional)

• Note that as soon as the @ is pressed, the Log on to: field changes from the local computer name to

the acme domain name
- You cannot log on to a local account with this method

– acmeclient@client10-pc does not work

3. Log off
4. Log on using acme\Anthony.green (caps are optional)

- Note that as soon as the \ is pressed, the Log on to: field changes from the last domain used to the acme domain name
- You can log on to a local account with this method

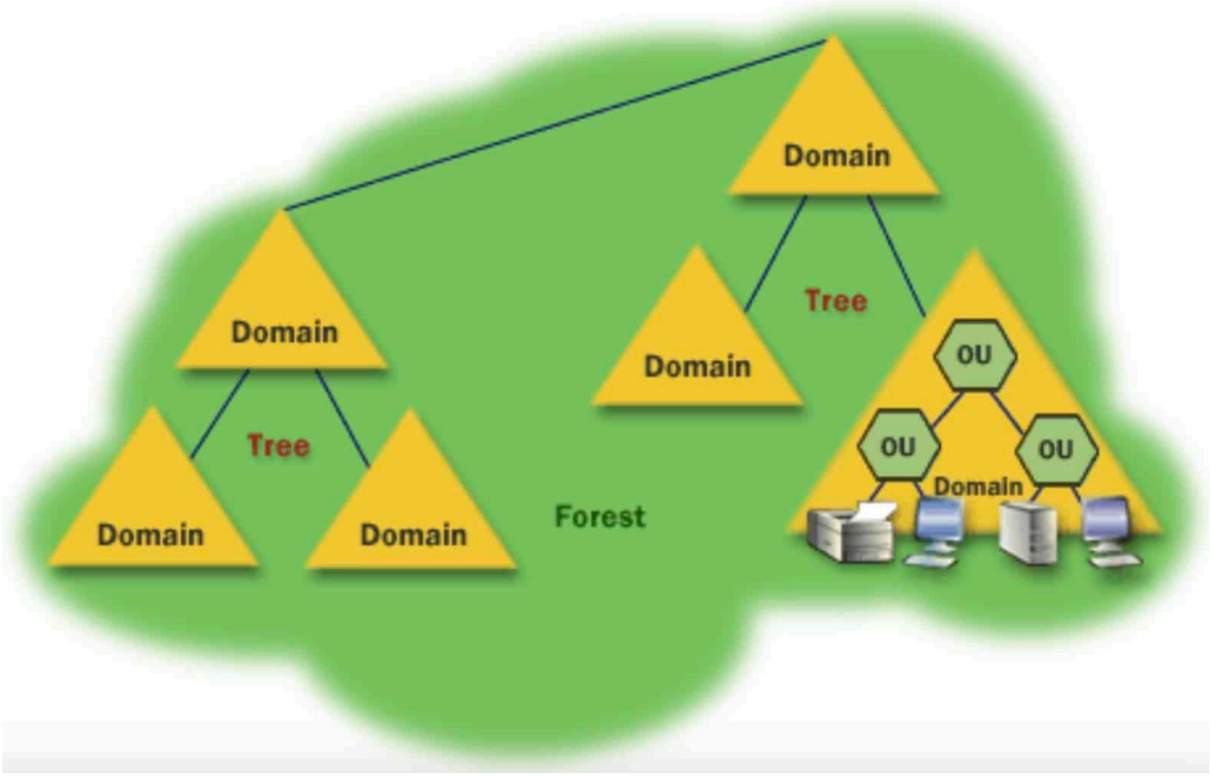
– client10-pc\tony does work

Domains, Trees, Forests

Domain / Tree / Forest Analogies

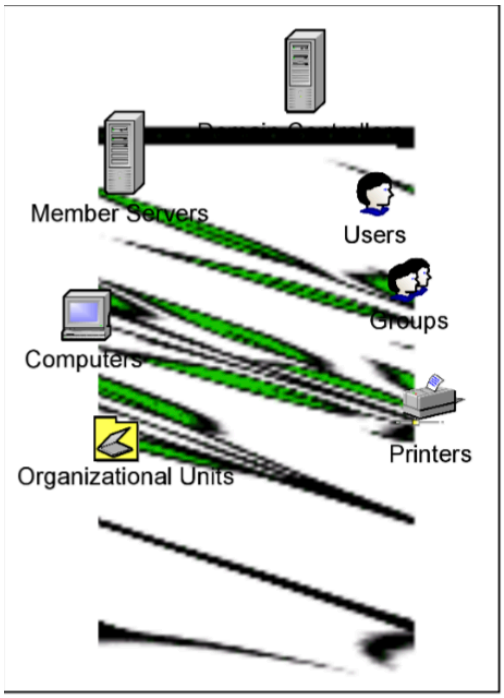
- Microsoft uses the terms domain, tree and forest when describing the organization of network resources
- These terms will be used in this module when discussing group membership
- The next series of slides provide analogies between these terms and real trees and forests in an attempt to make these terms easier to understand

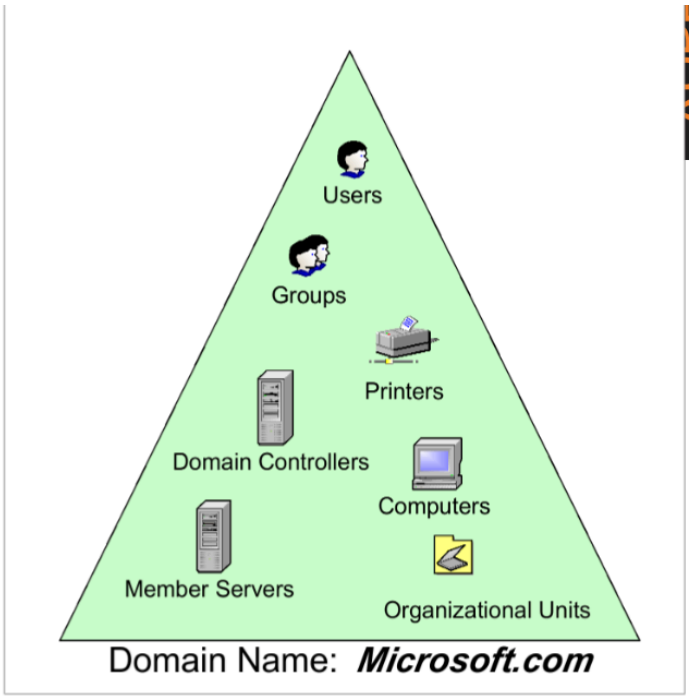
Domain Analogy



Domain Analogy

Consider a domain to be like a sapling (i.e. a young tree) and each leaf represents a unique AD object

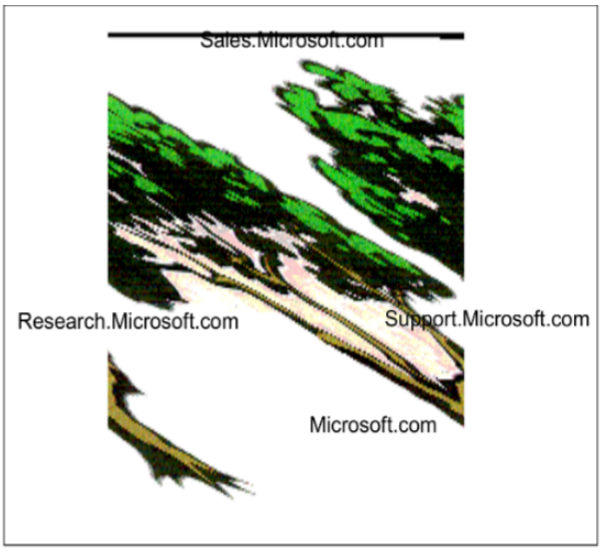


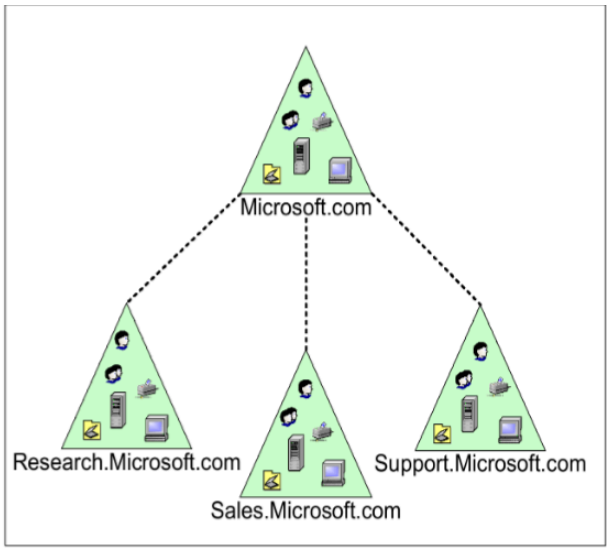


Typical Domain Tree

As a sapling grows into a mature tree, new main branches develop

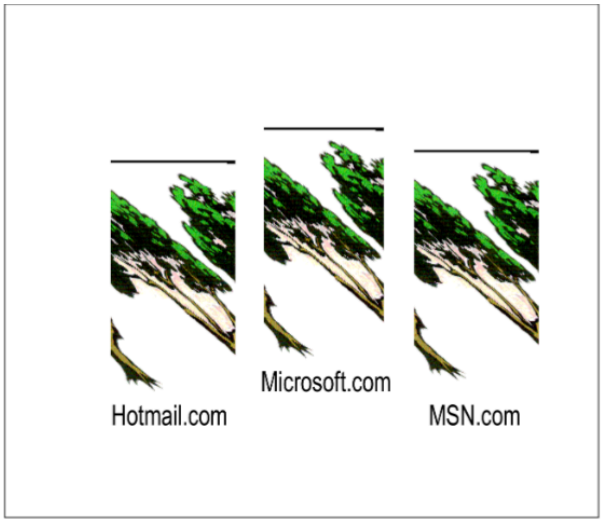
Similarly, as a company's network grows, other domains may be added Typical Forest

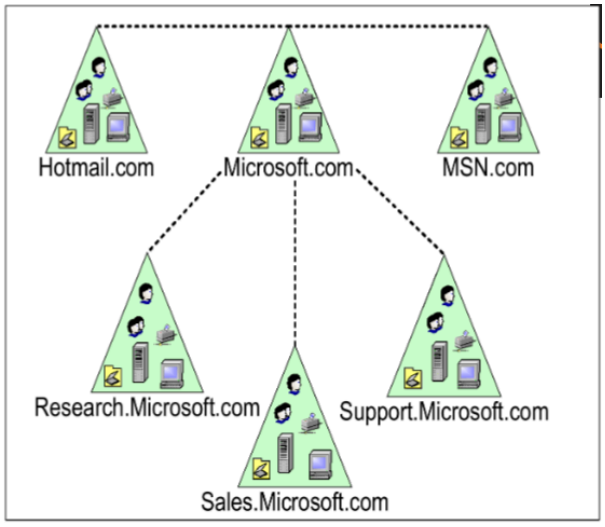




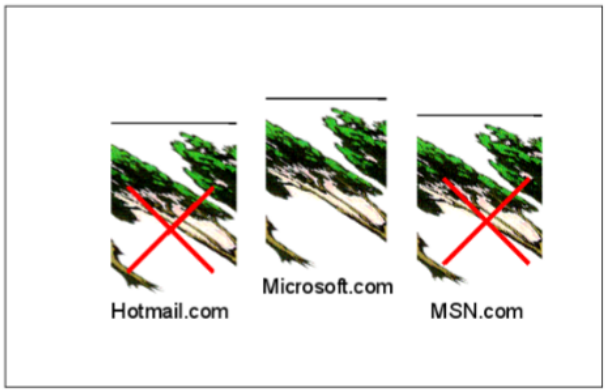
Typical Forest

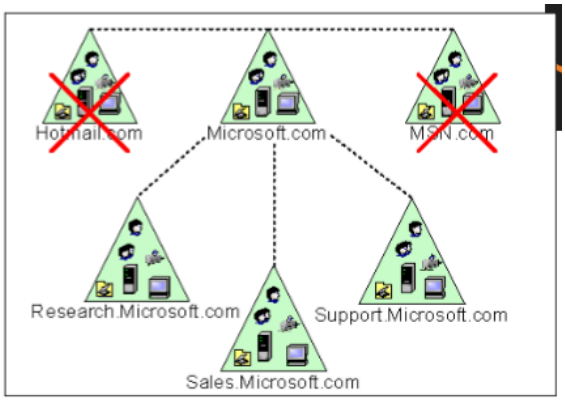
Just as a real forest is made up of a collection of trees, a Microsoft Server forest is typically made up of several Microsoft Server trees

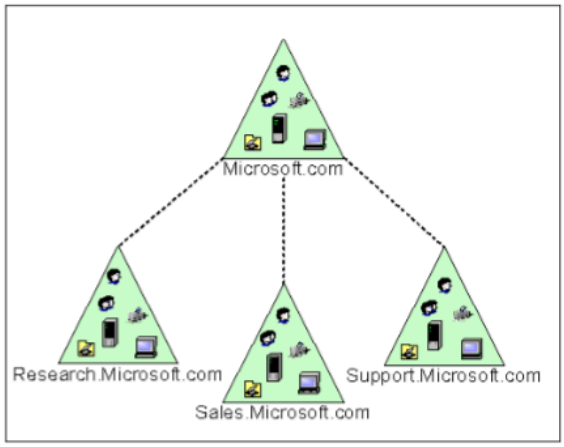




A Forest of One Tree





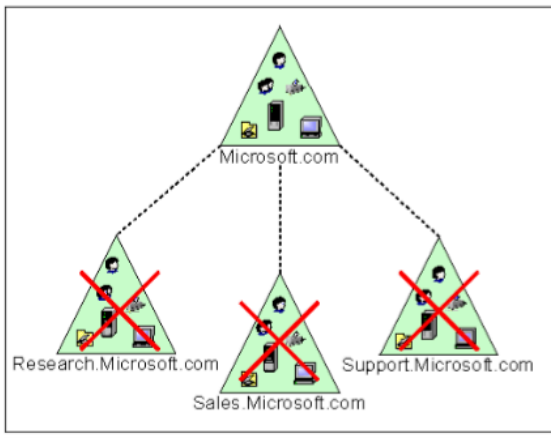


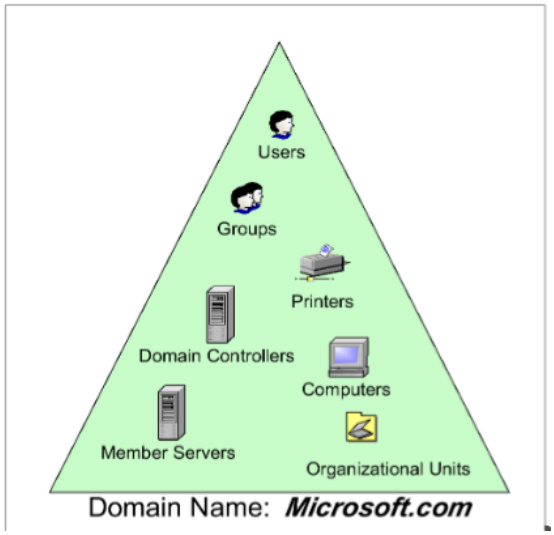
If all of the trees in a forest are cut down except for one, then you are left with a forest made up of one tree

When Microsoft uses the term forest, it could be that the forest has only one tree

A Tree with One Domain

Just like a Microsoft Server forest can be made up of only a single tree, a tree might have only a single domain



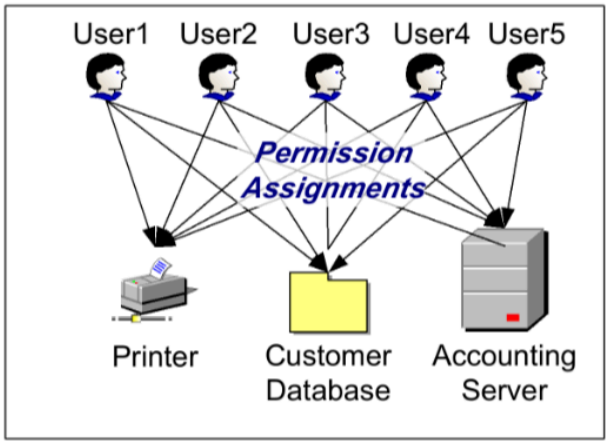


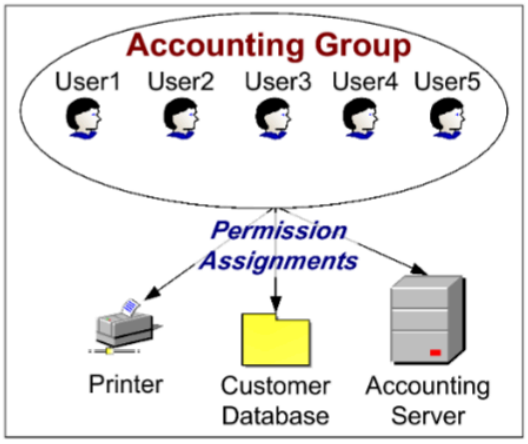
Groups

You use groups to grant permissions to users that have similar job functions or access requirements

If a group has permission to access a given resource, you can give a user the same access by making the user a member of the group

Which is the more efficient way to assign users permissions to resources?





Giving 5 users permissions for 3 resources on an individual user basis means 15 assignments but only 3 when assigned to a group

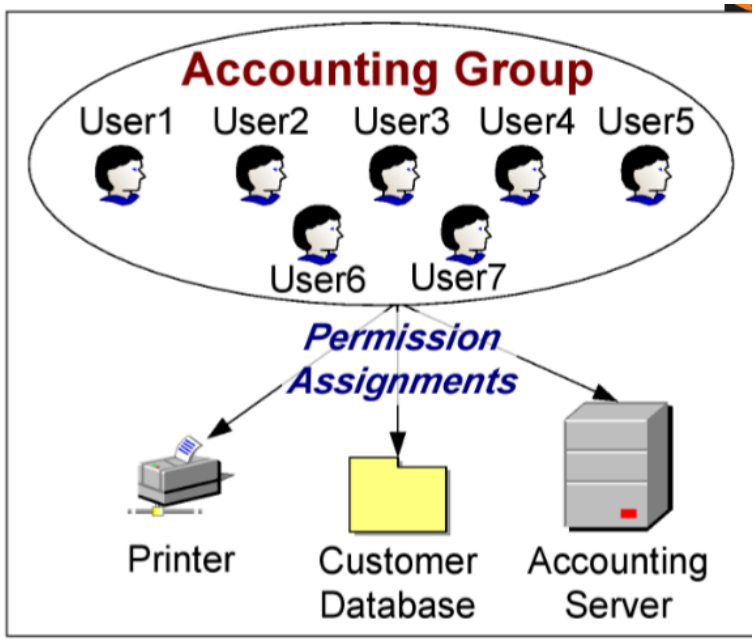
Image how much work it would take if there were a lot more users

Adding Users to a Group

- Simply making users members of a group automatically gives them permissions for all resources to which the group has been given permissions

– User6 and User7 now get permissions for the

three objects just by making them group members

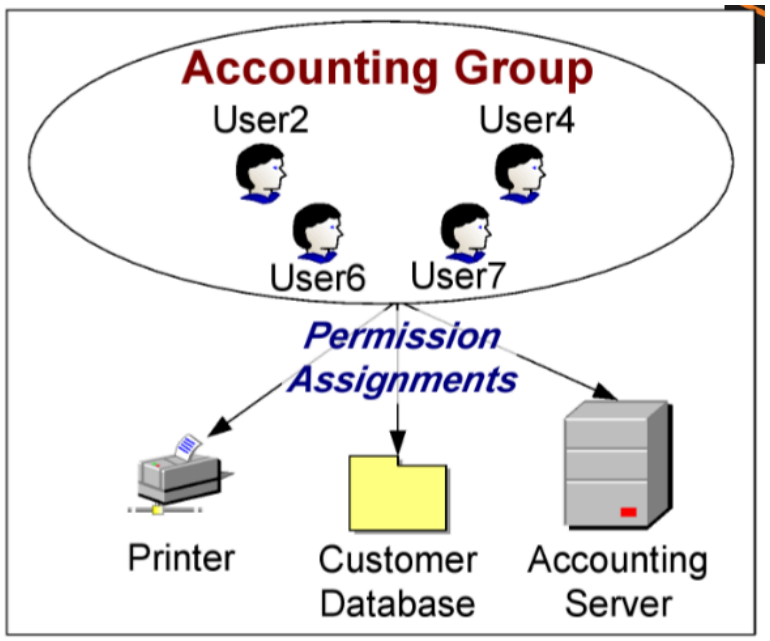


Removing Users from a Group

- Removing users from the group's membership automatically takes away their permissions for all resources to which the group has been given

permissions

– User1, User3 and User5 no longer have the permissions they had for the three objects by being group members



Objects and Access Control Entries

- In Active Directory, Users, Computers, Groups and shared resources are defined as objects

- Access controls can be assigned to these objects through the use of Access Control Entries (ACEs)

- Access control entries define the users and groups that are granted access to other objects and

lists the permissions these users and groups have been assigned

Inheritance

- Active Directory objects can inherit permissions from their parent object

- Inheritance allows the child object to obtain the same permissions as the parent without any action having to be taken by the network administrator

– For example, all members of the Domain Admins group inherit any permissions granted to this group

Domain Group Types

There are two types of domain groups:

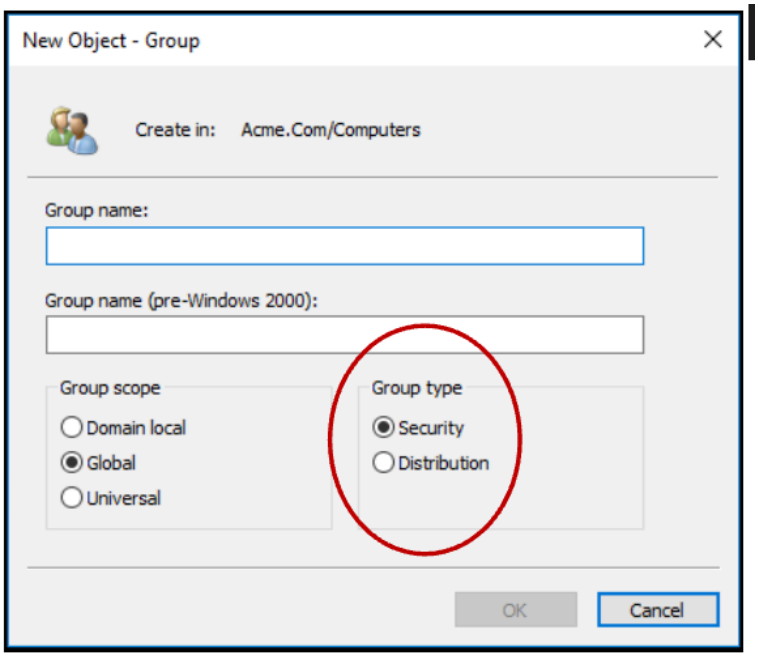
1. Security groups

– Groups that can be given permissions to a domain resource

2. Distribution groups

– Groups used for e-mail distribution lists

– Cannot be used to give permissions to domain resources



Group Scope

• A group's scope defines breadth or range of access that the group can be given to network resources

• Different types of groups can have different scopes

– In some cases, a group's scope can be limited

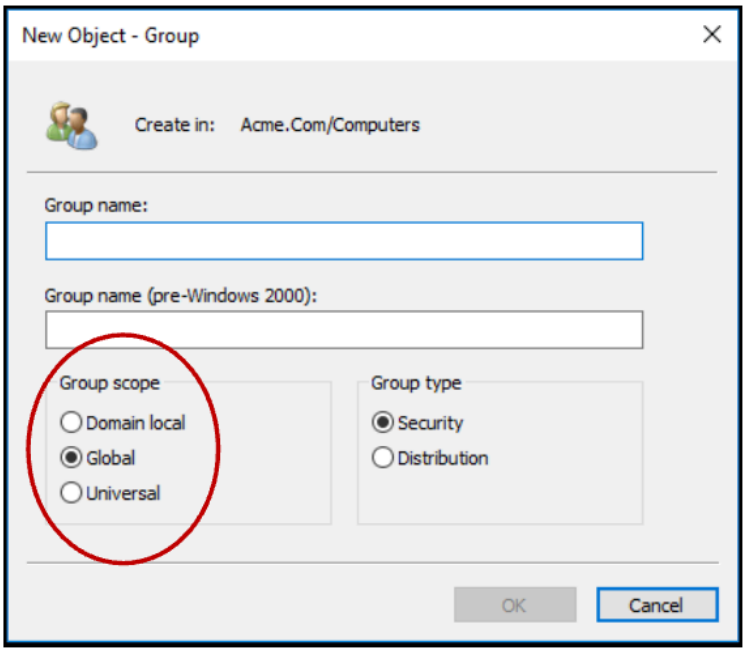
to access to resources within that group's domain

– In other cases, a group's scope may allow access to resources anywhere in the forest

Group Scope Options

When creating a group, there can be up to three group scope options to choose from:

1. Domain local
2. Global
3. Universal

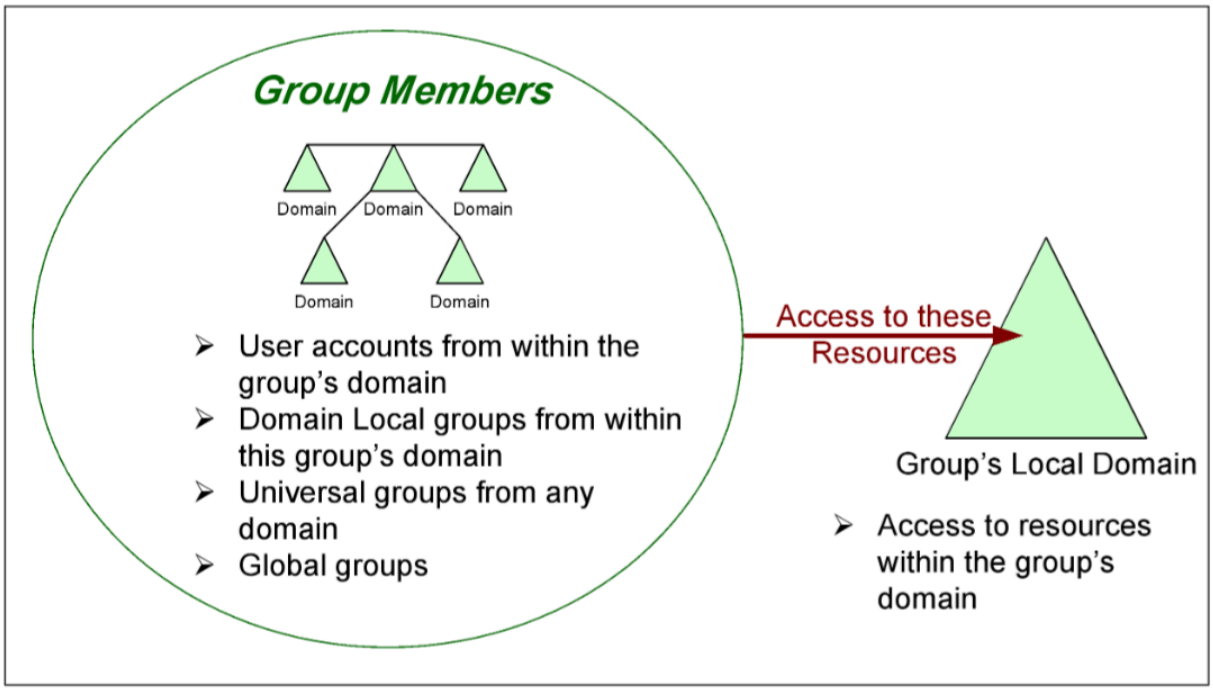


Domain Local Groups

Scope: A domain local group can be given permissions to resources only within the domain where this group is created

Membership: Members of a domain local group can include accounts from any domain

Domain Local Groups: Membership and Resource Access



Builtin Local Groups

There is another special group type called Builtin local

All groups in the Builtin container (location of Builtin local groups) effectively have the same scope as domain local groups

There are almost identical to domain local groups except they are created during installation

– A user account cannot be used to create a Builtin local group (not even Administrator)

Activity: Properties of Builtin Local Groups

1. If necessary, Logout and log back on with the domain Administrator account

– User name: acme\Anthony.Green

– Password: AdminP@ss

2. Open Active Directory Users and Computers

3. If necessary, expand the acme.com container and select the Builtin container

• Builtin local groups also have a special distinction - they cannot be deleted

4. Right click on the Users group

– Notice there is no Delete option

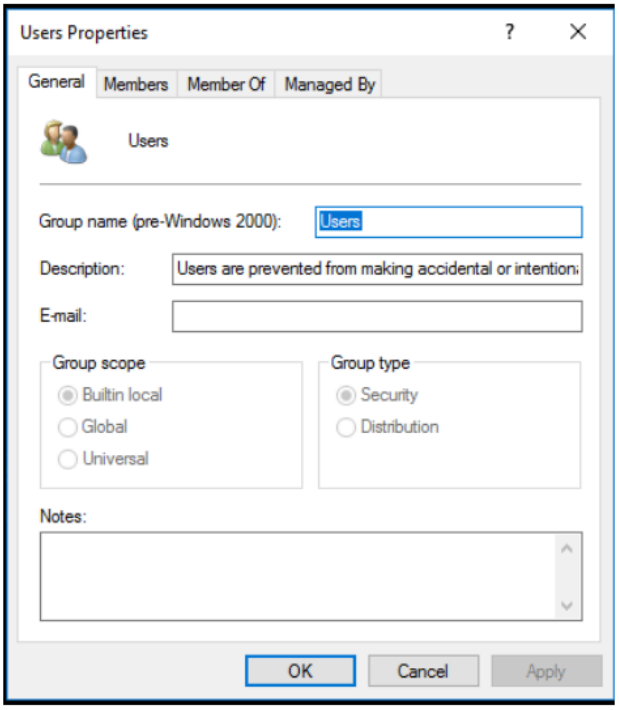
5. Select Properties

– The group’s scope will be listed under the General tab

– Notice the scope is listed as Builtin local

– Also notice the Group scope and Group type areas are greyed out and cannot be changed

6. Close the Properties window Properties of Builtin Local Groups



7. Right click on the Builtin container

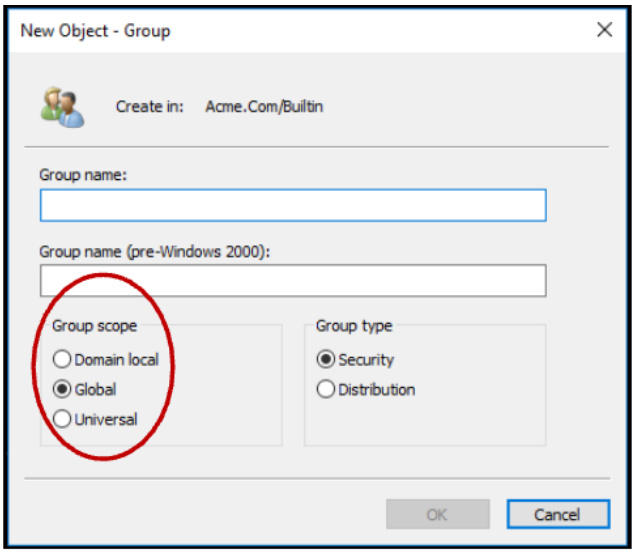
8. Select New / Group

– Notice that Builtin local is not an option for the group scope property

– Click Cancel to close the window

• Builtin local accounts can only be created by the system when Active Directory is installed

• Builtin local groups have the same scope as Domain local groups

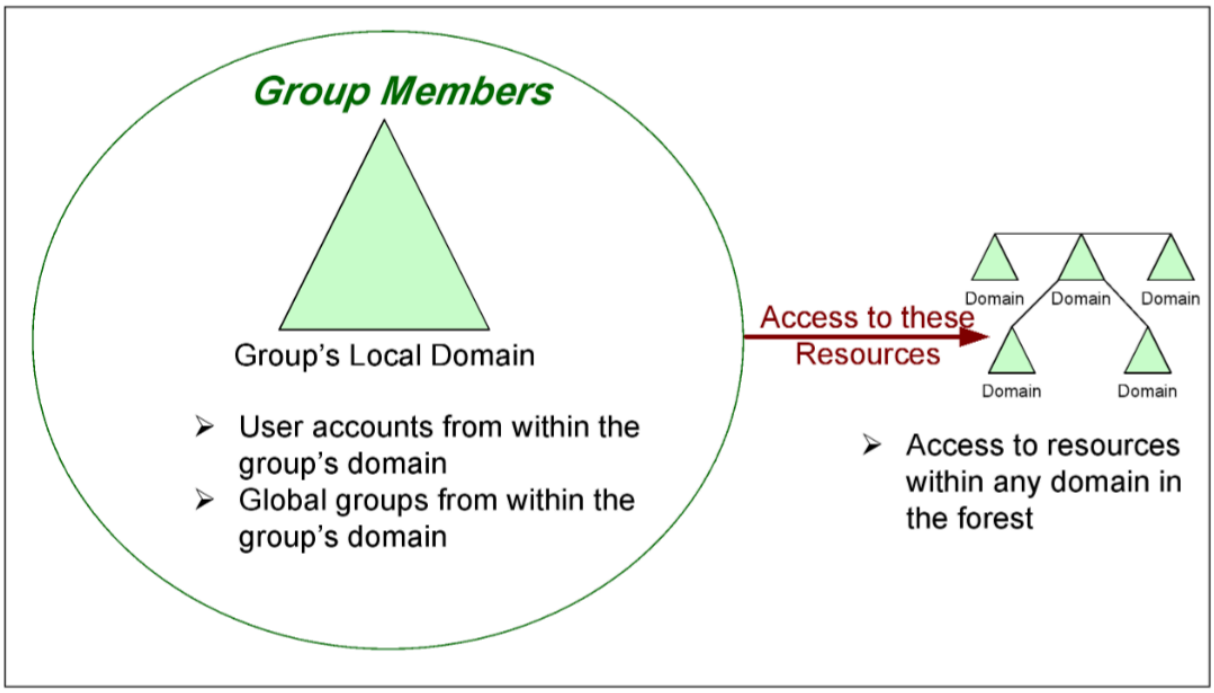


Global Groups

- Scope: Global groups are used to grant permissions to objects in any domain in the domain tree or forest

- Membership: Members of global groups can only include accounts and groups from the domain where the global group is created

Global Groups: Membership and Resource Access



Activity: Identifying a Global Group

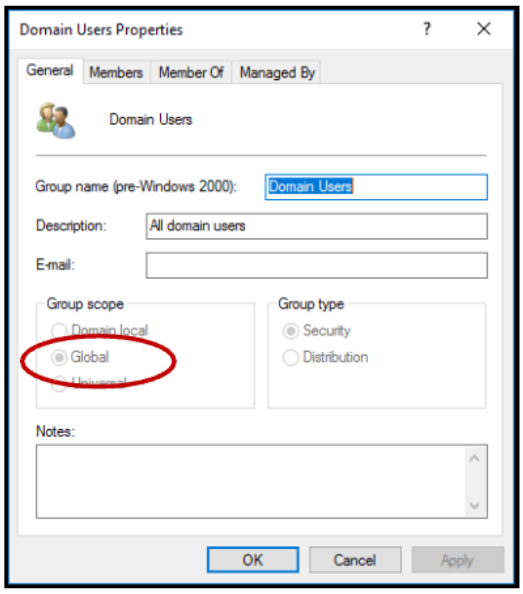
1. In Active Directory Users and Computers, select the Users container

2. Right click the Domain Users group

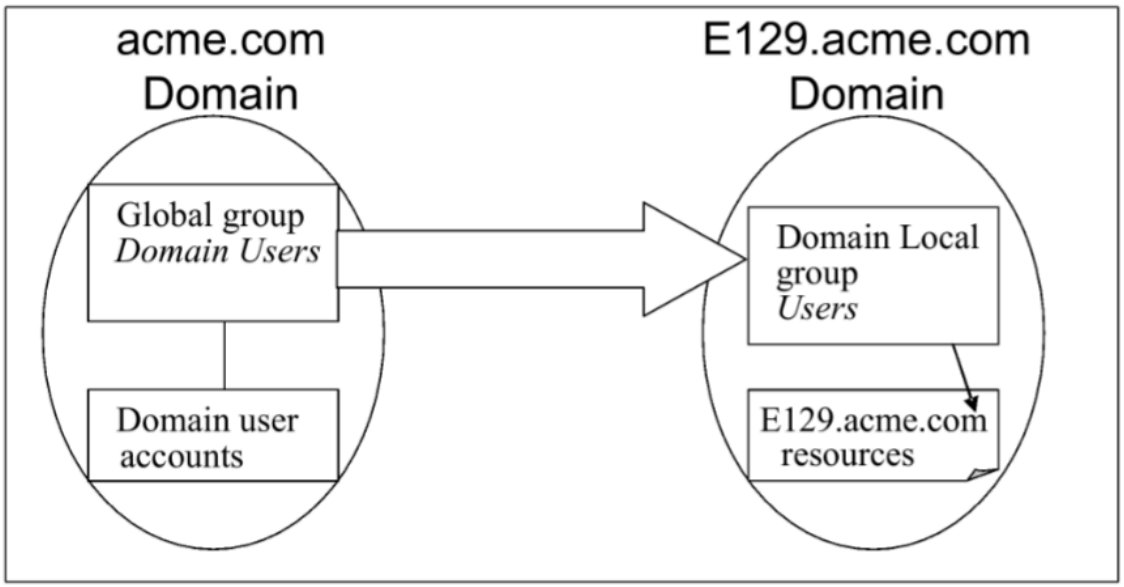
3. Select Properties

• Notice this group has a scope of Global

– This means that this group of users (which includes all acme.com domain user accounts) can be given access to resources in another domain



Identifying Global Groups



acme.com global group Domain Users can be added to the E129.acme.com domain's Domain Local group Users, which can then be given permission to

all of the E129.acme.com domain resources

acme.com Domain Users would inherit all the same permissions that the E129.acme.com Domain Local group Users has

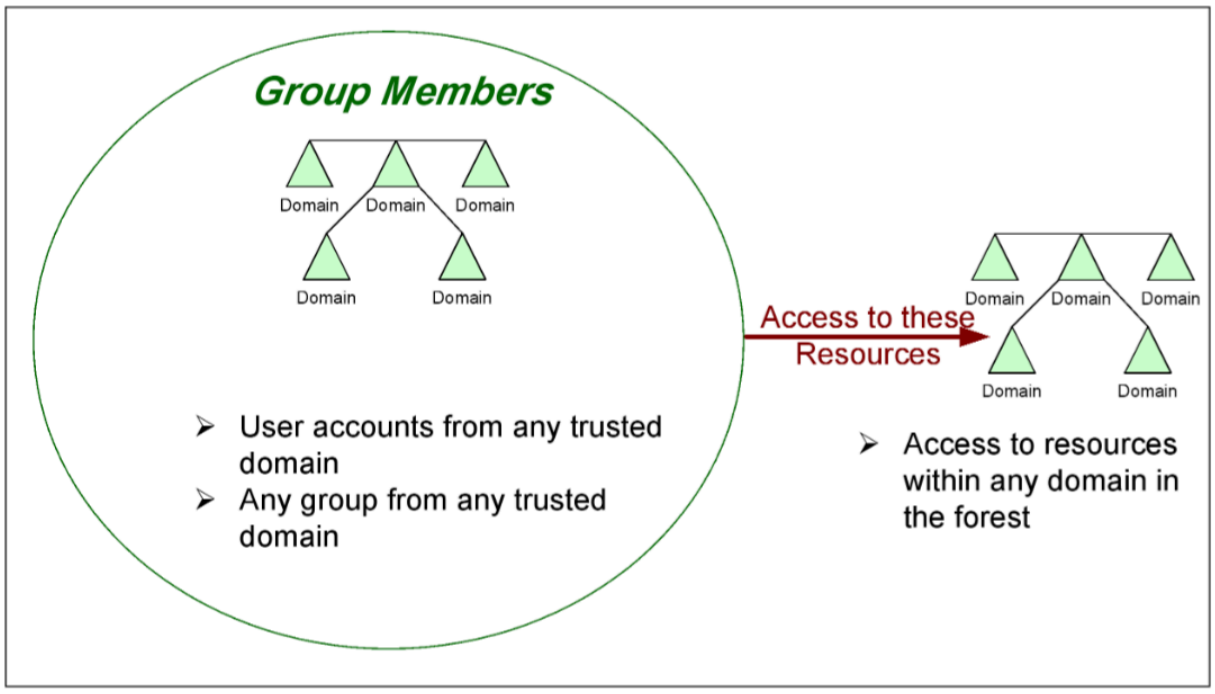
Universal Groups

- Scope: Universal groups are used to grant permissions on a wide scale throughout a domain tree or forest

- Membership: Members of universal groups can include user accounts, global groups and other universal groups from any domain in the domain tree or forest

- Universal security groups are only available when the domain's Active Directory is running in Windows 2000 native mode or higher (functionality level)

Universal Groups: Membership and Resource Access



Activity: Determining Operations Mode

1. If necessary, open Active Directory Users and Computers

2. In order to determine which mode Active Directory is currently functioning in, right click on the acme.com container

3. Select Properties

• What mode (functionality level) is the acme.com domain functioning in? _____

4. Close the acme.com domain's Properties

window

5. Right click the Users container then select New / Group

- Is it possible to create a Universal group if the Group type is set to Security?

_____ Why? _____

- Universal groups are not practical in an organization with only one domain

Default User and Group Accounts

- Windows 2019 creates numerous predefined default user and group accounts

- We will discuss some of the more commonly used default user and group accounts further

Administrator Domain User Account

- Administrator account:

– By default, provides complete access to all files,

directories and resources in the entire domain

– Can be disabled

– Cannot be deleted

• For security reasons you may want to disable the Administrator account

– Anyone trying to break into the network will go after that account first

Administrative Level Groups

• The main administrator-level groups include:

– Administrators

• Group Scope: Builtin Local

• Used to administer the local computer/domain

– Domain Admins

• Group Scope: Global

• Used to administer all computers in the domain

• Can be given access to computers in other

domains within the domain tree

– Enterprise Admins

- Group Scope: Universal
- Used to administer all computers in a domain tree or forest

Administrators Group

- Since its scope is builtin local, members have full access to all resources, but are limited to the local domain
- Administrator is a member of this group by default

Domain Admins Group

- Making a domain user account a member of the pre-defined Domain Admins global group gives that account the same privileges as the Administrator account

– Administrator is a member of this group by default

- For those who are responsible for administering the domain, add their user accounts to the Domain Admins group

Enterprise Admins Group

- The Administrator account is a member of Enterprise Admins by default

– This means that someone logging on as Administrator on a computer that belongs to the domain has complete access to the forest

– You may want to remove Administrator as a member of Enterprise Admins for this reason

Activity: Adding chad.baker to the Domain Local Administrator's Group

1. Open Active Directory Users and Computers
2. Expand the acme.com domain icon
3. Select the Builtin container

4. Right click on the Administrators group

5. Select Properties

6. Select the Members tab and click Add

7. In the “Enter the object names to select” field, enter the chad.baker account name

8. Click OK then click Apply to apply the changes to the group membership

- The chad.baker account now has all the privileges that the Administrators group has

Complete this chart

	Administrators	Domain Admins	Enterprise Admins
Administrator a member? (Yes/No)			
Administrators a member? (Yes/No)	X		
Domain Admins a member? (Yes/No)		X	
Enterprise Admins a member? (Yes/No)			X
Group Scope			
Description (look in *Properties / General*)			

Delegating Administrative Duties

- Sometimes you want to delegate certain administrative duties to others but you don't want to give them full administrative access

- Based on the level of administrative access you wish to give, add them to the appropriate builtin pre-defined groups

– Remember Builtin groups cannot be deleted

Activity: Determining a Builtin Group's Administrative Capabilities

1. Open Active Directory Users and Computers

2. Select the Builtin container

3. Double click on the Account Operators group to display the Properties window

4. Read the Description field on the General page

Activity: Determining Privileges for

Builtin Group Members

1. Using the method performed on the previous page, determine the privileges that members for each of these groups would have:

- Account Operators

Members can administer domain user and group accounts

- Backup Operators
- Print Operators
- Server Operators

Guest Domain User Account

- The Guest account is designed for temporary or occasional access to domain resources
- Although by default, Guest has few system privileges, Guest's privileges should be limited since it can be a security risk

– Guest is disabled by default

– Keep it disabled if there is no need to allow access to the network

– Restrict its privileges if it is activated

– Apply a password to the account

– Change the password regularly

– Consider renaming it

Activity: Determining What Groups a User

Account Belongs To

1. Open Active Directory Users and Computers
2. Select the Users container
3. Double click on the Guest user account
4. Select the Member of tab

- Which groups does the Guest account belong to?
- In order to restrict the Guest account access you would have to also monitor these groups as well Implicit Groups and Windows NT

Implicit Groups and Windows NT

- Implicit groups are another set of special predefined groups that cannot be created with any user account (not even with Administrator)
- Implicit (i.e. implied) groups originated with Windows NT domains
- In Windows NT

– You could not view the membership of Implicit groups

– Implicit groups membership was assigned automatically based on how a user accessed network resources Implicit Groups and Special Identities

- In Windows 2000 through to 2019 you still cannot view the membership of Implicit groups, and membership still cannot be manually assigned, however you can now manually assign access permissions to these groups explicitly

- Due to this change, Windows Server 2019 refers to Implicit groups as special identities

Special Identity Group Examples

- The next series of topics will briefly describe a few of the special identity groups including the following:

– Interactive

– Authenticated Users

– Network

– Everyone

– System

- If you check the Member Of page for an account, you will never see these entries since these groups do not have any permanent members

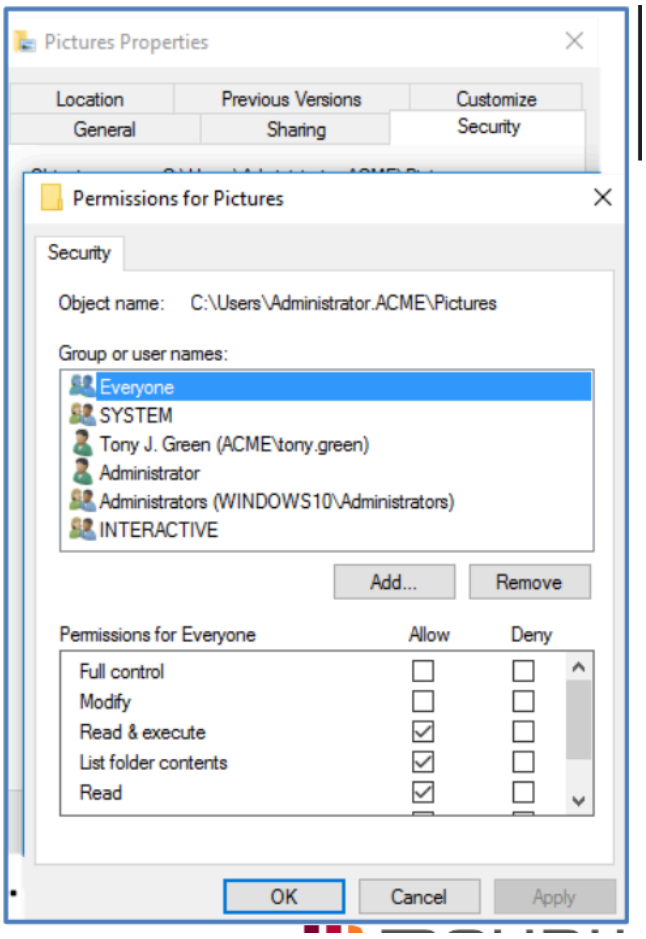
- Special identities can be assigned rights and permissions to resources however

Interactive Special Identity Group

- If you access a resource through an interactive logon, your account would be assigned membership to the Interactive group

- Any user logged onto the local systems is automatically given the interactive identity

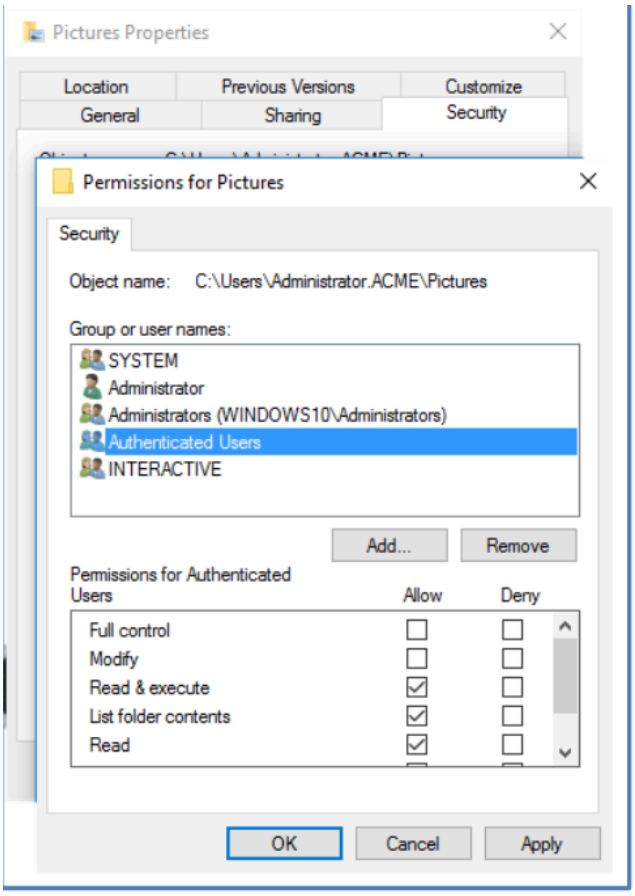
- This identity is used to allow only local access to a resource



Authenticated Users Special Identity Group

- The Authenticated Users identity includes all users accessing the system through a successful logon process (interactive or otherwise)

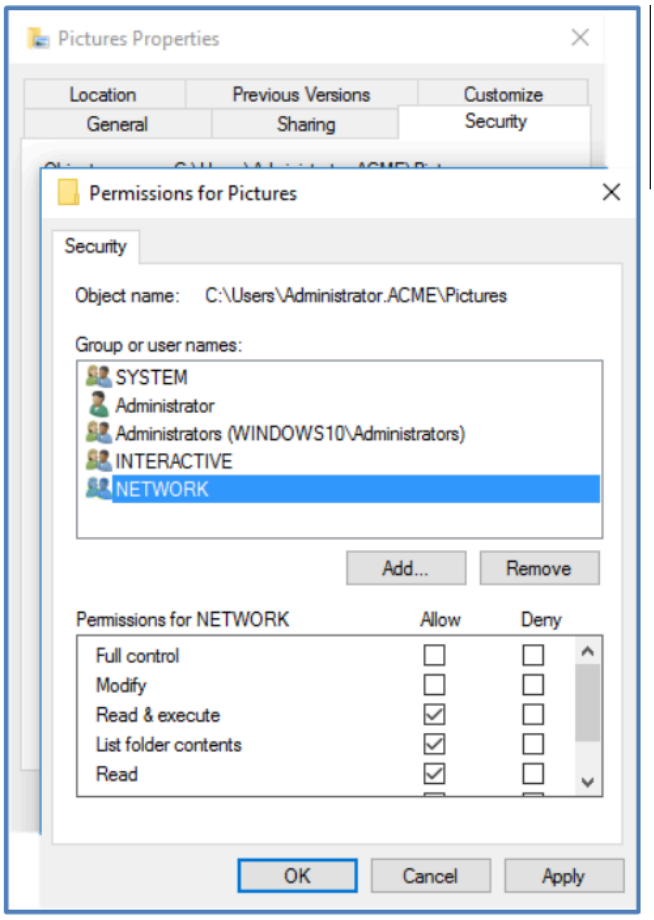
- This identity can be used to grant access to shared resources for all valid users in the domain



Network Special Identity Group

- The Network identity includes any user accessing the system through the network

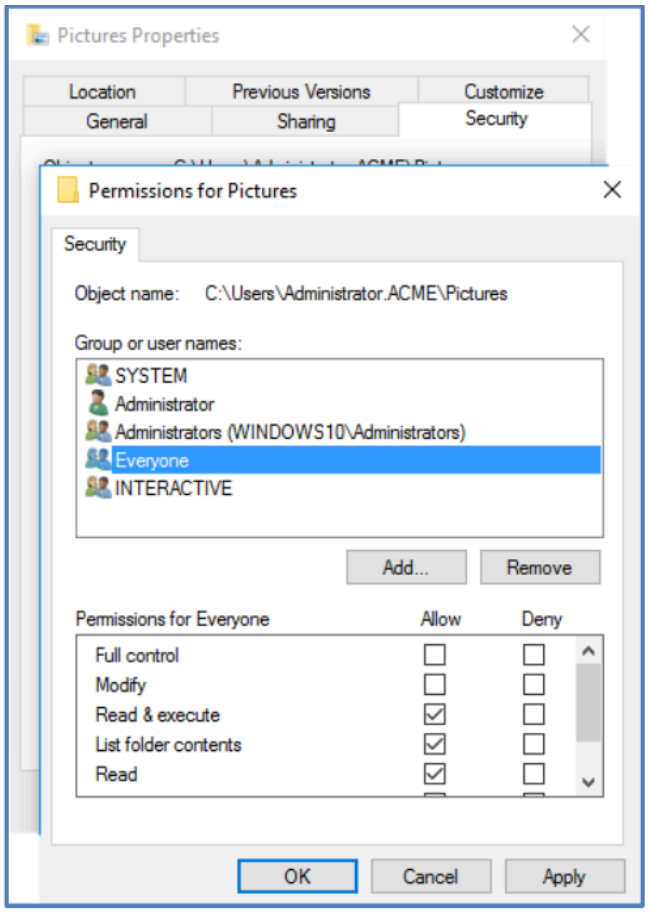
- This identity can be used to allow or remove the ability of a user to access resources across a network



Everyone Special Identity Group

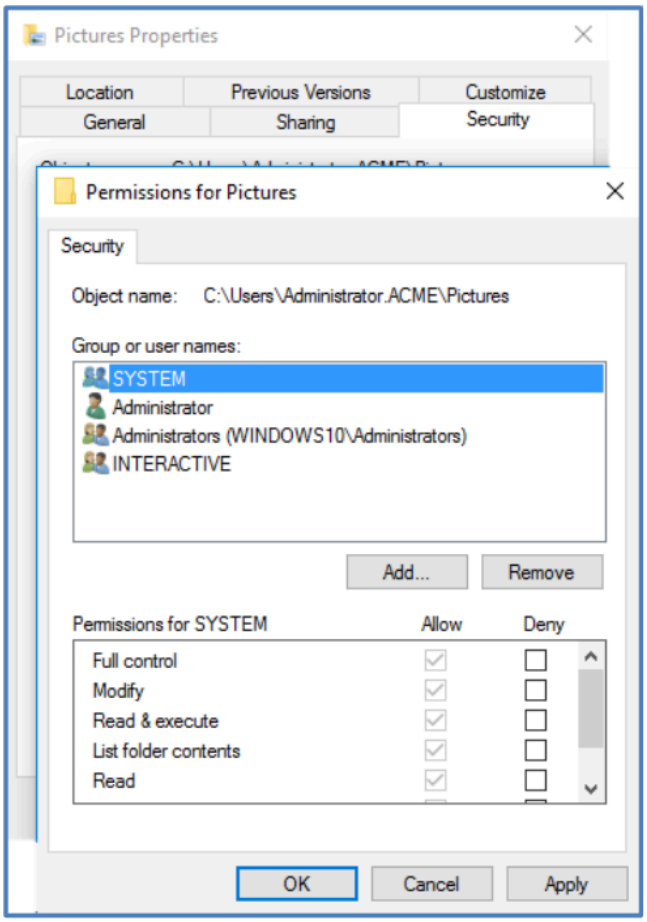
- The Everyone identity includes all interactive, network and authenticated users

- Essentially this group includes every currently active user



System Special Identity Group

- System is a highly privileged identity used by the operating system in order to perform system level operations



Other Special Identity Groups

- The remaining special identity groups are:

– Anonymous Logon

– Batch

– Creator Group

- Creator Owner
- Dial-Up
- Enterprise domain controllers
- Proxy
- Restricted
- Self
- Service
- Terminal Server User

• Special Identities are discussed in the Implicit Groups and Identities section of chapter Understanding User and Group Accounts