

NOT FOR SALE

Republic of the Philippines
Department of Education
National Capital Region
Division of Pasig City



**Technical-Vocational and Livelihood Track
Information and Communications Technology (ICT) Strand**

Grade
12

Computer Systems Servicing NC II

QUARTER 1

LO 1: SET UP USER ACCESS

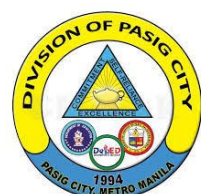
SELF- LEARNING MODULE 13:

The Global Catalog

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COC 3 : SET UP COMPUTER SERVERS



Introductory Message

For the facilitator:

Welcome to the Technical Vocational Livelihood Education ICT Grade 12 CSS NC II Module on Set Up User Access: **The Global Catalog**

This module was collaboratively designed, developed and reviewed by educators from Schools Division Office of Pasig City headed by its Officer-In-Charge Schools Division Superintendent, Ma. Evalou Concepcion A. Agustin in partnership with the Local Government of Pasig through its Mayor, Honorable Victor Ma. Regis N. Sotto. The writers utilized the standards set by the K to 12 Curriculum using the Most Essential Learning Competencies (MELC) while overcoming their personal, social, and economic constraints in schooling.

This learning material hopes to engage the learners into guided and independent learning activities at their own pace and time. Further, this also aims to help learners acquire the needed 21st century skills especially the 5 Cs namely: Communication, Collaboration, Creativity, Critical Thinking and Character while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:



Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Moreover, you are expected to encourage and assist the learners as they do the tasks included in the module.



For the learner:

Welcome to the Technical Vocational Livelihood Education ICT Grade 12 CSS NC II Module on Set Up User Access: **The Global Catalog.**

The hand is one of the most symbolized part of the human body. It is often used to depict skill, action and purpose. Through our hands we may learn, create and accomplish. Hence, the hand in this learning resource signifies that you as a learner is capable and empowered to successfully achieve the relevant competencies and skills at your own pace and time. Your academic success lies in your own hands!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning material while being an active learner.

This module has the following parts and corresponding icons:



Expectation - These are what you will be able to know after completing the lessons in the module



Pre-test - This will measure your prior knowledge and the concepts to be mastered throughout the lesson.



Recap - This section will measure what learnings and skills that you understand from the previous lesson.



Lesson- This section will discuss the topic for this module.



Activities - This is a set of activities you will perform.



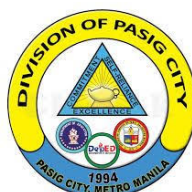
Wrap Up- This section summarizes the concepts and applications of the lessons.



Valuing- this part will check the integration of values in the learning competency.



Post-test - This will measure how much you have learned from the entire module.





EXPECTATION

After completing the lesson the learners should be able to:

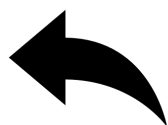
- A. understand the role of the Global Catalog Servers
- B. draw a sample schema on how Global Catalog works within the AD DS.
- C. cite the advantage and disadvantage of Global Catalog.



PRE-TEST

Directions: Read the following statement. Put a check \checkmark if you agree or X if you do not agree with the following statements.

- _____ 1. Global Catalog contains an index of every object in the forest.
- _____ 2. Global Catalog automatically creates a trust relationship.
- _____ 3. Global Catalog contains the basic information about each object in the forest a user can find this information quickly.
- _____ 4. Global Catalog is a blueprint or design of the forest.
- _____ 5. The global catalog server does not contain any detailed information about the printer but it can tell the user where this object is located in the forest.

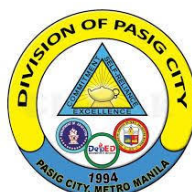


RECAP

Identification

Directions: Read and understand the following statement below. Identify the following statement and write the correct term on the space provided before each item.

- _____ 1. It is a collection of one or more domain tree
- _____ 2. It is a collection of one or more domains.
- _____ 3. It is the AD DS component that defines all object types and attributes that AD DS uses to store data.
- _____ 4. It is a logical link established between two domains.
- _____ 5. The first domain that is created in the forest





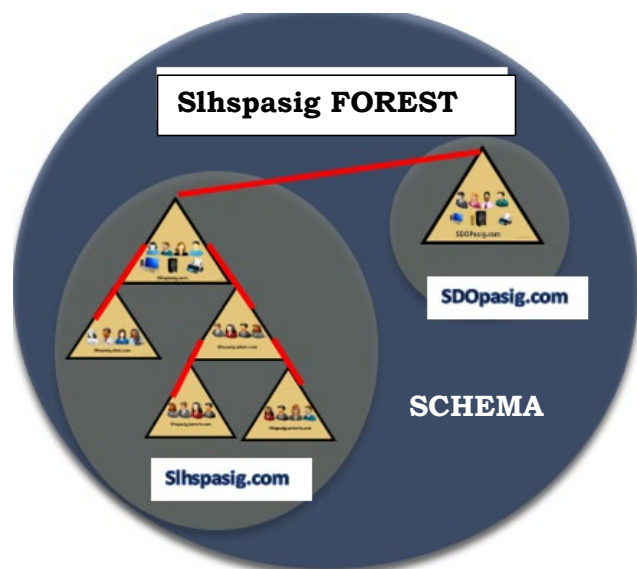
LESSON

The Global Catalog

Introduction

In our previous lesson, you have learned about the forest and schema including the domains and the trust relationship between the domains. The trust relationship is automatically created between the parent and child domains, and between trees in the forest. Going back to our diagram, assuming the user in SDOpasig.com has access, they can access any resource in any domain in the forest. This brings up the question: How does one find items in the forest? In order to find items in the forest you need an index. In any Active Directory forest there will be a servers that provide an index for all items in the forest. These are called Global Catalog Servers. There is at least one global catalog per domain.

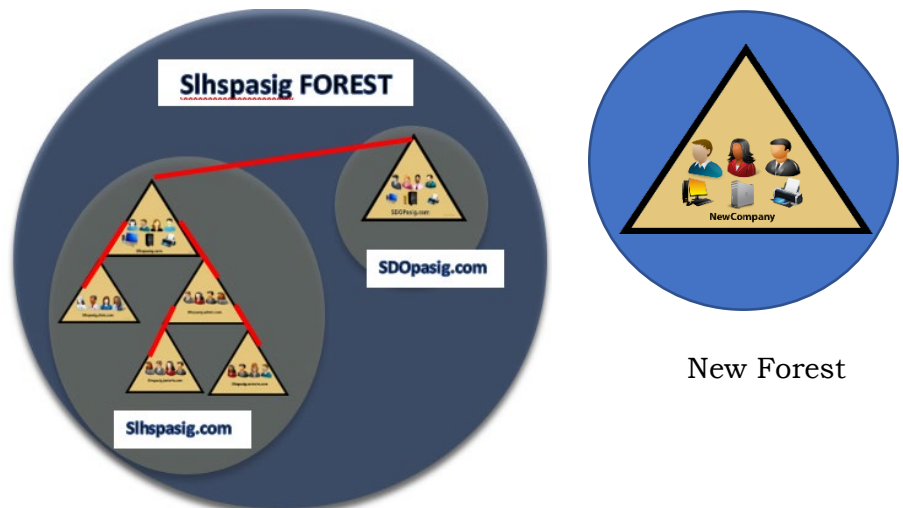
Fig.1. The schema of all the domains in the forest Slhspasig with 6 domains, 1 forest (Slhspasig) and 2 trees (Slhspasig.com and SDOpasig.com).



What is Global Catalog?

Global Catalog Servers or GCs contain an index of every object in the forest. This is not a full copy of the object but enough to allow users to perform a search. For example, using a global catalog server you could search a forest for all the color printers. Since the global catalog contains the basic information about each object in the forest a user can find this information quickly. The global catalog server does not contain any detailed information about the printer but it can tell the user where this object is located in the forest. Think of a global catalog server like an index at a library. The index gives you the idea what is in the book and more importantly where to find it if you want to know more. But what if another forest is added? It may occur if your company takes over another company that already has its own Active Directory infrastructure. Active Directory does support this by an administrator manually creating a trust between the two forests.

Fig. 2. Creating another forest with now has 7 domains, 3 trees and 2 forests.



In this case, there are two forests. Each forest has its own schema and each domain has its own copy of active directory database. In the real world, you want to reduce the number of domains that you have to bare minimum. Having one domain and one forest make things a lot easier. In cases like these you don't have a choice. A separate com –

pany is going to have its own Active Directory forest regardless. In some cases, you may need to create a separate forest. For example, if you are testing an application that makes changes to the schema, you may decide to put in its own forest. By doing this, you can be assured the testing of the application does not make permanent changes to the production network.

Going back to our previous lesson, each domain in the Active Directory forest has its own copy of the active directory database. This is stored in the **ntds.dit file** (AD DS database) and changes are replicated to each **Domain Controller (DC)** (server that is configured to store a copy of the AD DS database) in the domain. This works quite well when you want to access resources that are only in the one domain. But what happens when you attempt to access a resource in a different part of the forest?



If the resource you are trying to access is in the same forest Windows will automatically use your username and password to access the remote resource. Assuming that you have permission to the resource you will be given access. The problem occurs when you want to access a resource in the forest and you don't know where it is. A domain only knows about resources that are in the domain itself. The domain does not have information about resources that exist outside that domain. To allow users to find resources in the forest, Windows allows a domain controller to function as a Global Catalog Server. As per discussion, this server acts as an index to the forest. Just like an index in the library or server index in an e-library, it helps users to find information. Any domain controller can be made a global catalogue server. Objects in Active Directory have a number of attributes that are assigned to them. The Global Catalog contains the information about all the objects in the Active Directory forest. This is not a full record of each object but rather a subset of each objects data. In other words, only certain attributes are replicated to the global catalog server. The information replicated is enough to find objects in the forest. Just like index in the library contains key information like the title of the book and authors, the global catalog contains every object in the forest. Having Global Catalog Servers or GCs means user in different domains can run queries on the GCs to find any object in the

forest. Since users in different domains can access resources in different domains in the forest, there are also groups that work across the forest. These groups can contain users from any domain in the forest. The global catalog server is responsible for keeping information about these groups that include users from different domains. Any domain controller can be a global catalog server. In each domain, you need to have at least one global catalog server. If you have large enough domain, you should also have additional global catalog servers for redundancy reasons. Losing your only global catalog server in your domain can cause problems. As long as you have one global catalog server you can always make more domain controllers global catalog servers.

To make things as simple as possible there is nothing stopping you from making all your domain controllers into global catalog servers. In fact, Windows Server 2008 by default will make a new domain controller into a global catalog server when it is promoted as a domain controller. The disadvantage of having more than one global catalog is that they require more disk space and more bandwidth. Nowadays with disk space and network bandwidth becoming a lot cheaper and more available, making all domain controllers into global catalog servers is not such a big concern as it once was. For these reasons, this is why Microsoft makes all domain controllers global catalog servers by default. You can always switch this off when you promote the server or later on if you decide to.

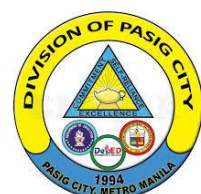


A C T I V I T I E S

Activity 1. Is It a FACT?

Direction : Draw a 😊 if the following statement is a FACT and 🚫 if NOT.

1. Any Domain Controller can be a Global Catalog. _____
2. In each domain, you should have at least one GC server. _____
3. In Windows 2008 R2, all Domain Controllers (DC's) are Global Catalog (GC's) by default when it is promoted. _____
4. The advantage of having more Global Catalog servers is that, it requires more disk space and more bandwidth. _____
5. The Global Catalog server acts as an index in the forest. _____





W R A P – U P

Global Catalog Servers or GCs contain an index of every object in the forest. This is not a full copy of the object but enough to allow users to perform a search. The global catalog server does not contain any detailed information about the printer but it can tell the user where this object is located in the forest.

The Global Catalog contains the information about all the objects in the Active Directory forest. This is not a full record of each object but rather a subset of each objects data. In other words, only certain attributes are replicated to the global catalog server. The information replicated is enough to find objects in the forest.



V A L U I N G

What are the advantage and disadvantages of Global Catalog?

Advantage : _____

Disadvantage : _____

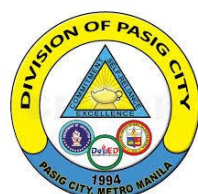


P O S T T E S T

TRUE or FALSE

Direction : Read and understand each item. Write the letter **T** if the statement is true and **F** if the statement is not. Write your answer on the space provided before each item. Do this on your separate worksheet provided for this activity.

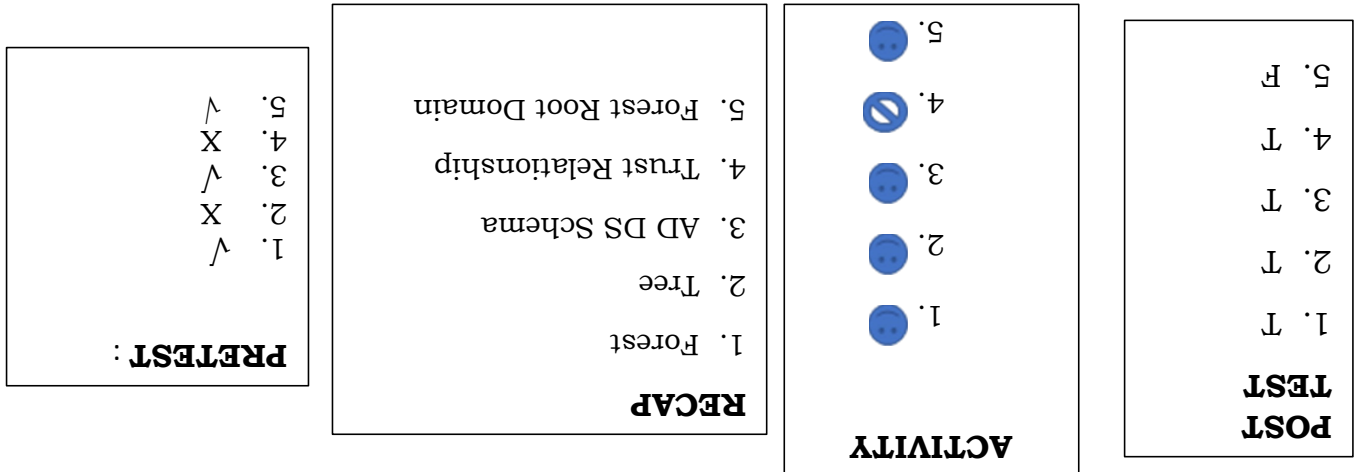
- ____ 1. Having Global Catalog Servers or GCs means user in different domains can run queries on the GCs to find any object in the forest.
- ____ 2. Windows Server 2008 by default will make a new domain controller into a global catalog server when it is promoted as a domain controller.
- ____ 3. Only certain attributes are replicated to the global catalog server.



- ____ 4. By default, Microsoft makes all domain controllers global catalog servers.
- ____ 5. The advantage of having more than one global catalog is that they require more disk space and more bandwidth.



KEY TO CORRECTION



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Cover Page was designed using Adobe Photoshop 2018 photo manipulation.

<https://www.computerhope.com/jargon/s/server.htm> (accessed June 20, 2020)

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