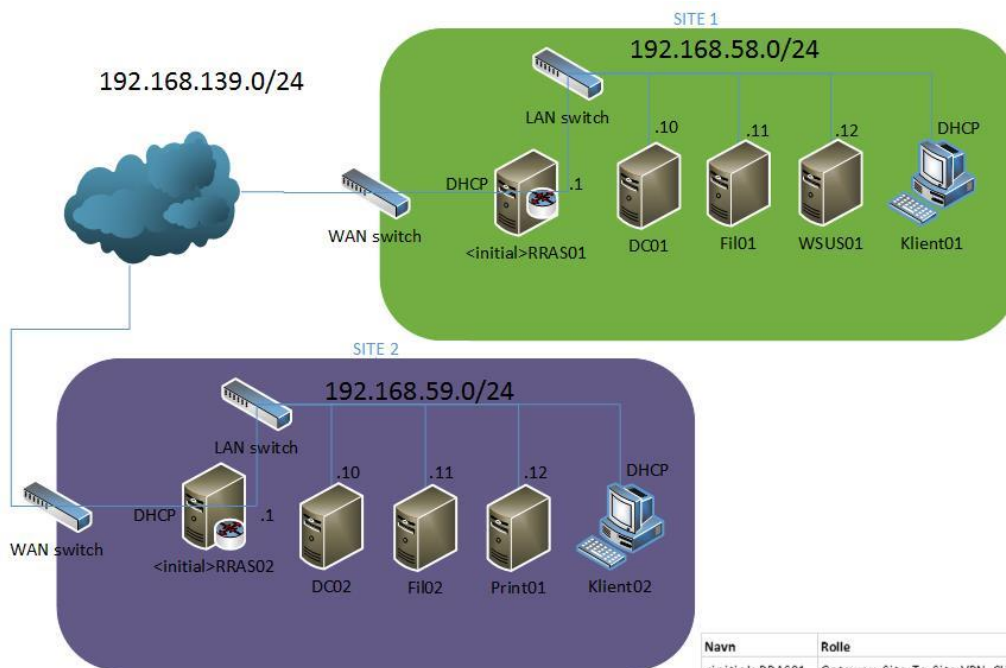


Installation of additional domain controller and DNS

In this guide we will install DC02 in site 2 as an additional domain controller in the existing Active Directory domain in the existing Active Directory forest.

Users in the domain can authentic using either DC01 or DC02.

DC02 will also be installed as DNS server and will be used as the primary DNS server in site 2 and secondary DNS server for site 1. Which server is used as primary/secondary DNS is controlled solely using DHCP options. DNS configuration-wise both servers are primary and authoritative for the domain domain.local.



Navn	Rolle	Operativsystem
<initial>RRAS01	Gateway, Site-To-Site VPN, Client/server VPN	Server 2012 Standard
DC01	Domain Controller, DNS, DHCP, PKI	Server 2012 Standard
Fil01	Fileserver	Server 2012 Standard
WSUS01	Windows Server Update Services Server	Server 2012 Standard
<initial>RRAS02	Gateway, Site-To-Site VPN, Client/server VPN	Server 2012 Standard
DC02	Domain Controller, DNS, DHCP	Server 2012 Standard
Fil02	Fileserver	Server 2012 Standard
Print01	Printserver	Server 2012 Standard
Klient01	Workstation	Windows 8 Enterprise
Klient02	Workstation	Windows 8 Enterprise

Configuring DC02

When DC02 must join an existing Active Directory domain, it must communicate with an existing domain controller. An existing domain controller is found using DNS service records (SRV records).

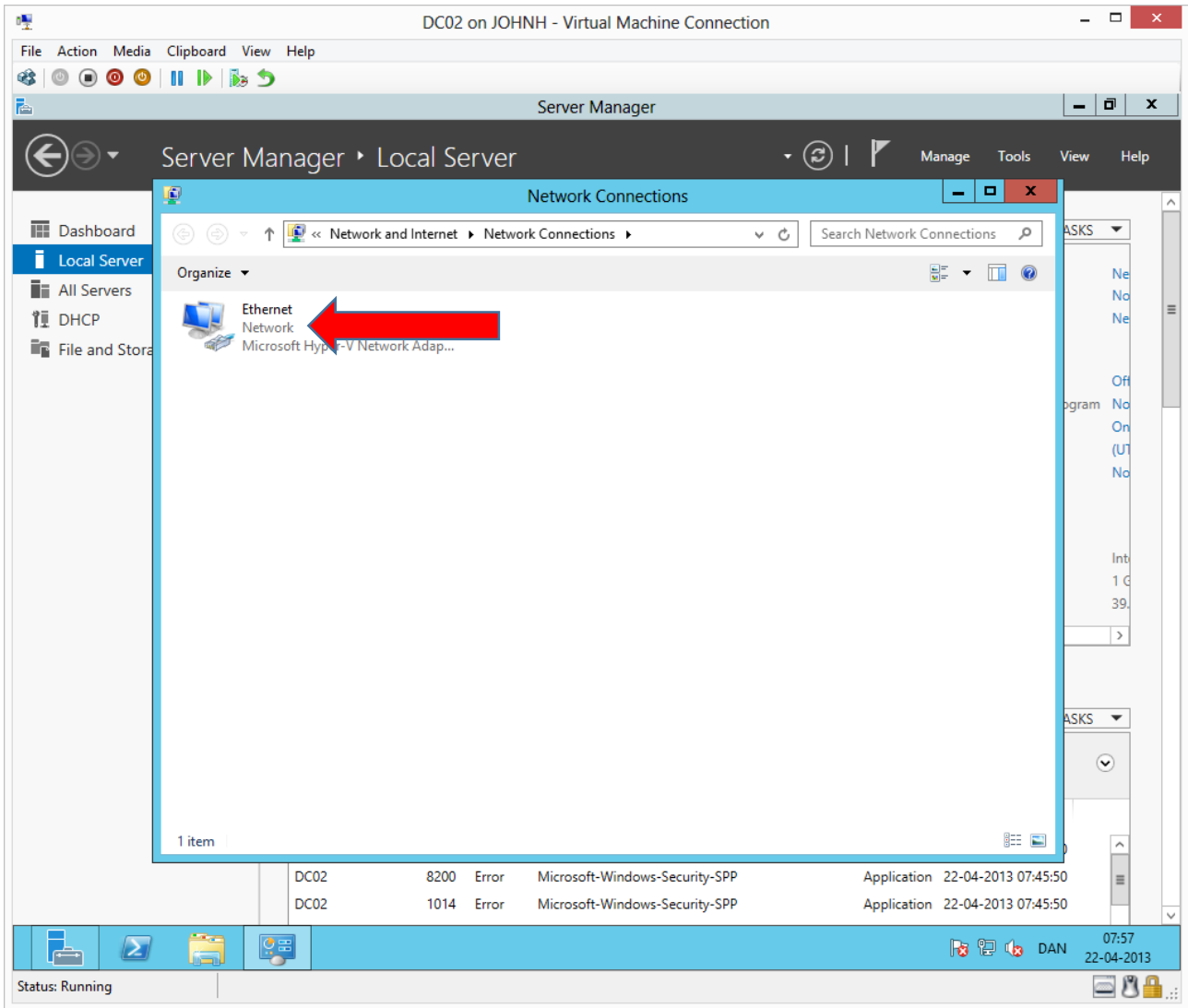
In our environment, DC01 is the only DNS server holding SRV records for our domain services. Therefore, before installing DC02 as a domain controller, we must configure DC02 to point to DC01 as its primary DNS server. After the Active Directory and DNS installation, DC02 will use itself as primary DNS server. As DNS data is replicated from DC01, both server will have the same DNS data and will function as primary and authoritative DNS servers.

The screenshot displays the Windows Server Manager interface for a local server named DC02. The interface is divided into several sections:

- Navigation Pane (Left):** Contains links to Dashboard, Local Server (selected), All Servers, DHCP, and File and Storage Services.
- Properties Section (Main):** Displays system information for DC02, including:
 - Computer name: DC02
 - Workgroup: WORKGROUP
 - Windows Firewall: Public: On
 - Remote management: Enabled
 - Remote Desktop: Disabled
 - NIC Teaming: Disabled
 - Ethernet: 192.168.59.10, IPv6 enabled (highlighted with a red arrow)
 - Operating system version: Microsoft Windows Server 2012 Standard Evaluation
 - Hardware information: Microsoft Corporation Virtual Machine
- Events Section (Bottom):** Shows a list of 17 total events. The visible events are:

Server Name	ID	Severity	Source	Log	Date and Time
DC02	8198	Error	Microsoft-Windows-Security-SPP	Application	22-04-2013 07:45:50
DC02	8200	Error	Microsoft-Windows-Security-SPP	Application	22-04-2013 07:45:50
DC02	1014	Error	Microsoft-Windows-Security-SPP	Application	22-04-2013 07:45:50

The taskbar at the bottom shows the system tray with the name DAN, the time 07:57, and the date 22-04-2013. The status bar indicates the server is running.



Right click and choose **properties**

The screenshot displays the Windows Server Manager interface for a local server. The 'Network Connections' window is open, showing a list of network adapters. The 'Ethernet' adapter is selected, and its status dialog box is open. The dialog box shows the following information:

Ethernet Status

General

Connection

- IPv4 Connectivity: Internet
- IPv6 Connectivity: No Internet access
- Media State: Enabled
- Duration: 00:17:17
- Speed: 10.0 Gbps

Activity

Sent: 6.978 Bytes | Received: 219.427 Bytes

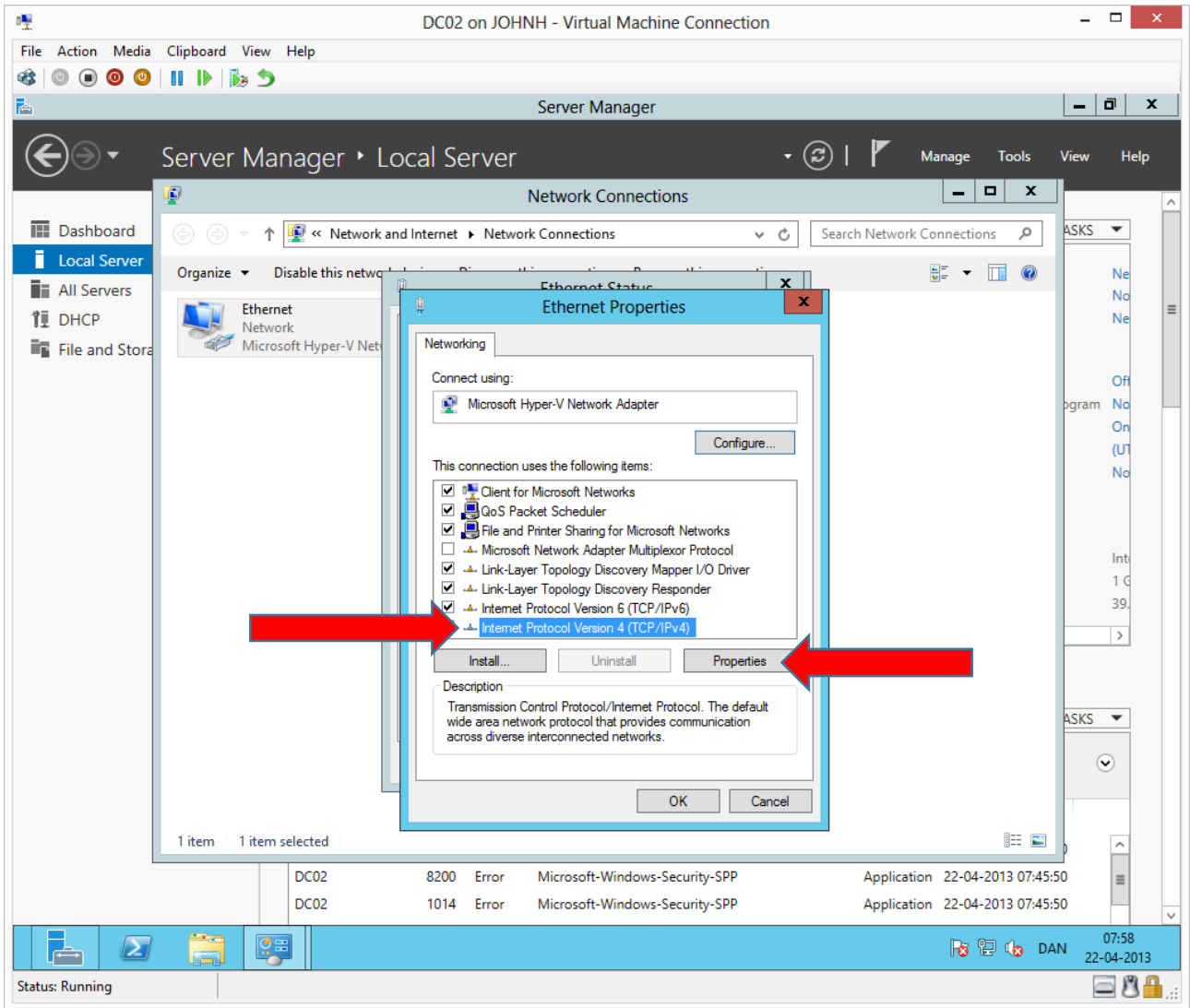
Buttons: Properties, Disable, Diagnose, Close

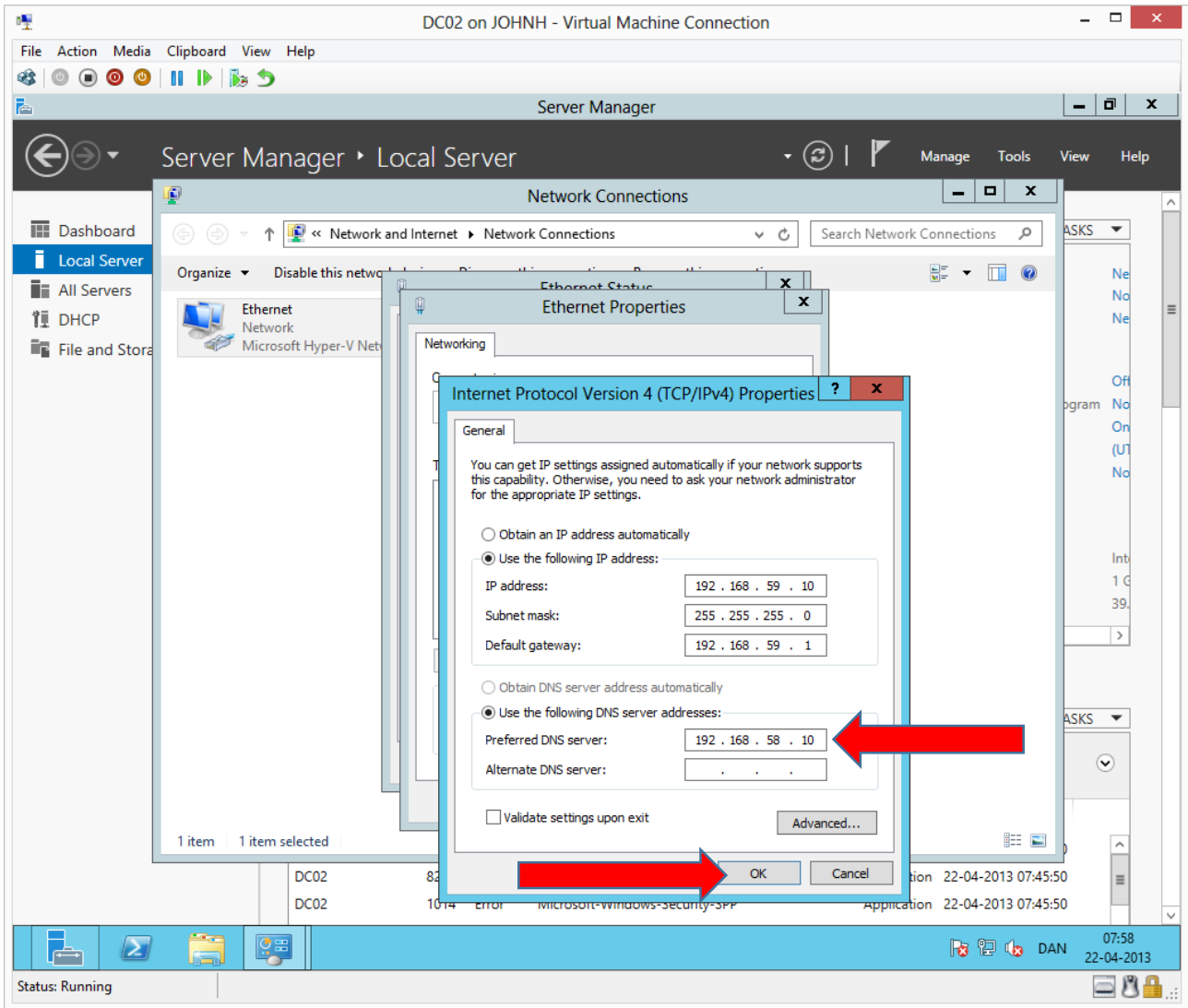
A red arrow points to the 'Properties' button.

The background shows the Server Manager console with a table of events:

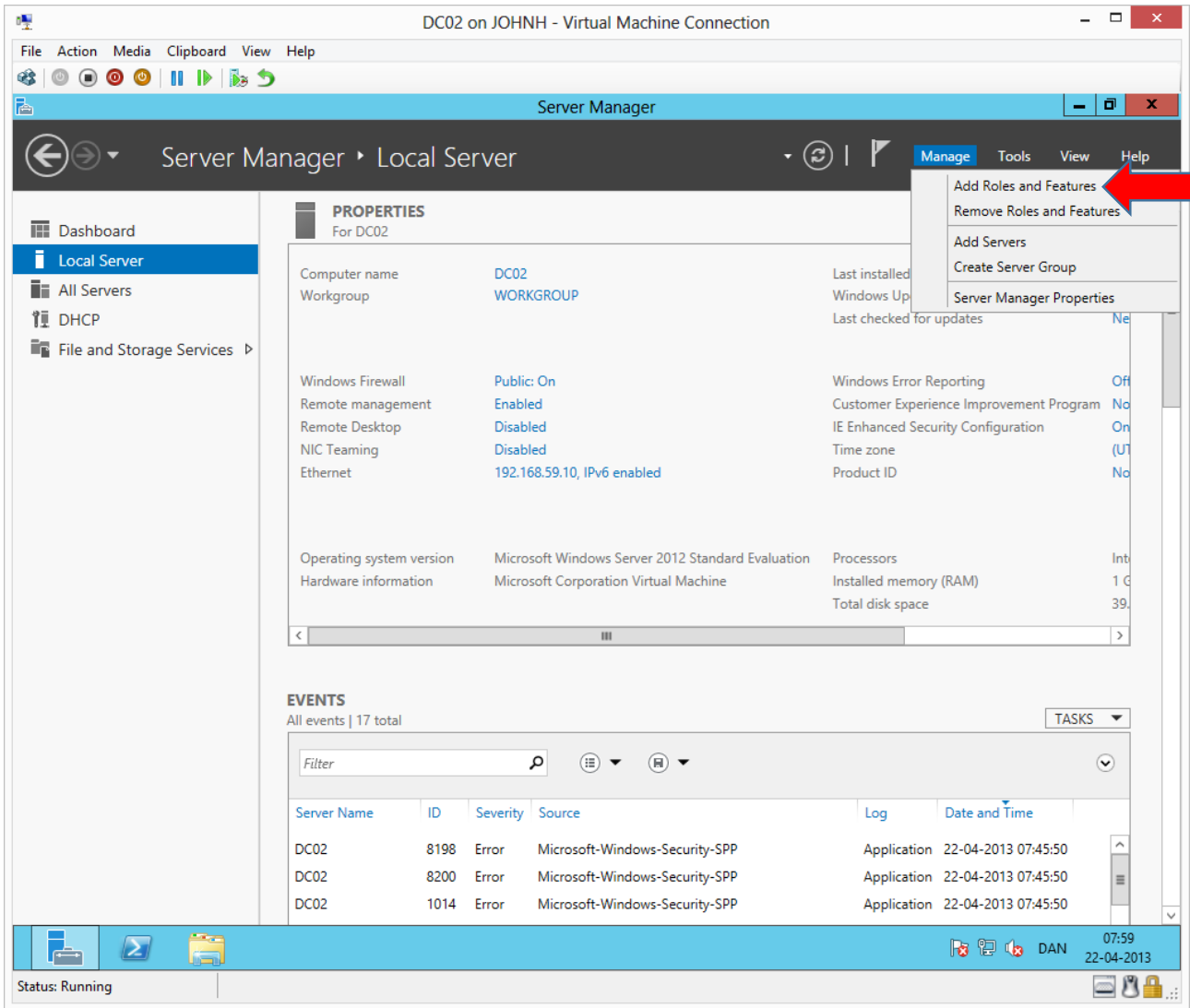
Source	Category	Level	Message	Time
DC02	8200	Error	Microsoft-Windows-Security-SPP	Application 22-04-2013 07:45:50
DC02	1014	Error	Microsoft-Windows-Security-SPP	Application 22-04-2013 07:45:50

The taskbar at the bottom shows the system tray with the time 07:58 on 22-04-2013 and the user name DAN.

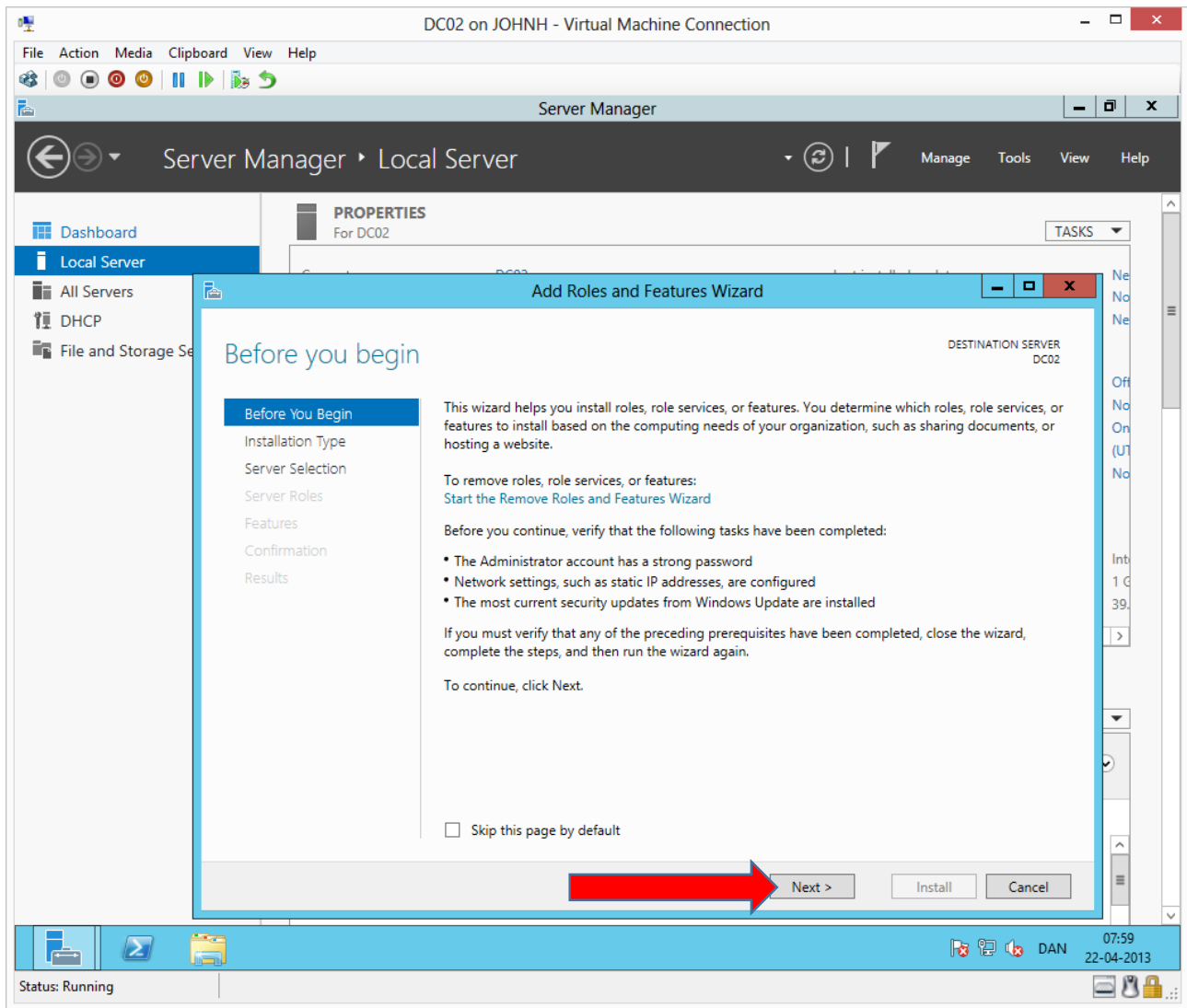


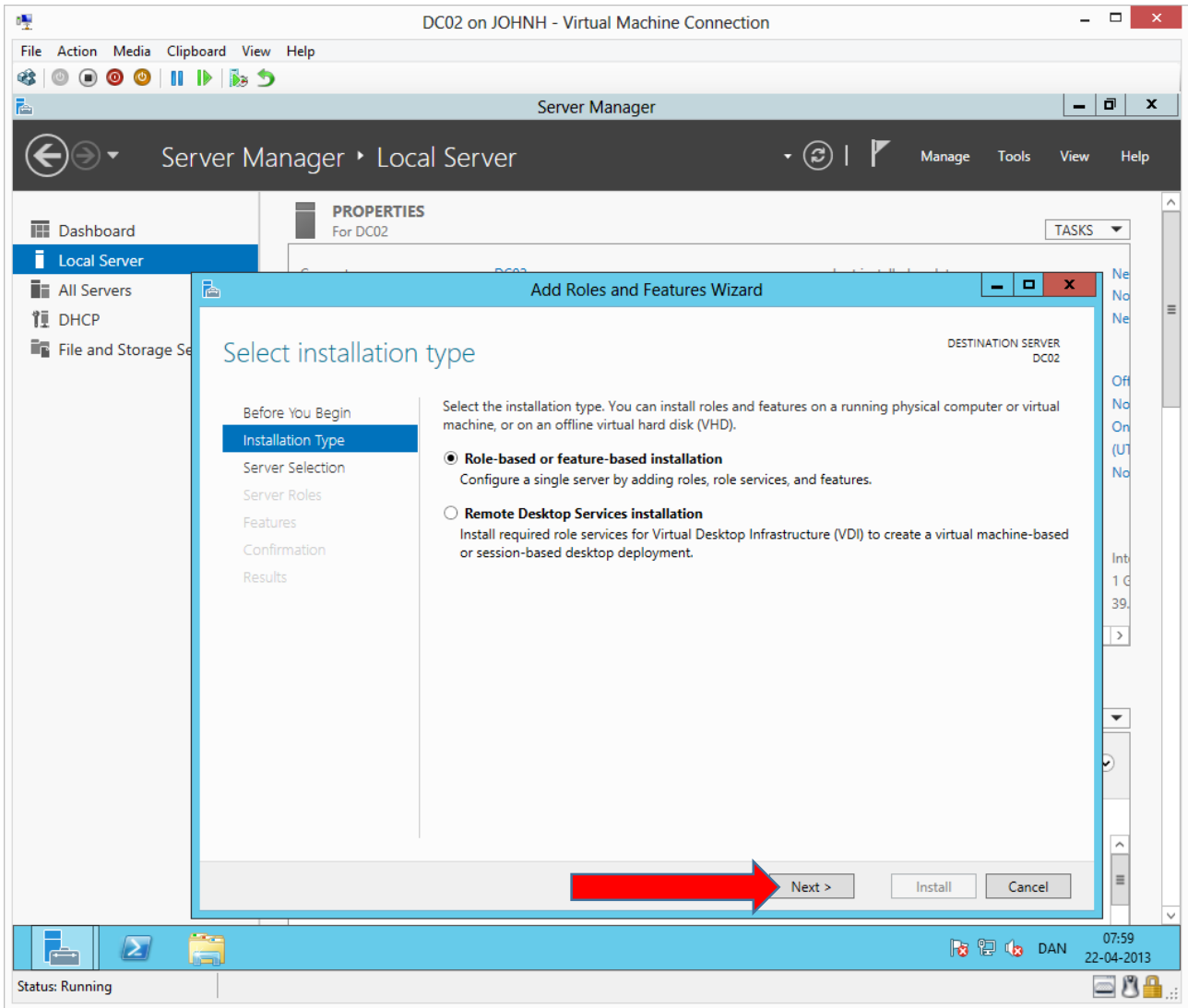


We will point at DC01 as primary DNS



Now we can add the Domain Services binaries.

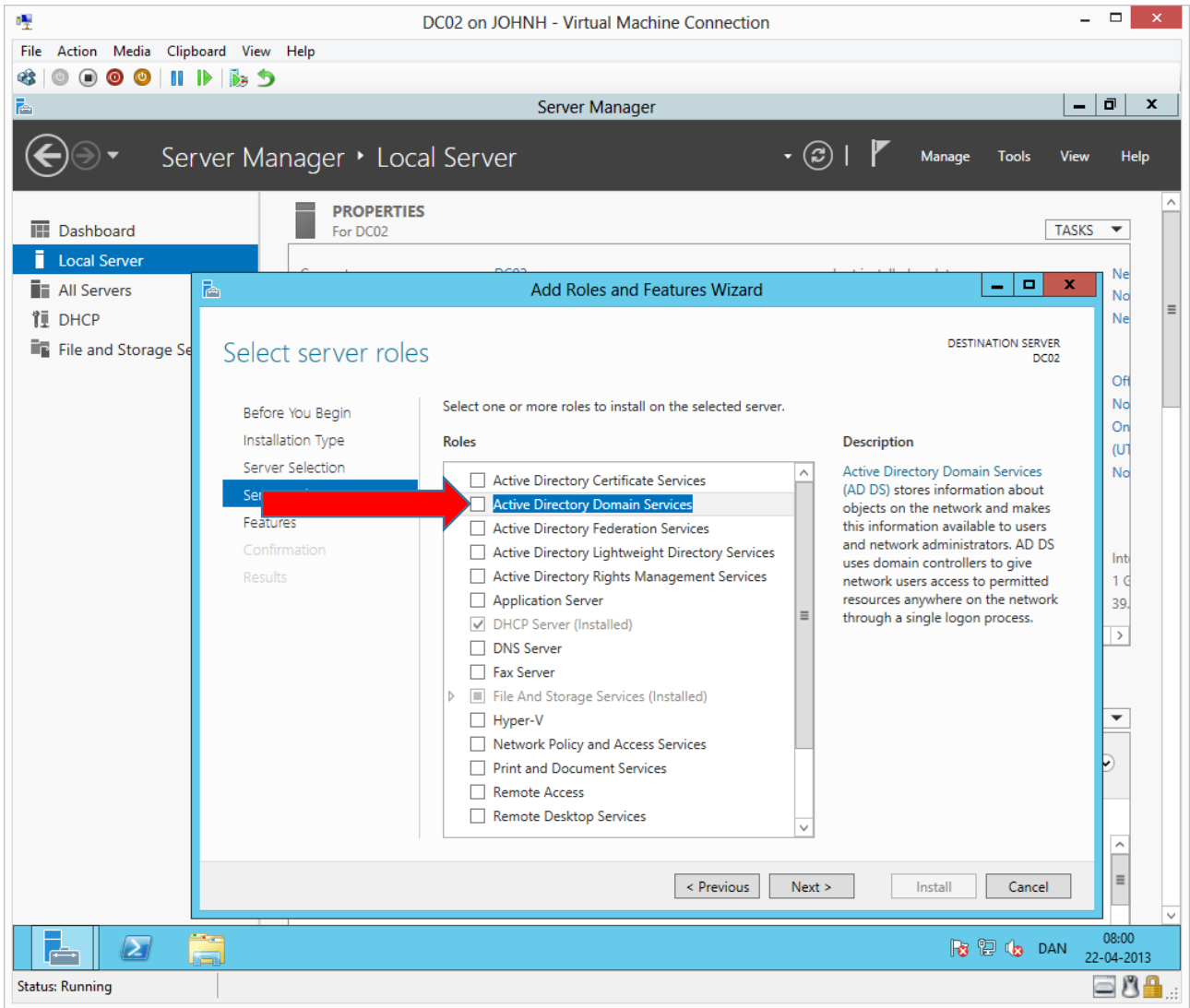


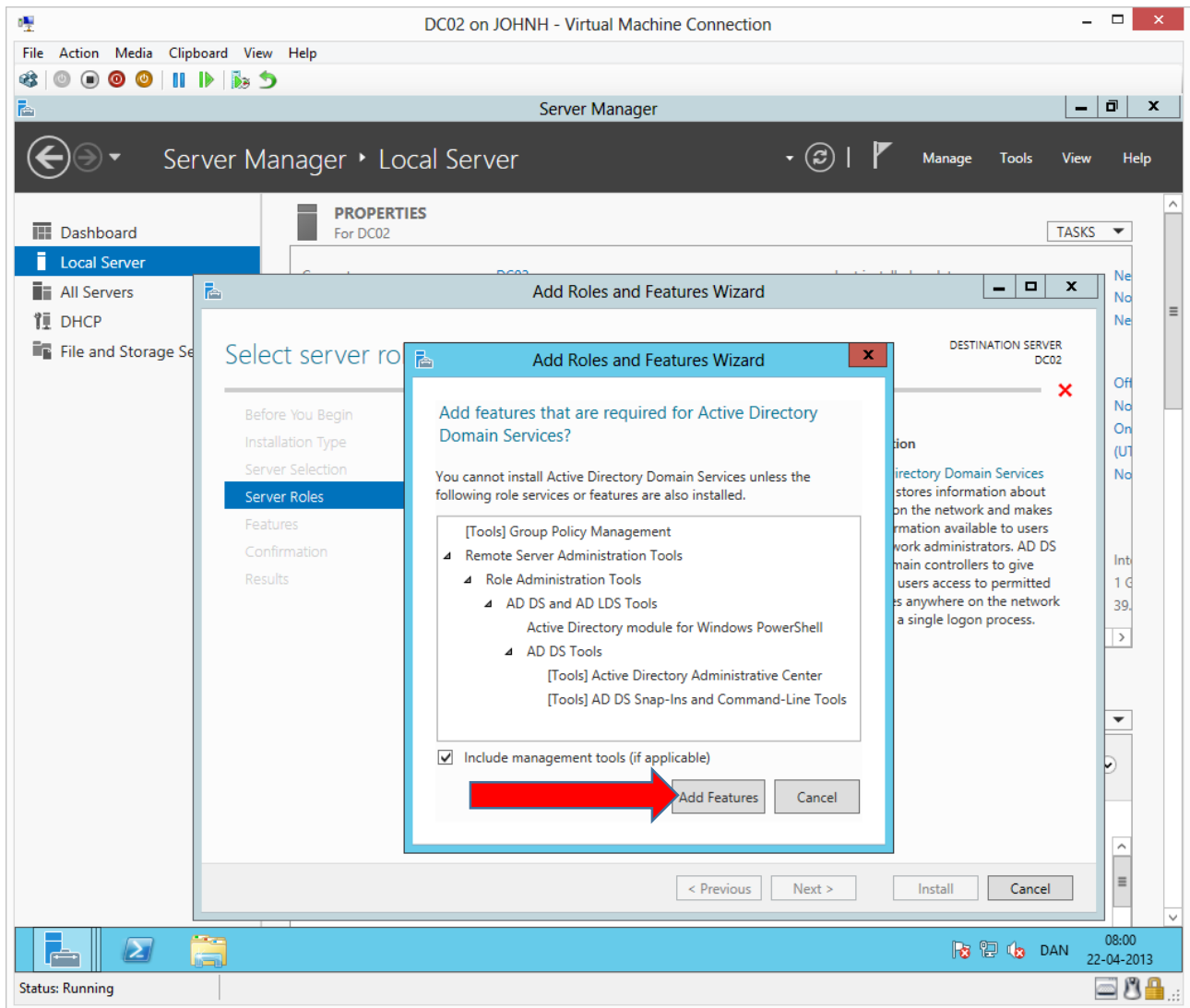


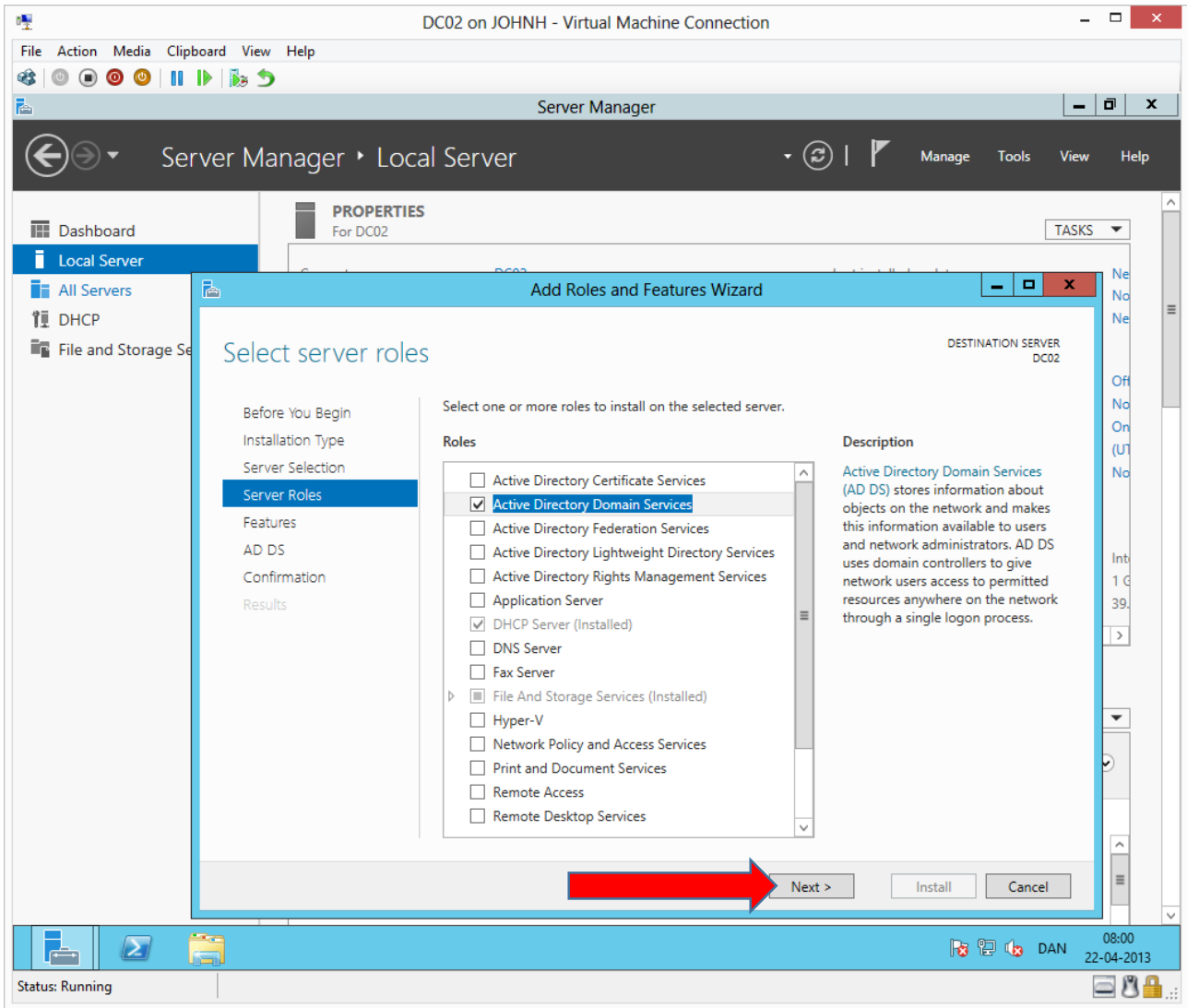
The screenshot displays the Windows Server Manager interface. The main window is titled "DC02 on JOHNH - Virtual Machine Connection". The "Server Manager" window is open, showing the "Local Server" view. A "PROPERTIES For DC02" pane is visible. The "Add Roles and Features Wizard" is open, and the "Server Selection" step is active. The wizard prompts the user to "Select a server or a virtual hard disk on which to install roles and features." Two options are available: "Select a server from the server pool" (selected) and "Select a virtual hard disk". The "Server Pool" section contains a table with the following data:

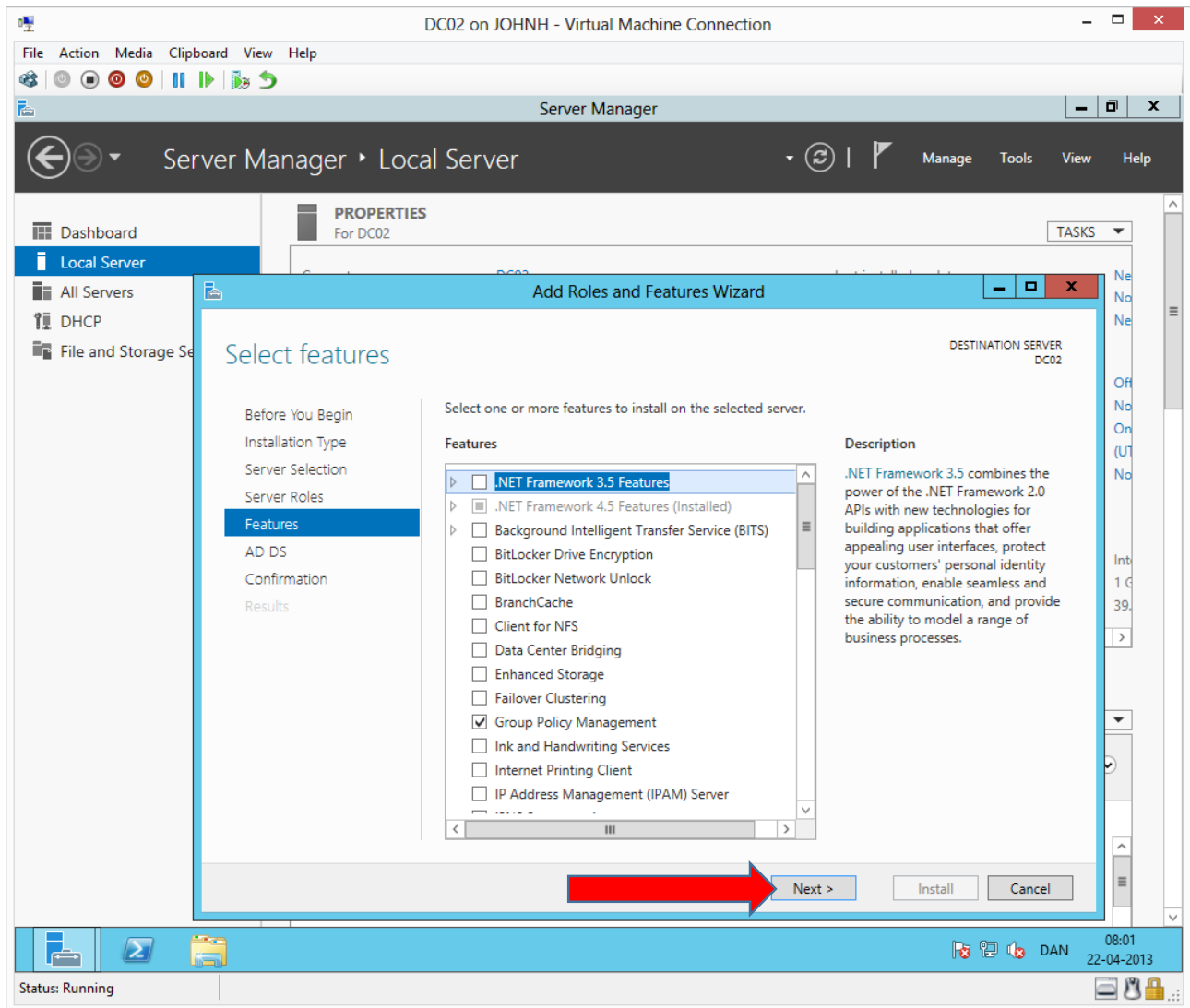
Name	IP Address	Operating System
DC02	192.168.59.10	Microsoft Windows Server 2012 Standard Evaluation

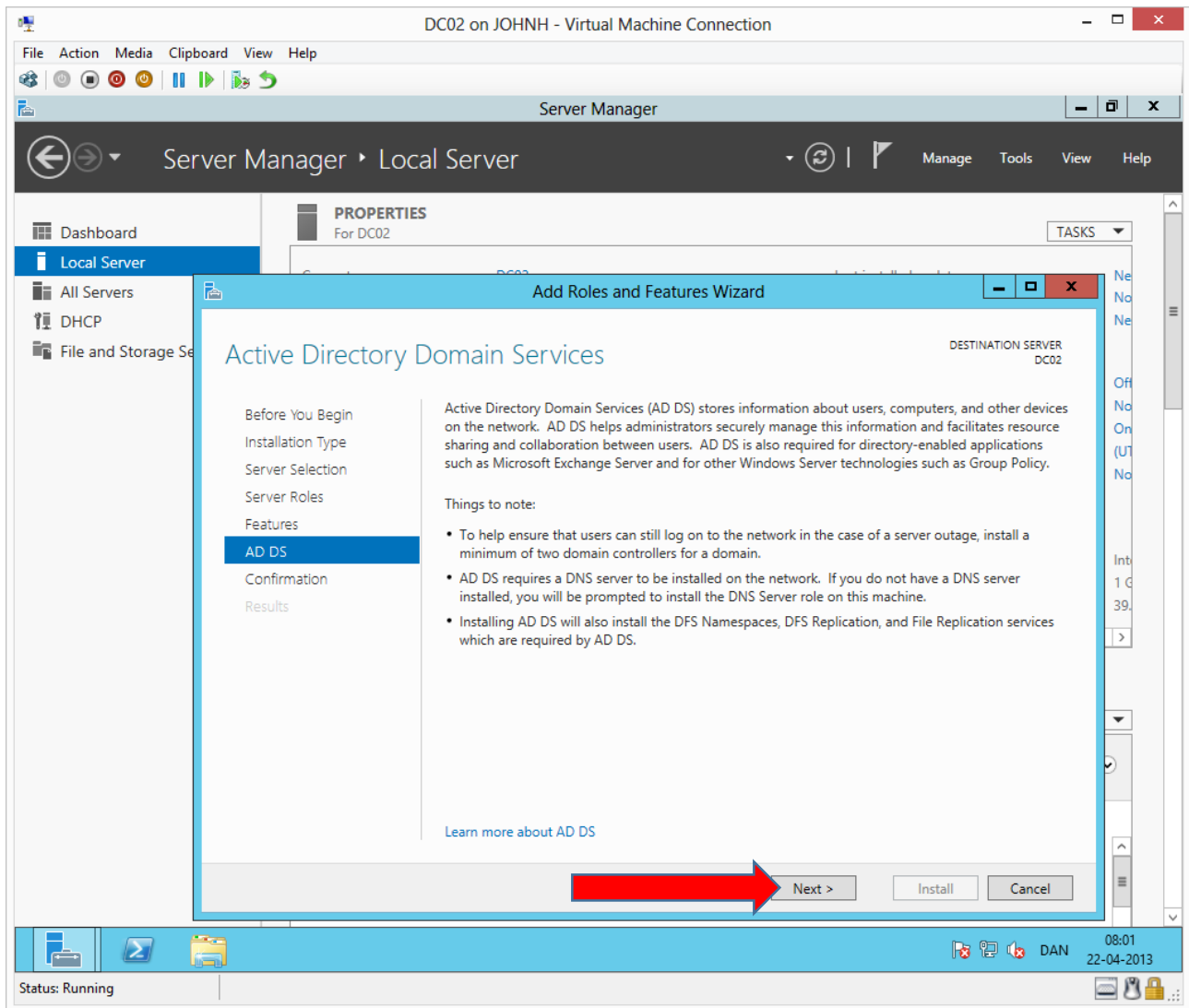
Below the table, it states "1 Computer(s) found" and provides a note: "This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown." At the bottom of the wizard, there are three buttons: "Next >", "Install", and "Cancel". A red arrow points to the "Next >" button. The taskbar at the bottom shows the system tray with the time "08:00" and date "22-04-2013", and the user name "DAN". The status bar at the bottom left indicates "Status: Running".

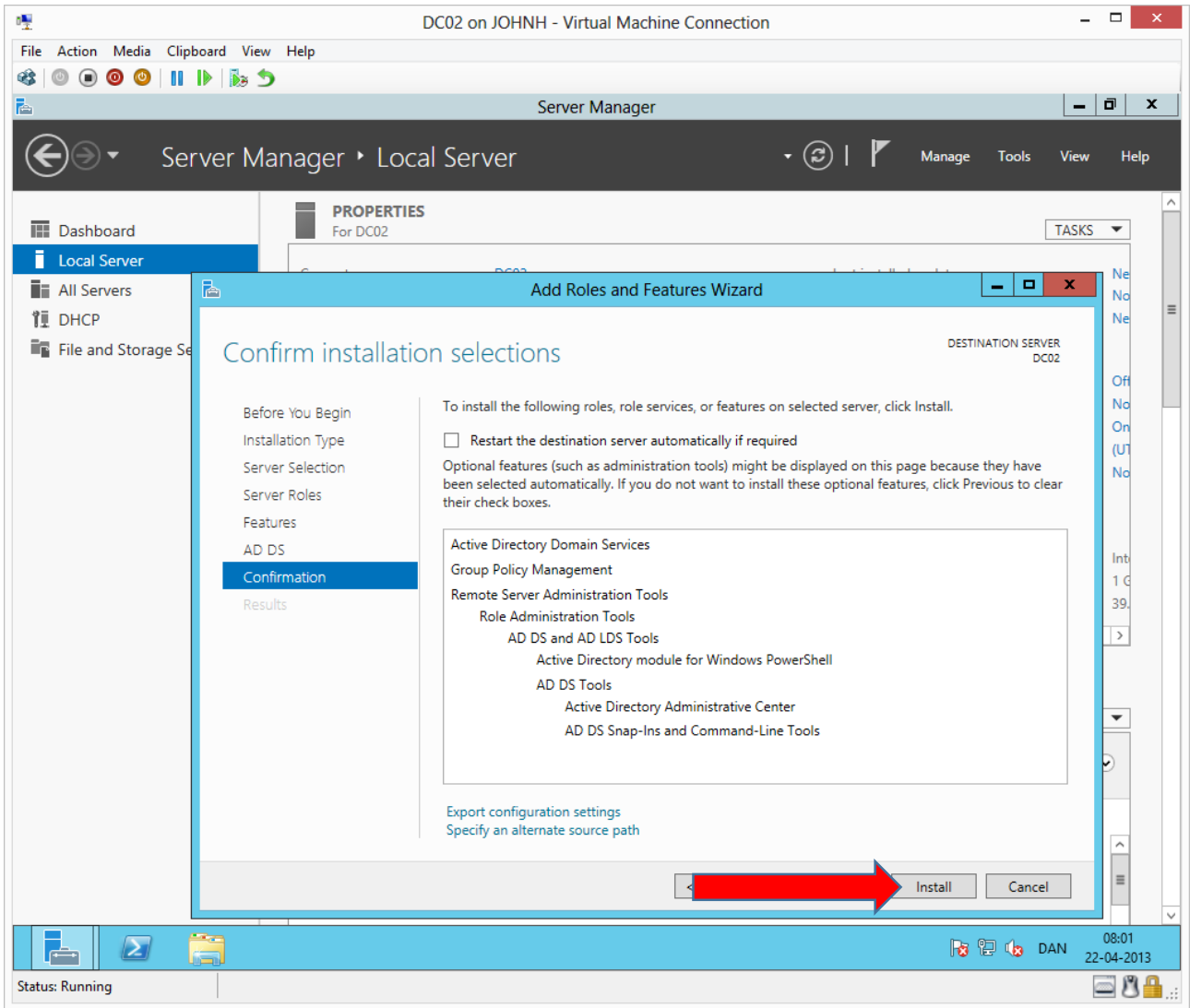


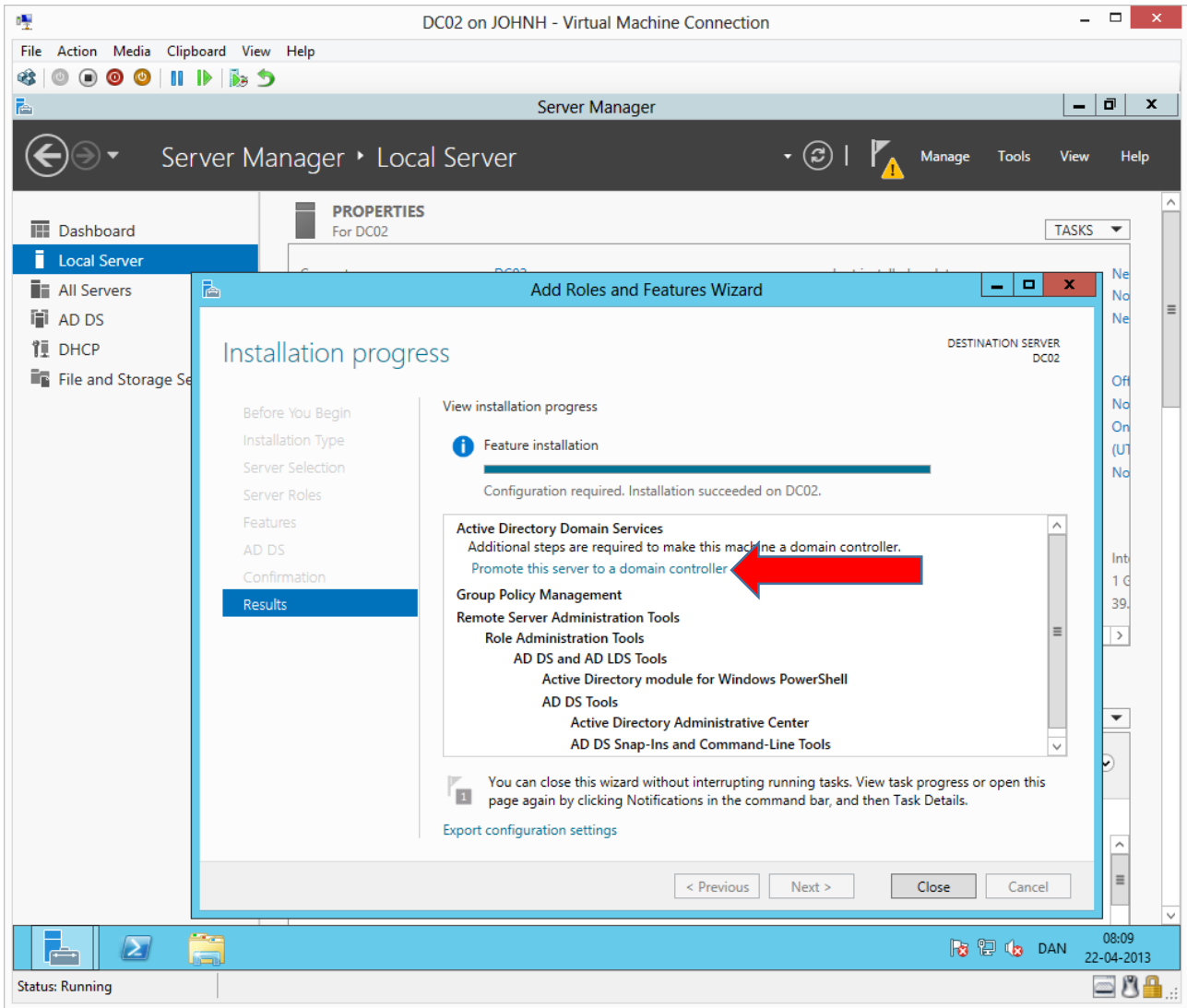


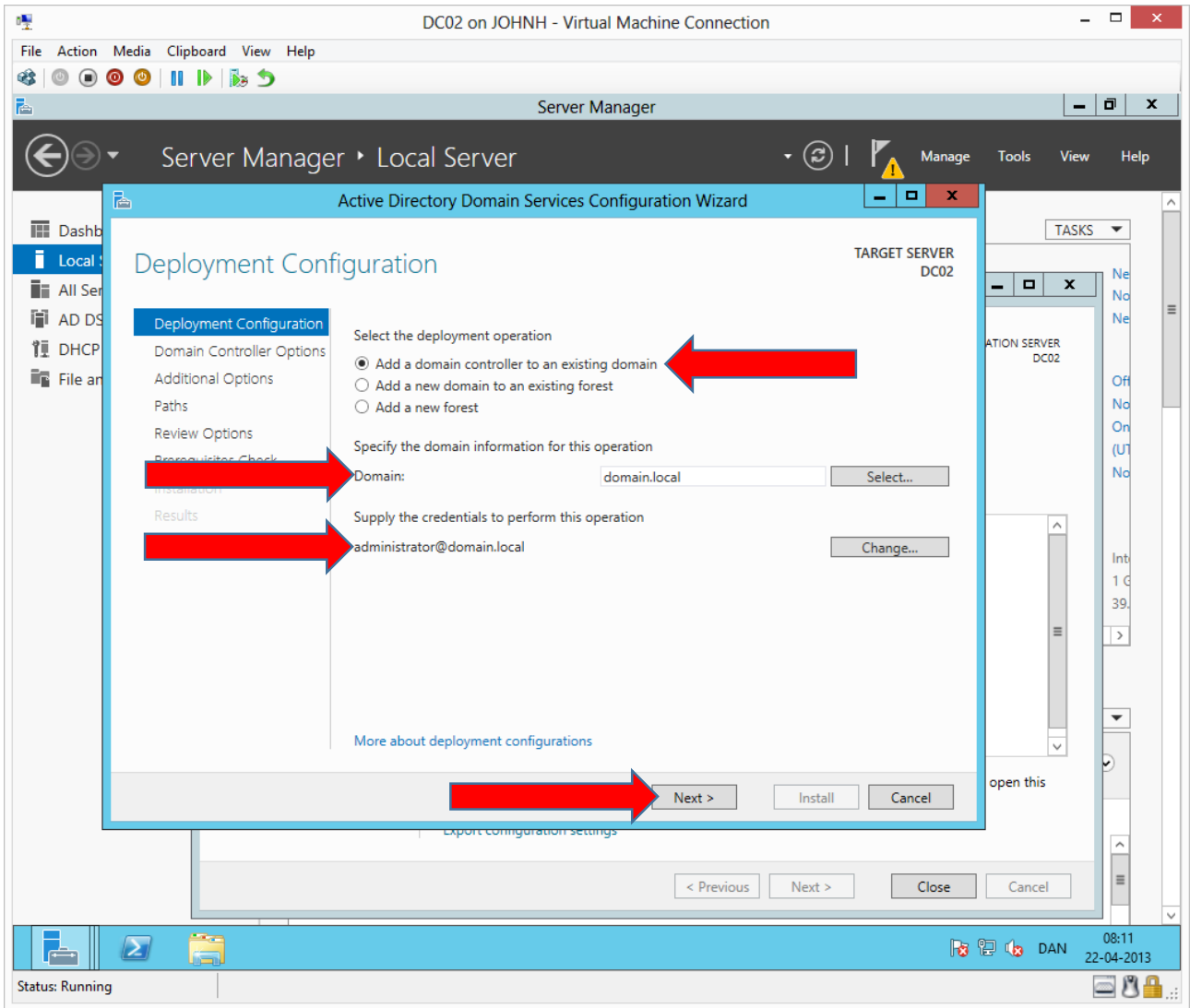


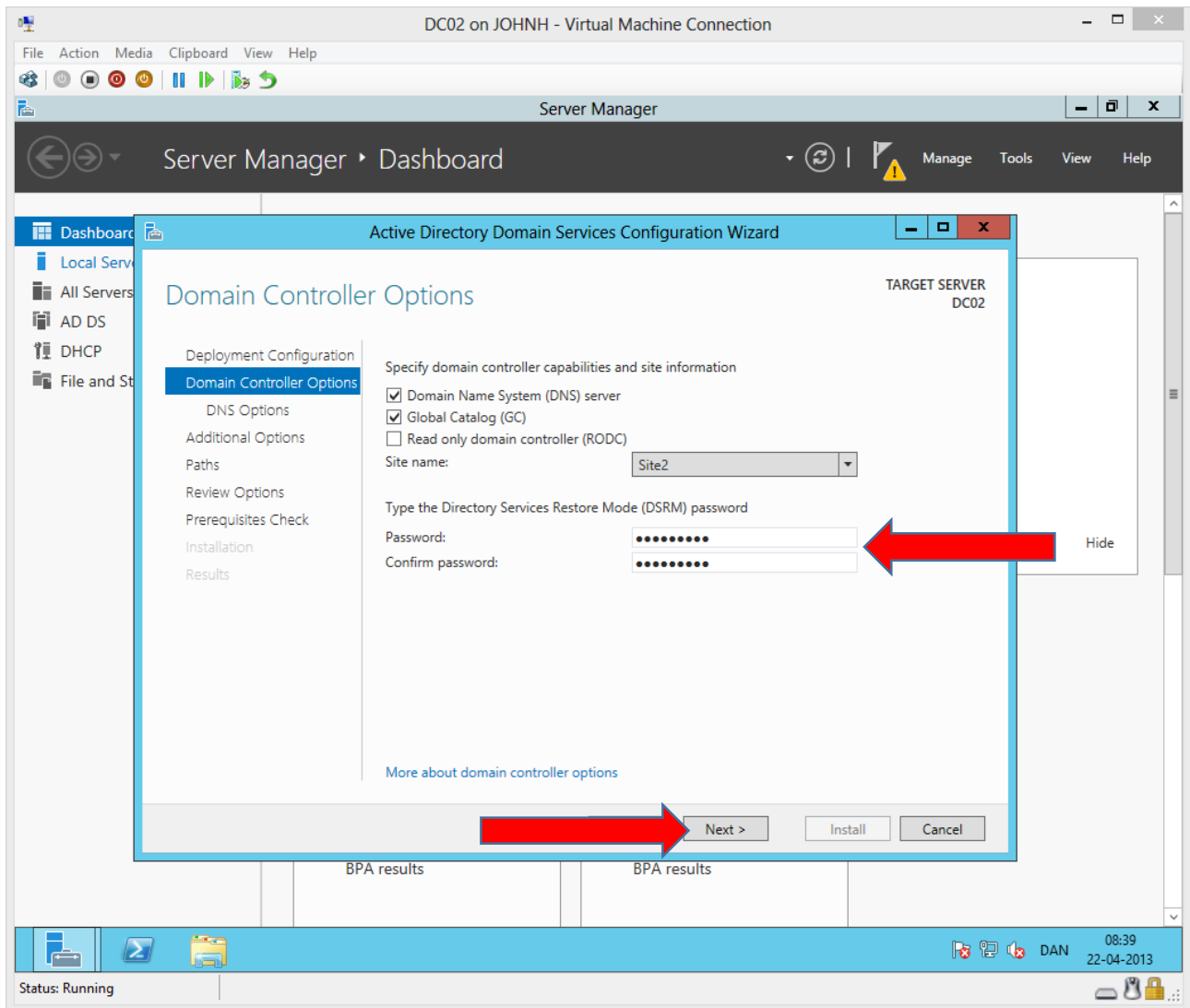






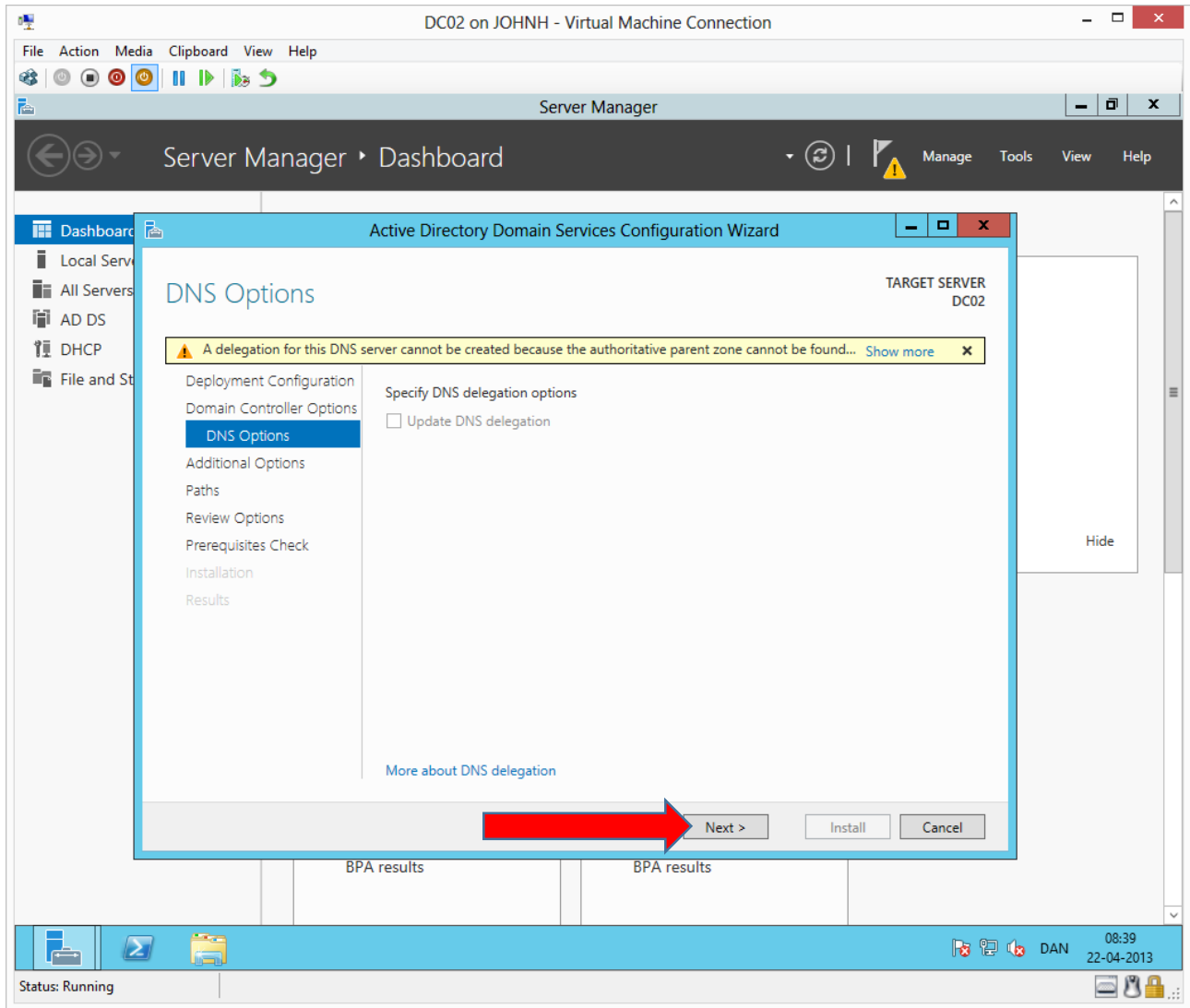


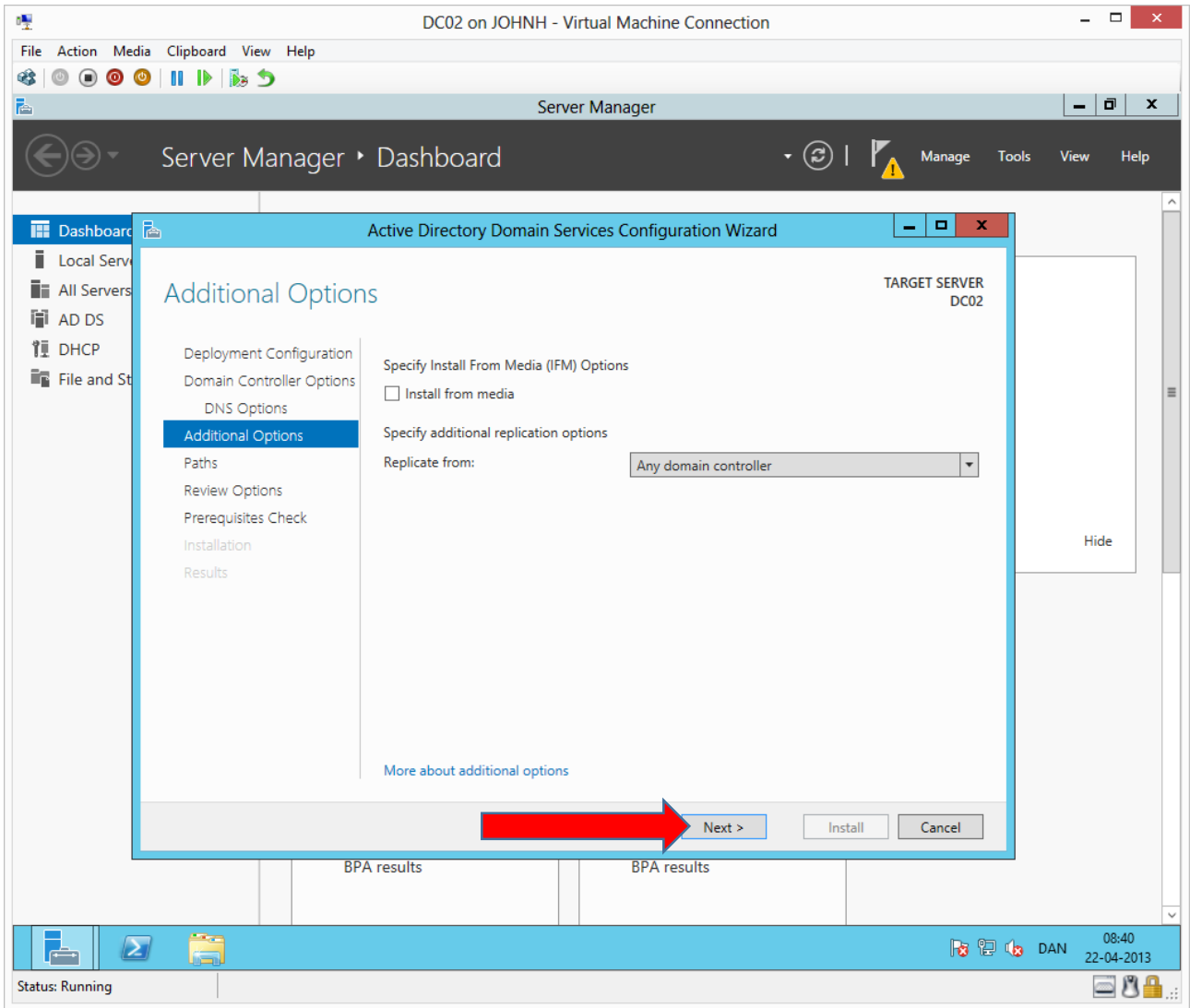


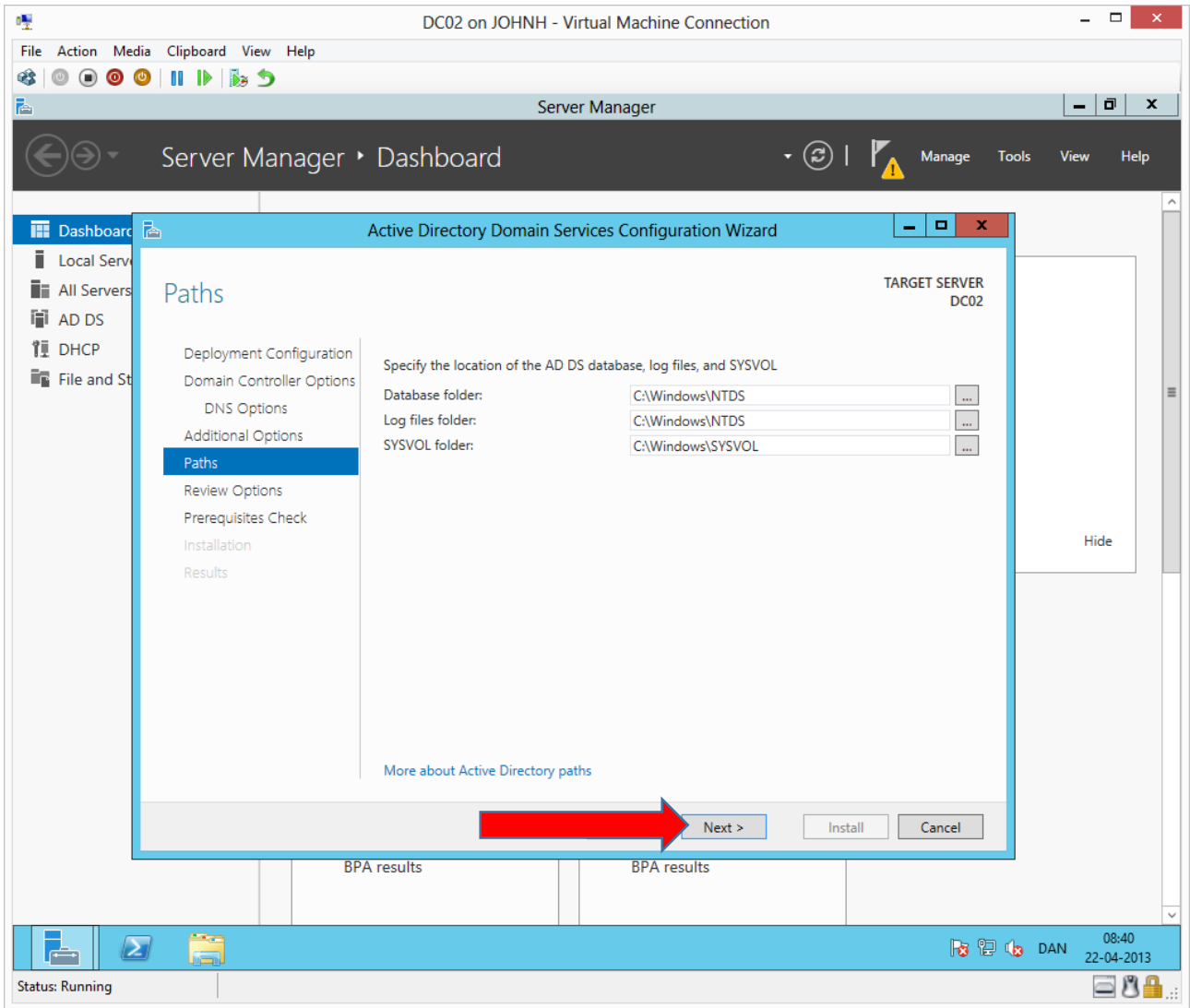


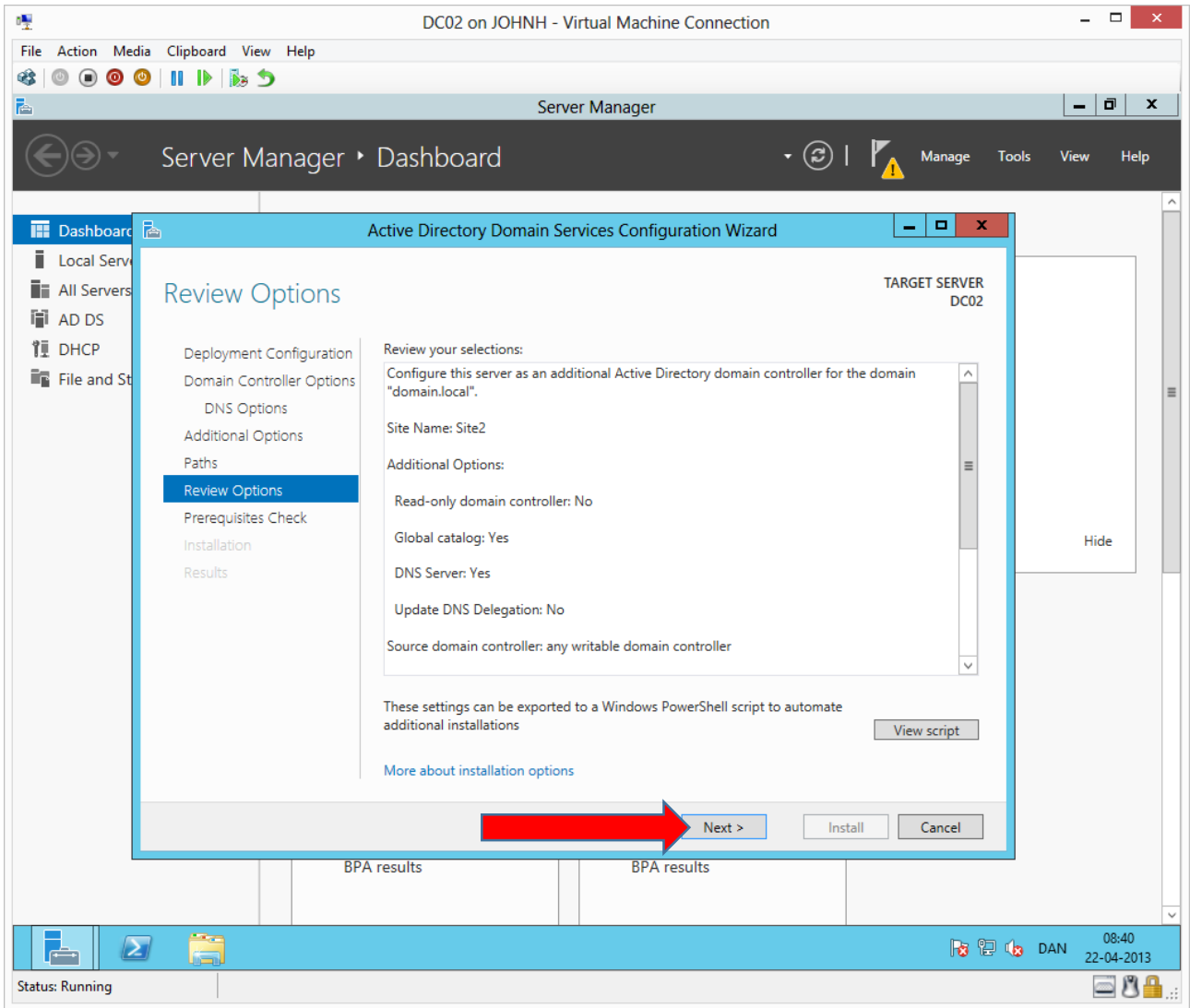
Notice how the wizard identifies which site DC02 belongs to, using IP/subnet information.

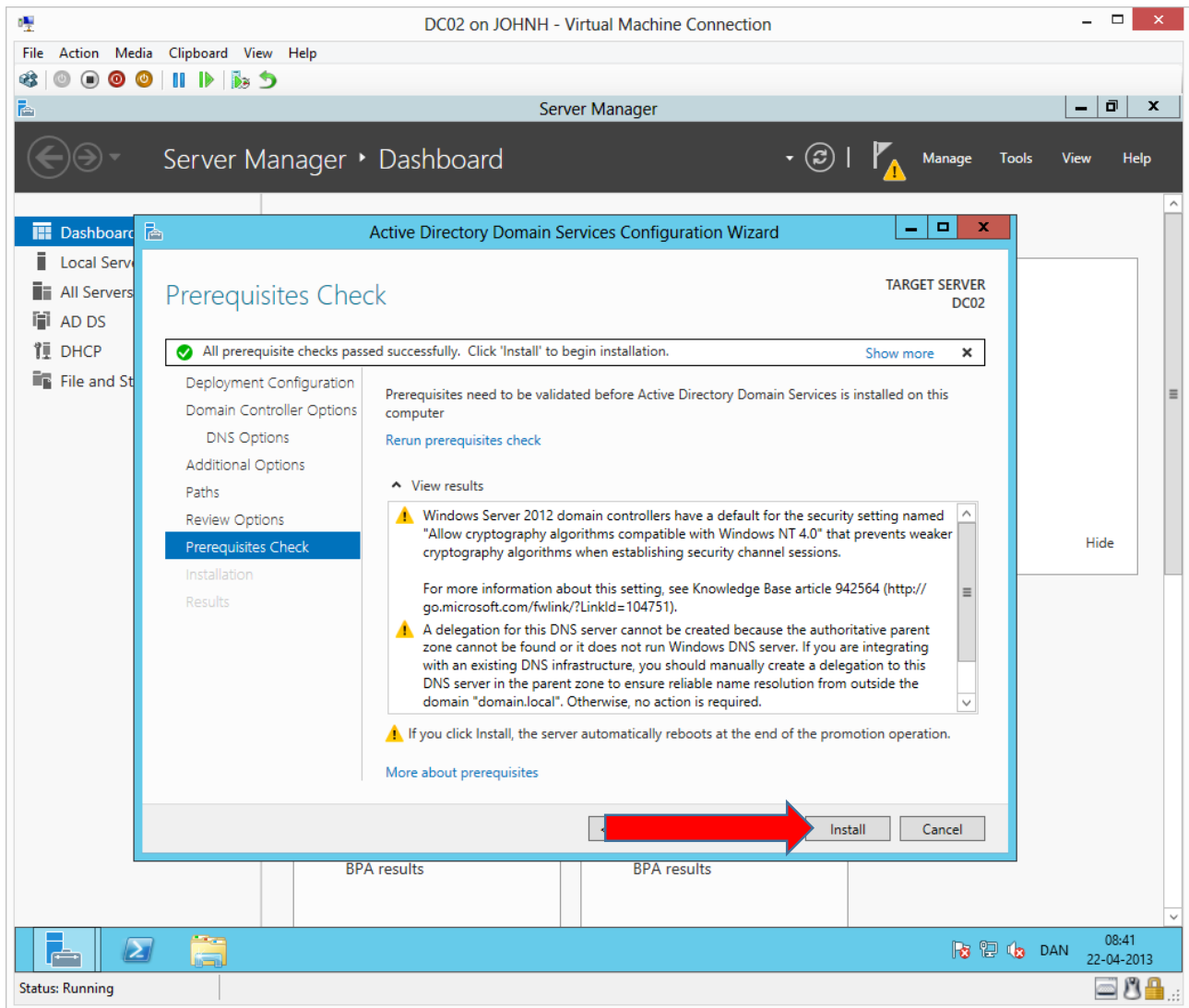
DC02 must also have a DSRM password, in our test environment we can use **Password1**

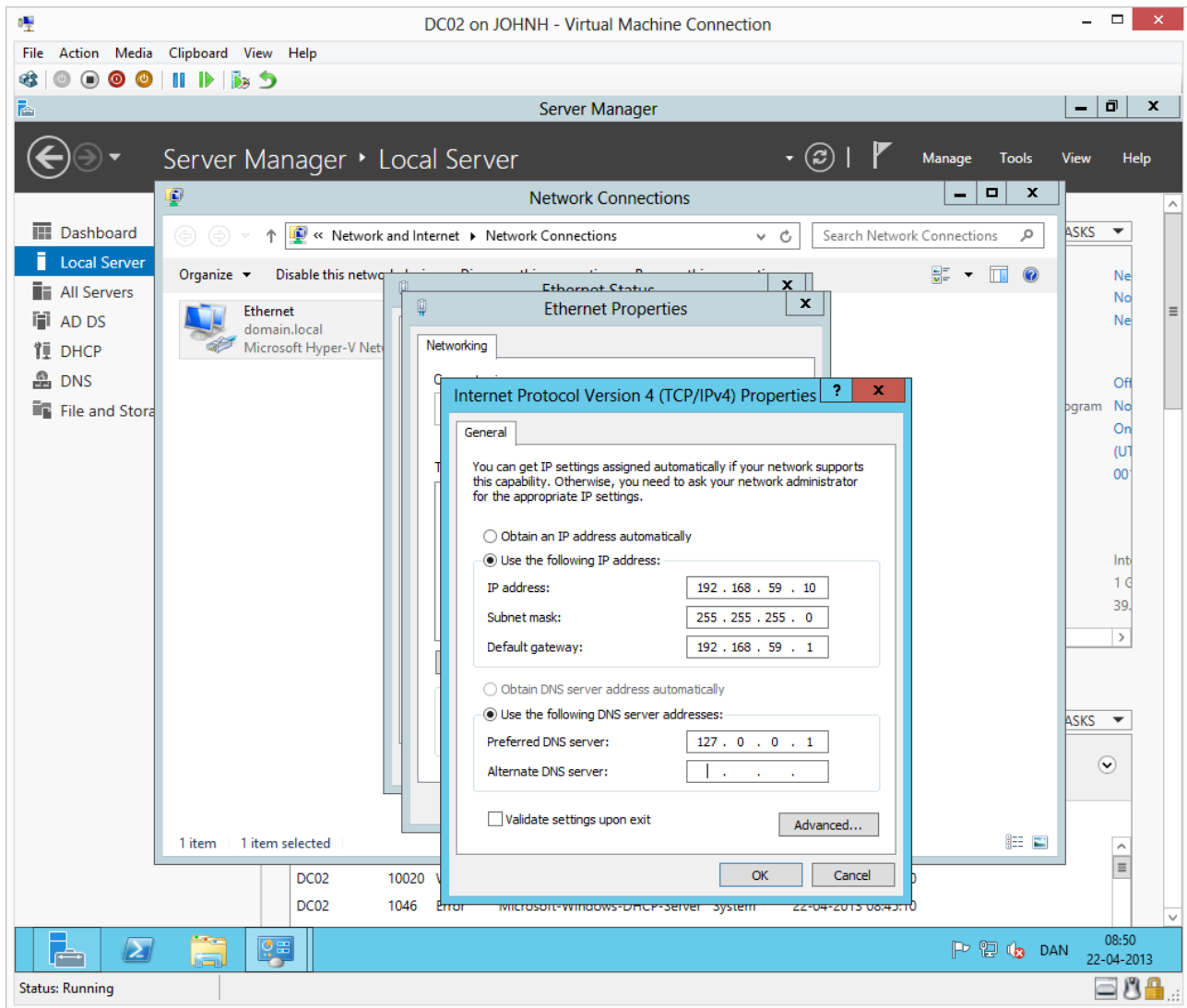












After completing the installation and restarting DC02 we make sure DC02 uses its own loopback IP address as primary DNS.

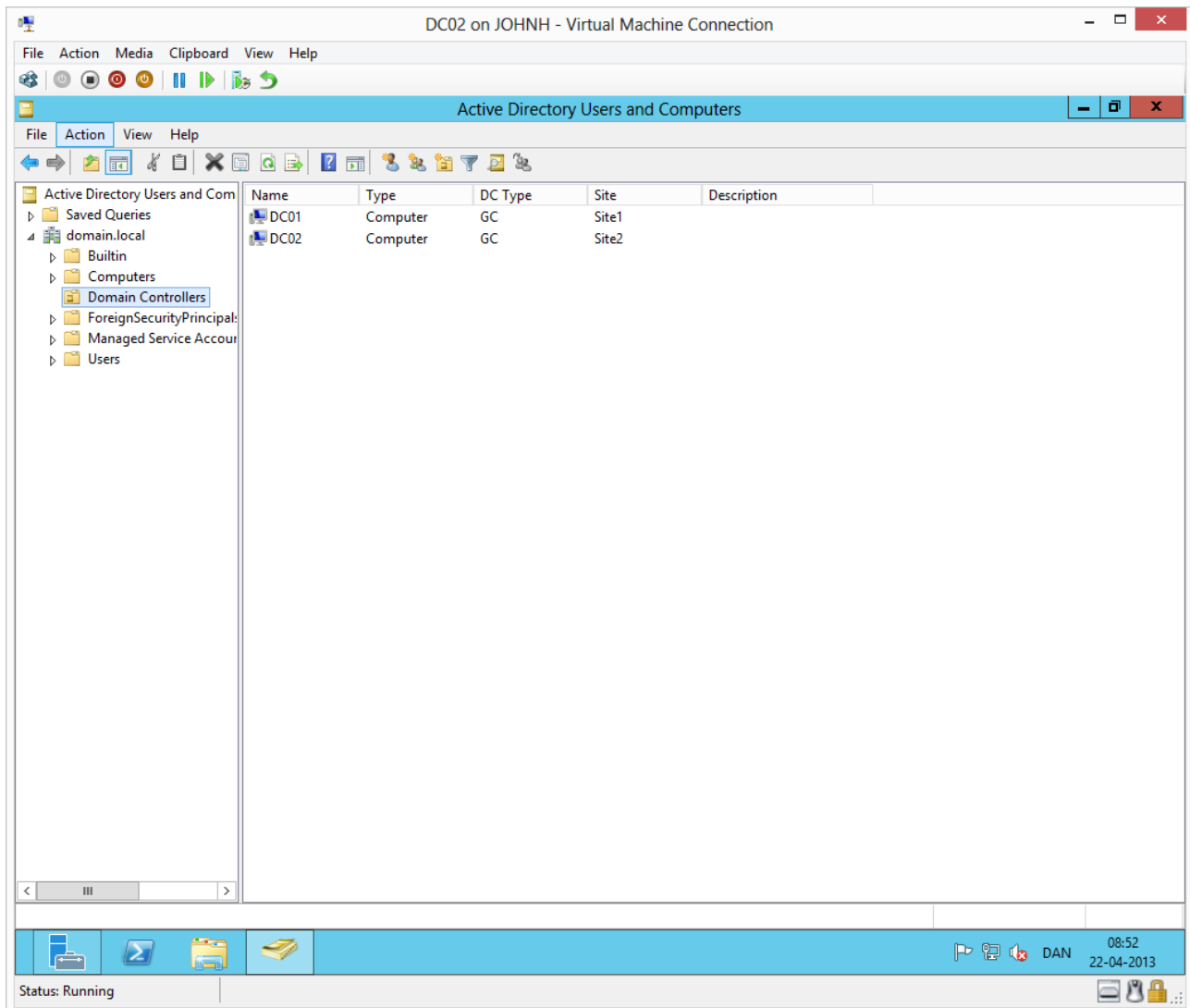
Verify the installation

We can verify the installation on DC02 by checking if DNS data has replicated and by checking if Active Directory computer objects has replicated.

The screenshot shows the DNS Manager console for a virtual machine named 'DC02 on JOHNH'. The console is displaying the configuration for the 'domain.local' zone. The left pane shows the tree view with 'domain.local' selected. The right pane shows a table of records for this zone.

Name	Type	Data	Timestamp
_msdcs			
_sites			
_tcp			
_udp			
DomainDnsZones			
ForestDnsZones			
(same as parent folder)	Start of Authority (SOA)	[62], dc02.domain.local, h...	static
(same as parent folder)	Name Server (NS)	dc02.domain.local.	static
(same as parent folder)	Name Server (NS)	dc01.domain.local.	static
(same as parent folder)	Host (A)	192.168.59.10	22-04-2013 08:00:00
(same as parent folder)	Host (A)	192.168.58.10	15-04-2013 09:00:00
dc01	Host (A)	192.168.58.10	static
dc02	Host (A)	192.168.59.10	22-04-2013 08:00:00
jheRRAS01	Host (A)	192.168.58.1	15-04-2013 10:00:00

The taskbar at the bottom shows the system clock at 08:51 and the status 'Status: Running'.



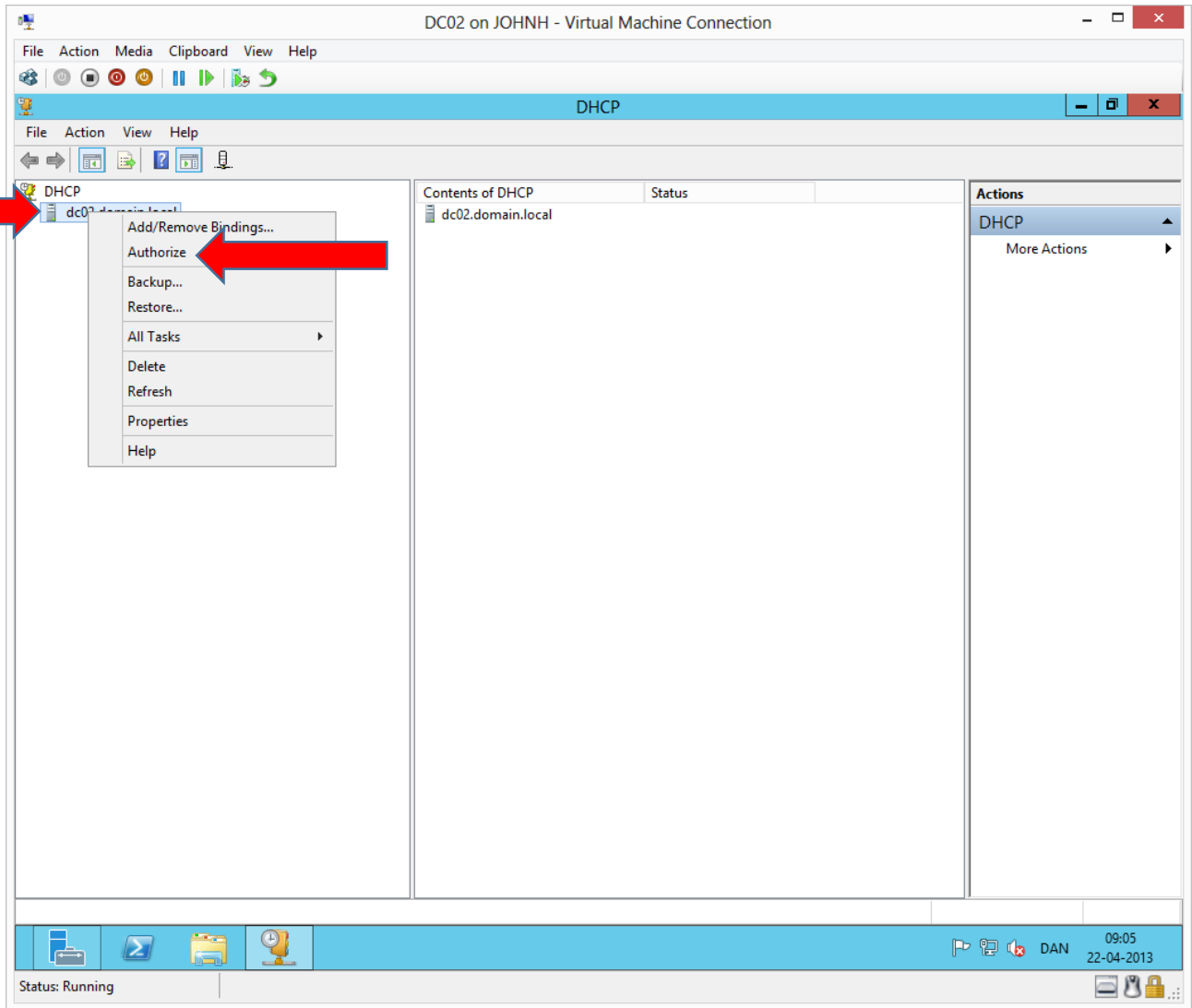
Extra steps if domain controller is also a DHCP server

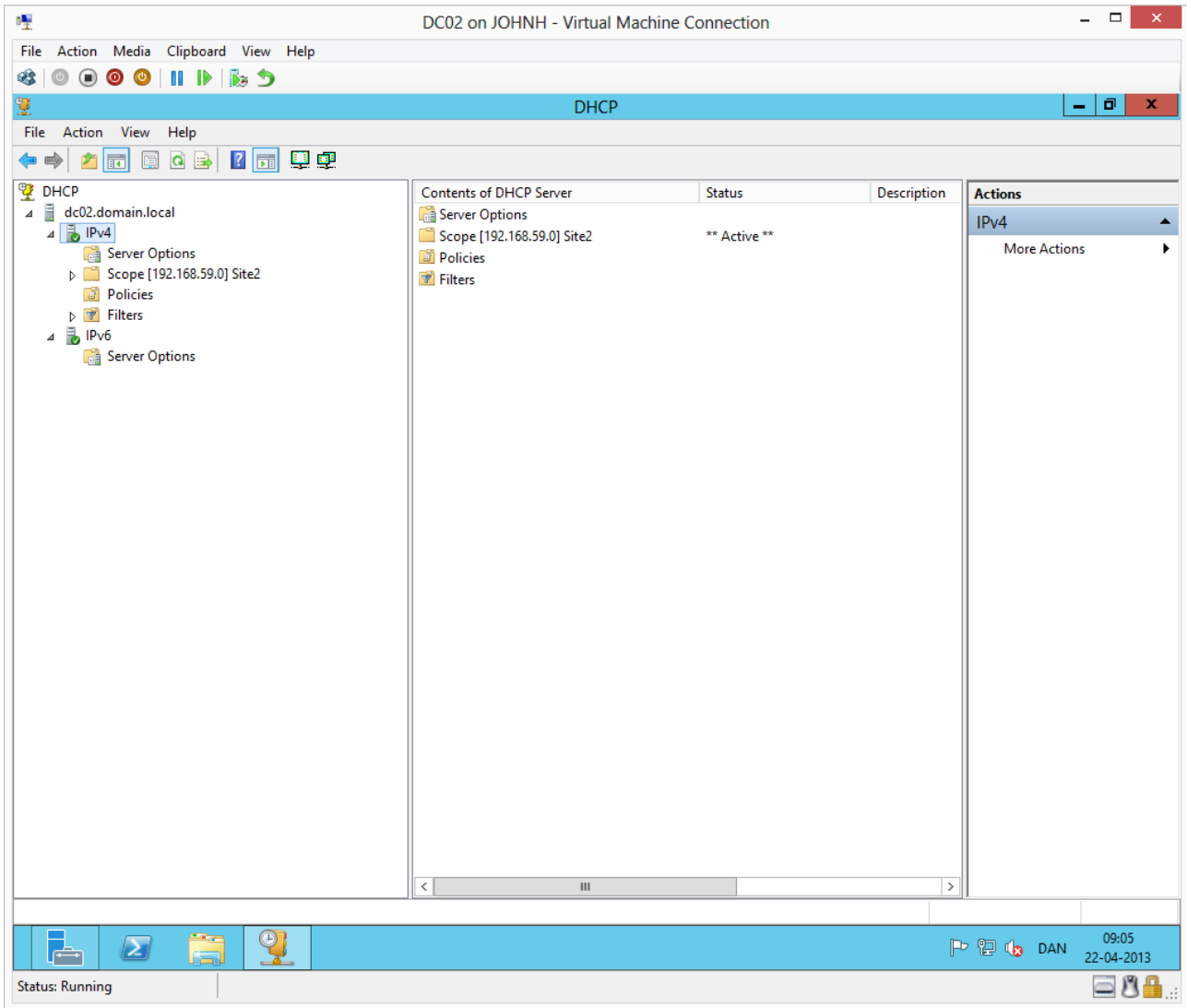
When a DHCP server is installed as a domain controller or becomes a member server of a domain, it must be authorized in Active Directory to be allowed to run the DHCP service. Authorized DHCP servers are listed on a whitelist in Active Directory. The reason for this is, that unauthorized DHCP servers can be found more easily by comparing a complete list of all DHCP servers on the network to the whitelist in Active Directory.

The screenshot shows the Windows Server Manager interface for a local server. The main dashboard area displays a 'WELCOME TO SERVER MANAGER' section with a 'QUICK START' guide containing four steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, and 4. Create a server group. Below this is a 'ROLES AND SERVER GROUPS' section showing 'AD DS' and 'DHCP' roles, each with a 'Manageability' status icon and a list of sub-items: Events, Services, Performance, and BPA results.

A dropdown menu is open on the right side of the interface, listing various server roles and features. A red arrow points to the 'DHCP' option in this list. The list includes: Active Directory Administrative Center, Active Directory Domains and Trusts, Active Directory Module for Windows PowerShell, Active Directory Sites and Services, Active Directory Users and Computers, ADSI Edit, Component Services, Computer Management, Defragment and Optimize Drives, DHCP, DNS, Event Viewer, Group Policy Management, iSCSI Initiator, Local Security Policy, ODBC Data Sources (32-bit), ODBC Data Sources (64-bit), Performance Monitor, Resource Monitor, Security Configuration Wizard, Services, System Configuration, System Information, Task Scheduler, Windows Firewall with Advanced Security, Windows Memory Diagnostic, Windows PowerShell, Windows PowerShell (x86), and Windows PowerShell ISE.

The taskbar at the bottom shows the system tray with the name 'DAN', the time '09:04', and the date '22-04-2013'. The status bar at the bottom left indicates 'Status: Running'.





A refresh (F5 for example) should show the scopes as activated.