

Instalação e Configuração do AD-DS

Serviços de Domínio Active Directory

Disciplina: Administração e Segurança de Sistemas de
Computadores

Curso: Licenciatura em Engenharia Informática

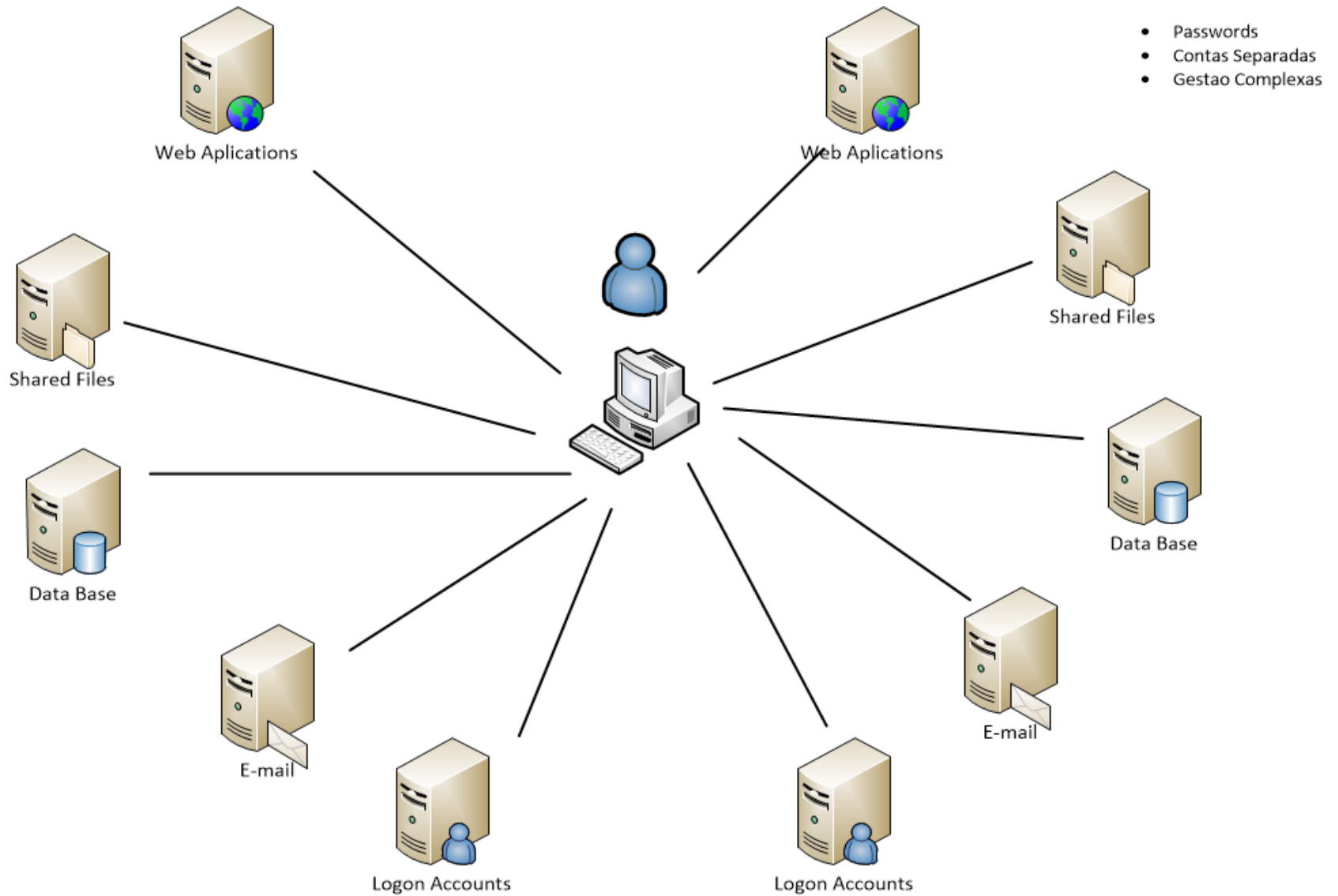
Docentes: Doutor Eng. Lourino Chemane, Engra. Invone Cipriano e eng. Délcio
Chadrega

DEEL, Faculdade de Engenharia, UEM

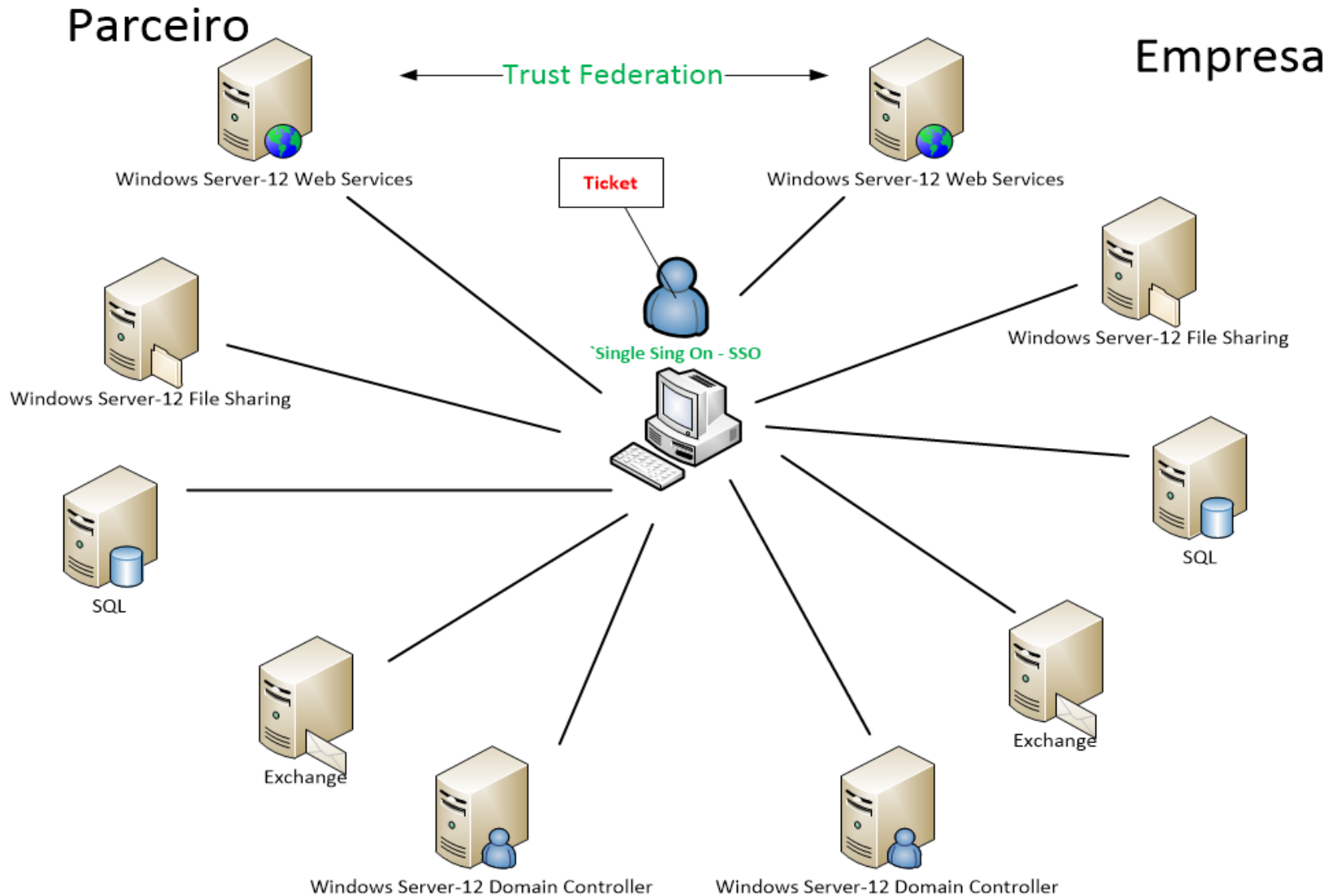
Agenda

- Active Directory
 - Vantagens
 - Estrutura
 - Objectos
- Configuração do AD-DS
- Analise das configurações
- Exercícios

AD-DS



AD-DS Operacional



O que é AD-DS

- É uma base de dados de controlo de domínio
- Baseado em X.500/LDAP (Lightweight Directory Access Protocol)
- *Kerberos* (utiliza sistema de tickets)
- Sincronização consistente entre os Peers e Controladores de Domínio (Pode ter mais de um DC)
- Extensivo
- Interoperável com outros domínios e florestas

Estrutura do AD-DS

- Domain
- Tree
- Forest
- Trust
- Federation



Uem.ac.mz



feng.uem.ac.mz



Dmi.uem.ac.mz

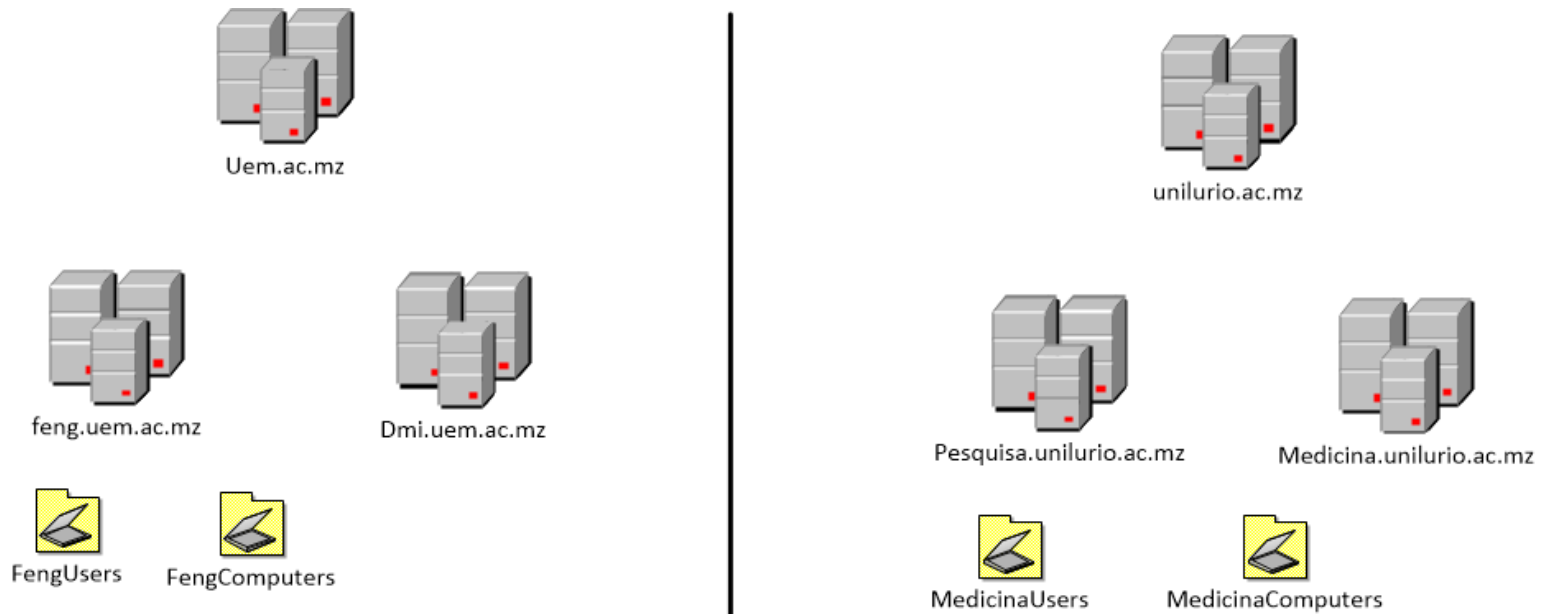


FengUsers



FengComputers

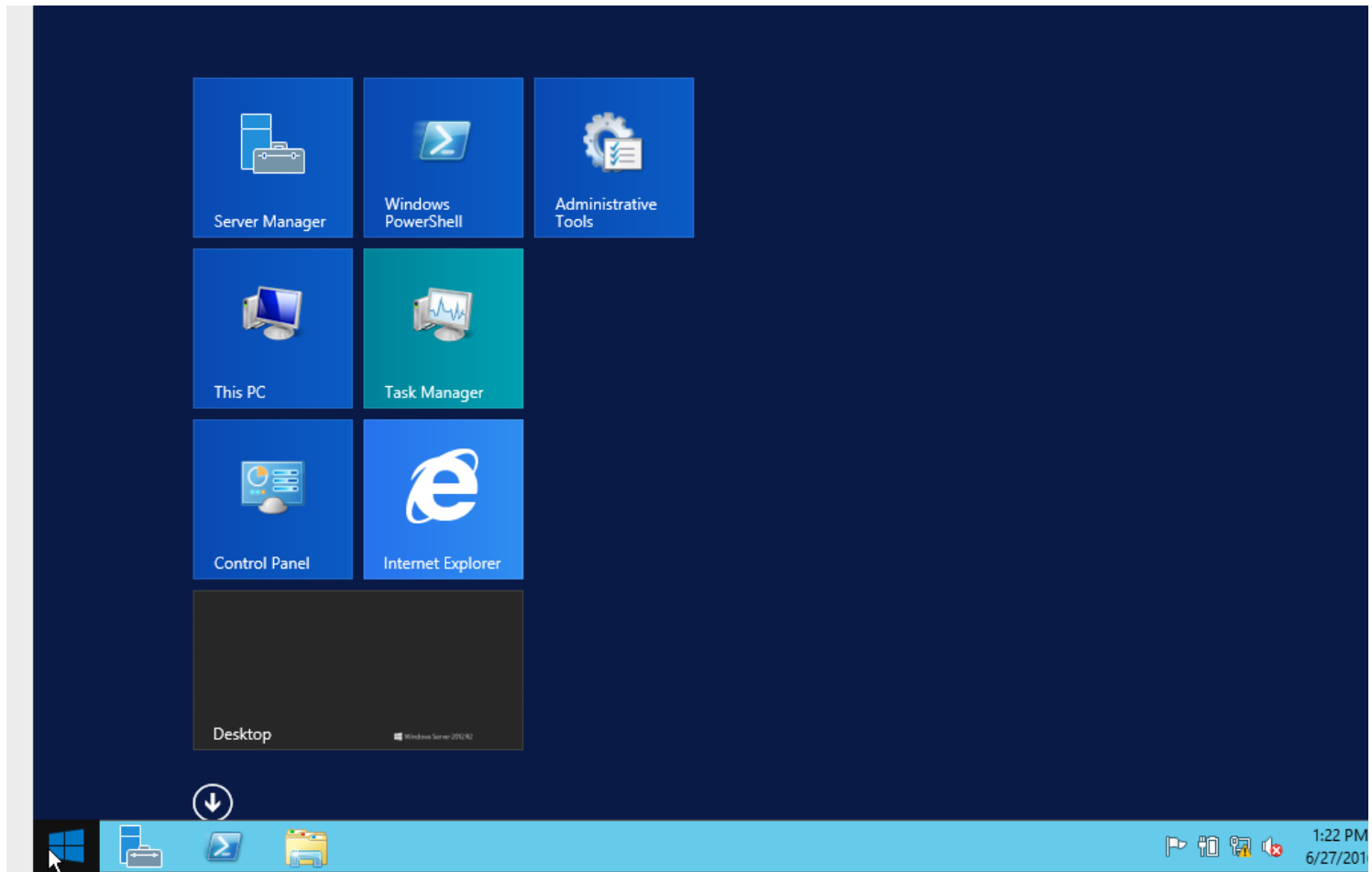
AD-DS



AD-DS Objects

- Users
- Group
- Computer
- Organizations Units
- Sites, Sites Link

Home do SO



Funções e Recursos

The screenshot displays the Windows Server Manager interface. The top navigation bar includes 'Server Manager' and 'Dashboard'. The left sidebar lists 'Dashboard', 'Local Server', 'All Servers', and 'File and Storage Services'. The main content area is titled 'WELCOME TO SERVER MANAGER' and features a 'QUICK START' section with a 5-step guide: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. Below this is a 'ROLES AND SERVER GROUPS' section showing a summary of roles and server groups, with a table listing 'File and Storage Services' and 'Local Server'.

Server Manager

Server Manager ▸ Dashboard

Manage Tools View Help

Dashboard

- Local Server
- All Servers
- File and Storage Services ▸

WELCOME TO SERVER MANAGER

1 Configure this local server

2 Add roles and features

3 Add other servers to manage

4 Create a server group

5 Connect this server to cloud services

Hide

QUICK START

WHAT'S NEW

LEARN MORE

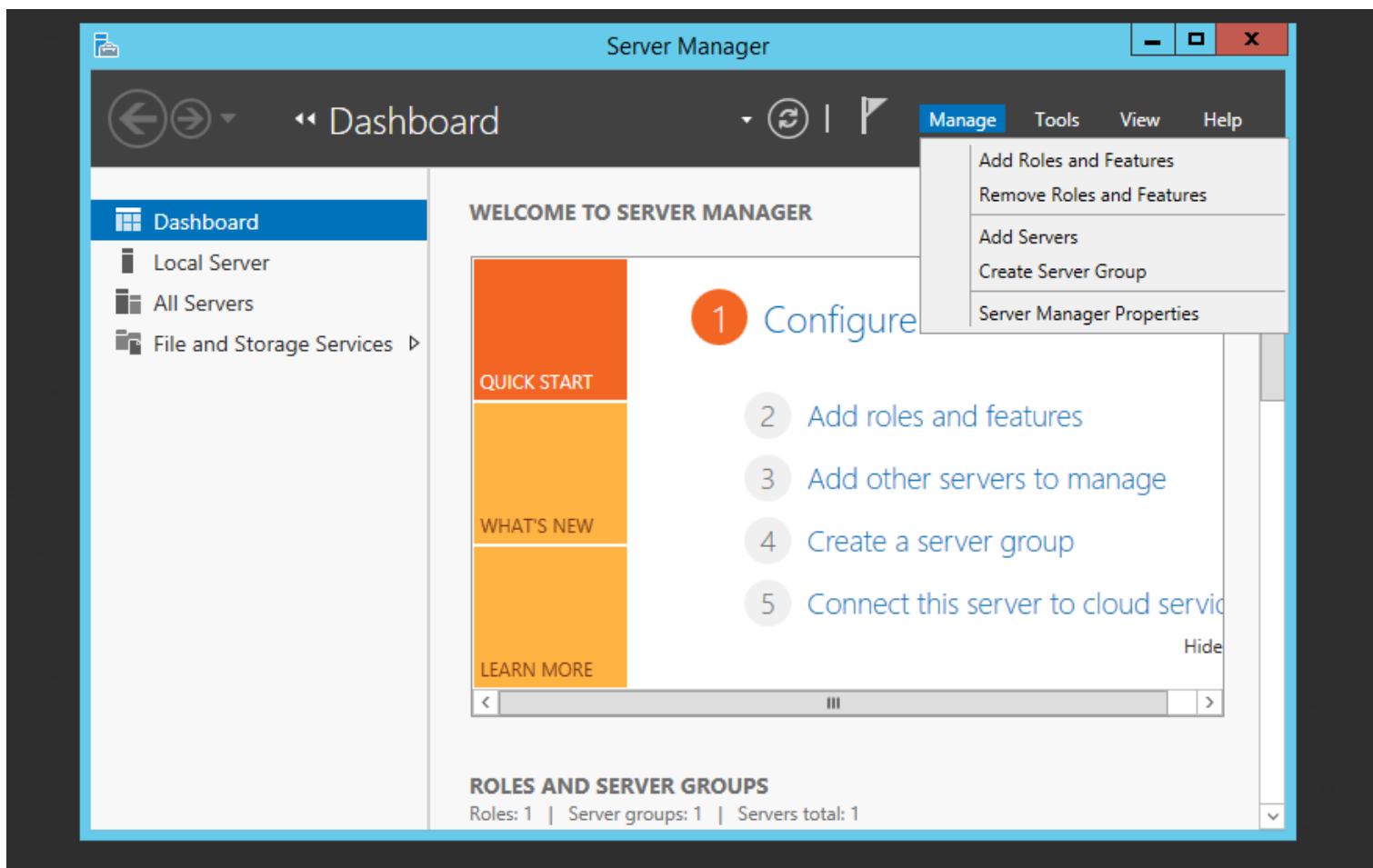
ROLES AND SERVER GROUPS

Roles: 1 | Server groups: 1 | Servers total: 1

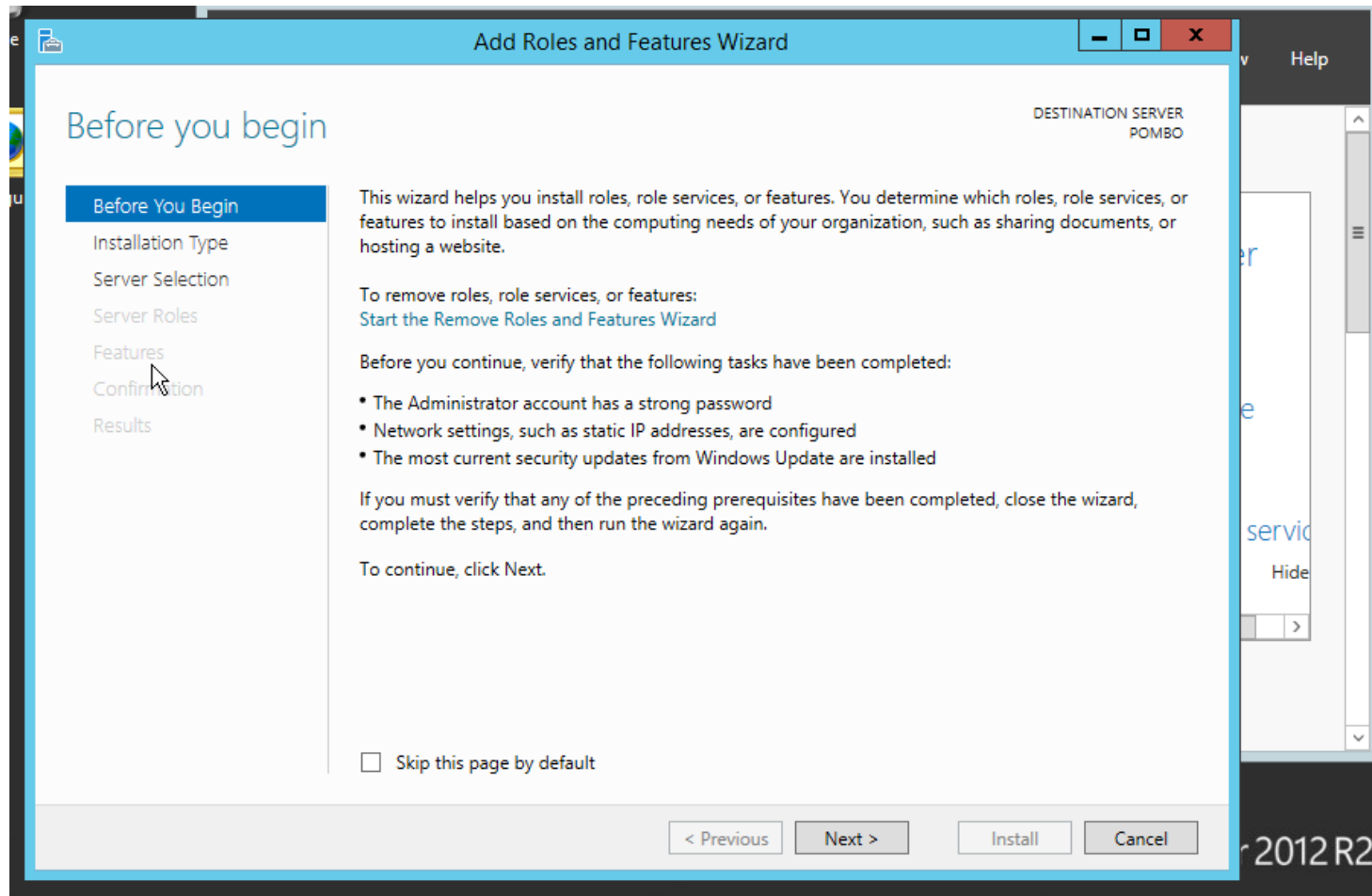
	File and Storage Services	1
	Manageability	
	Events	

	Local Server	1
	Manageability	
	Events	

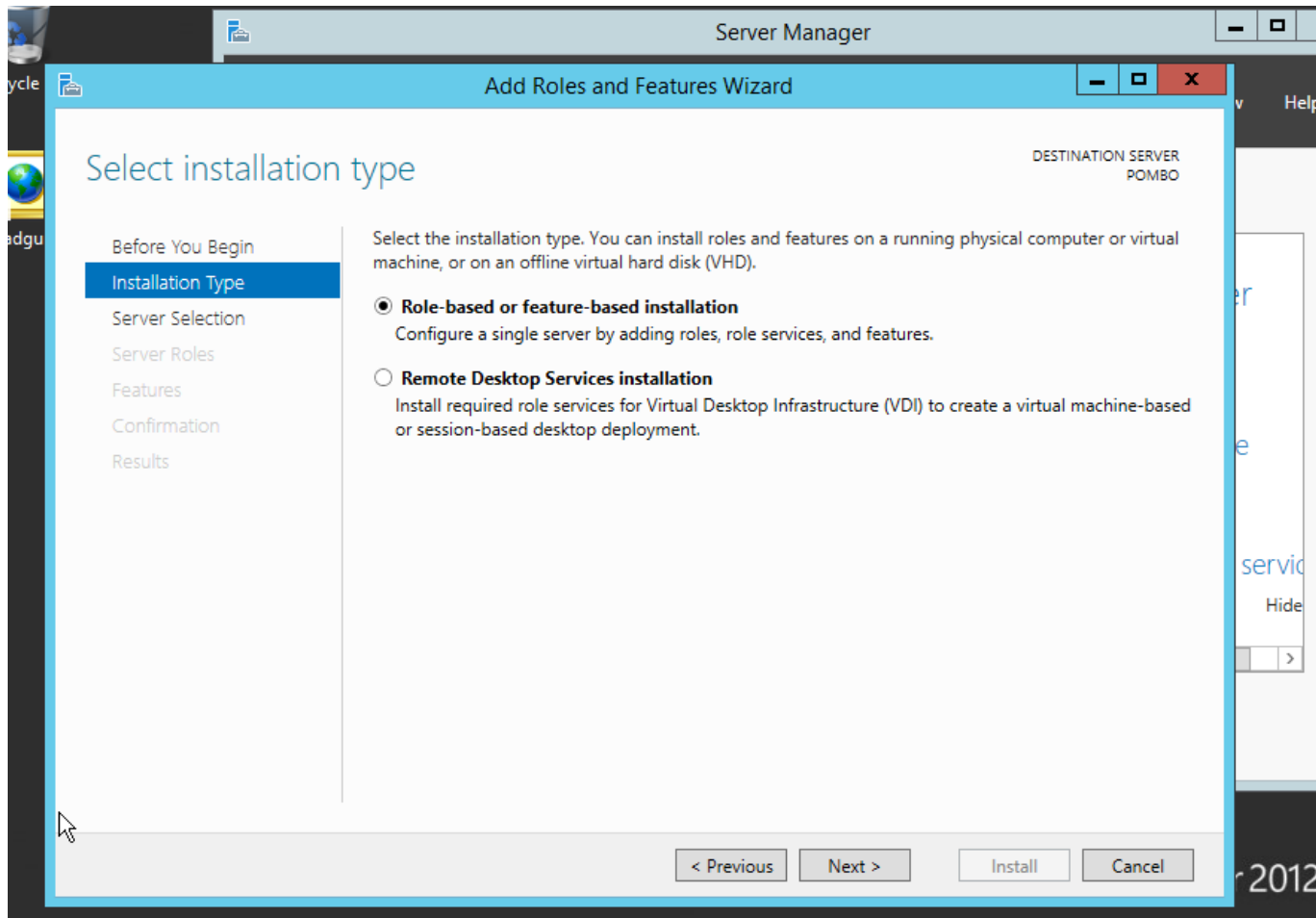
Funções e Recursos



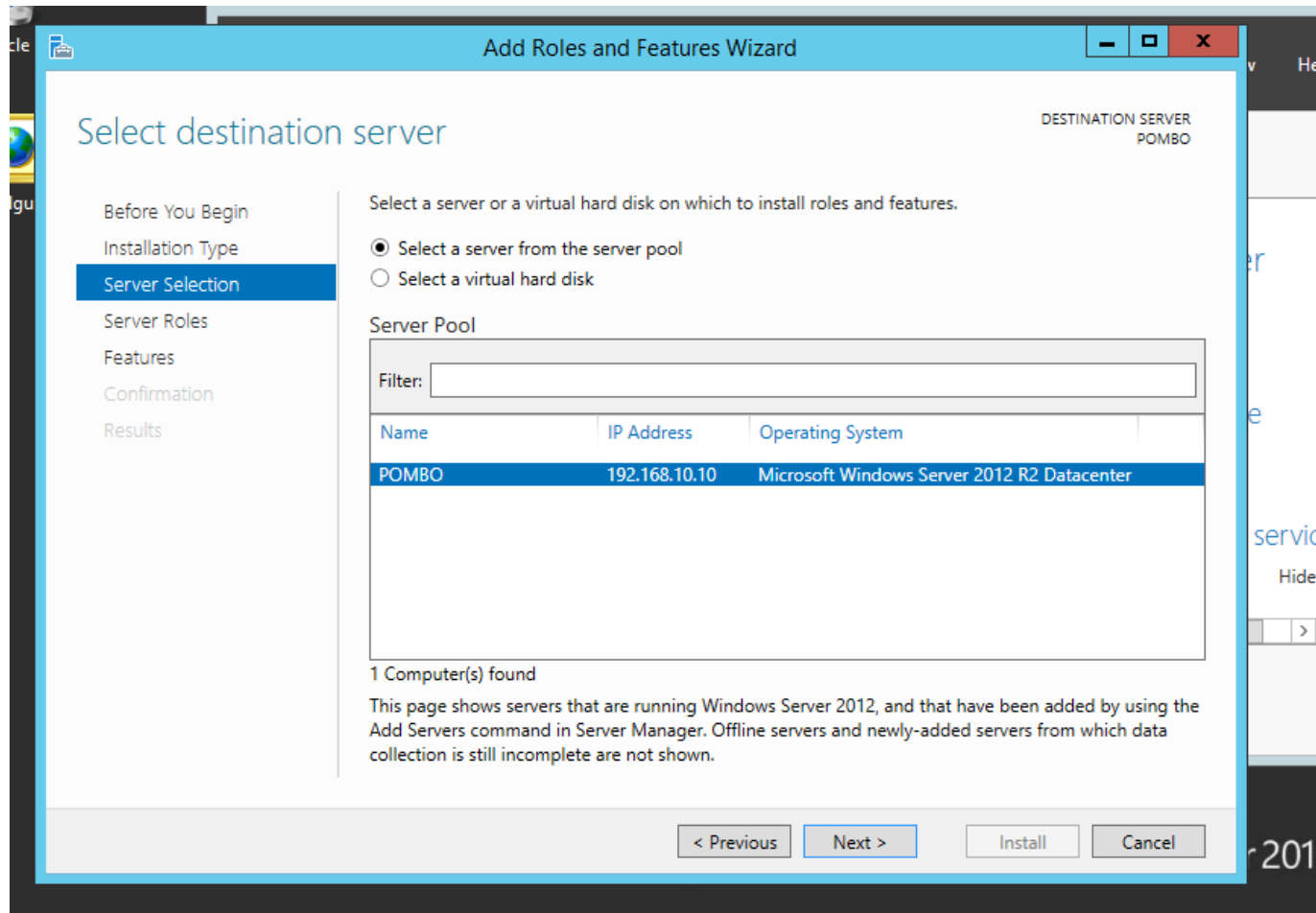
Assistente de funções e recursos



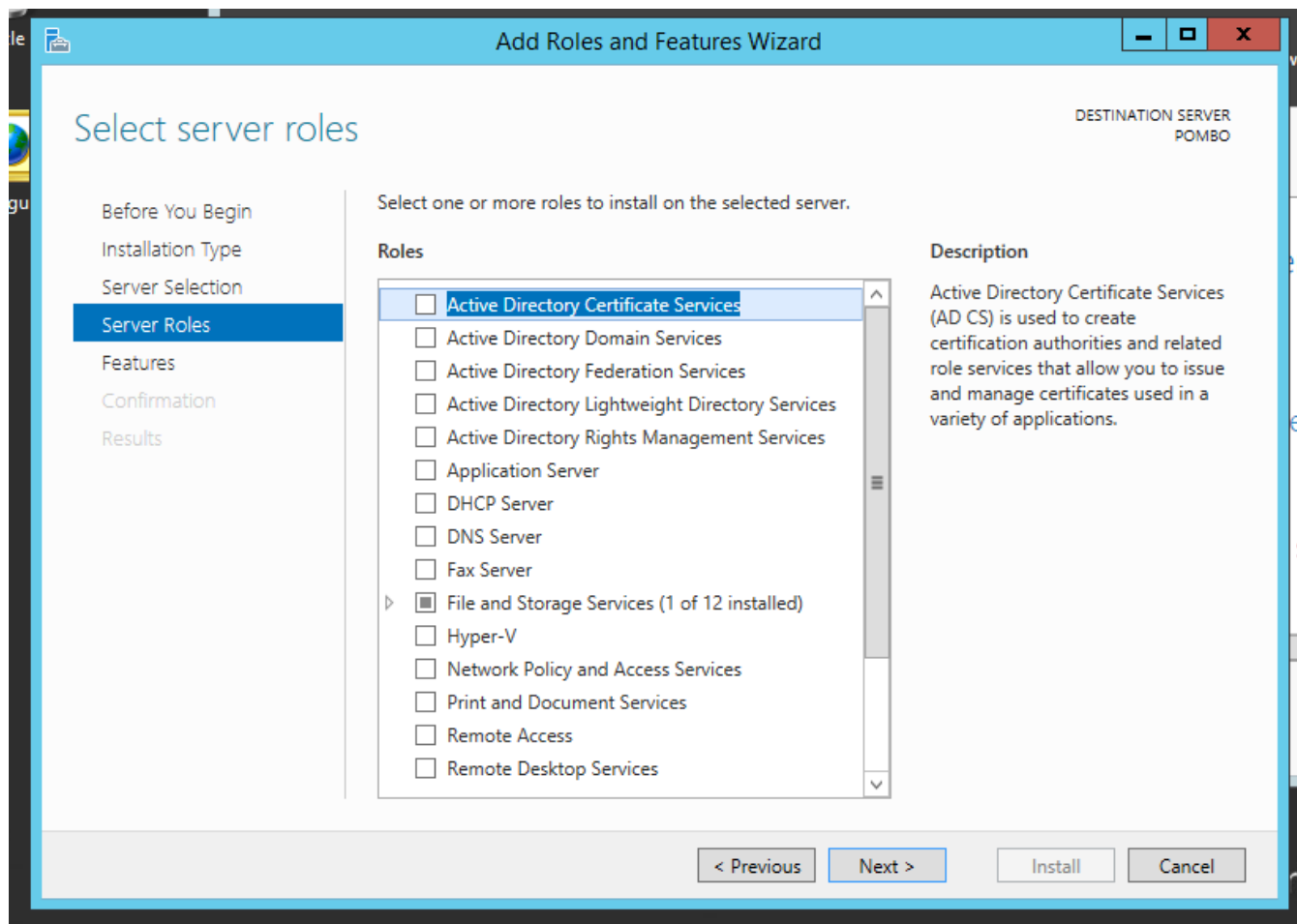
Instalação Baseada em Funções e Recursos



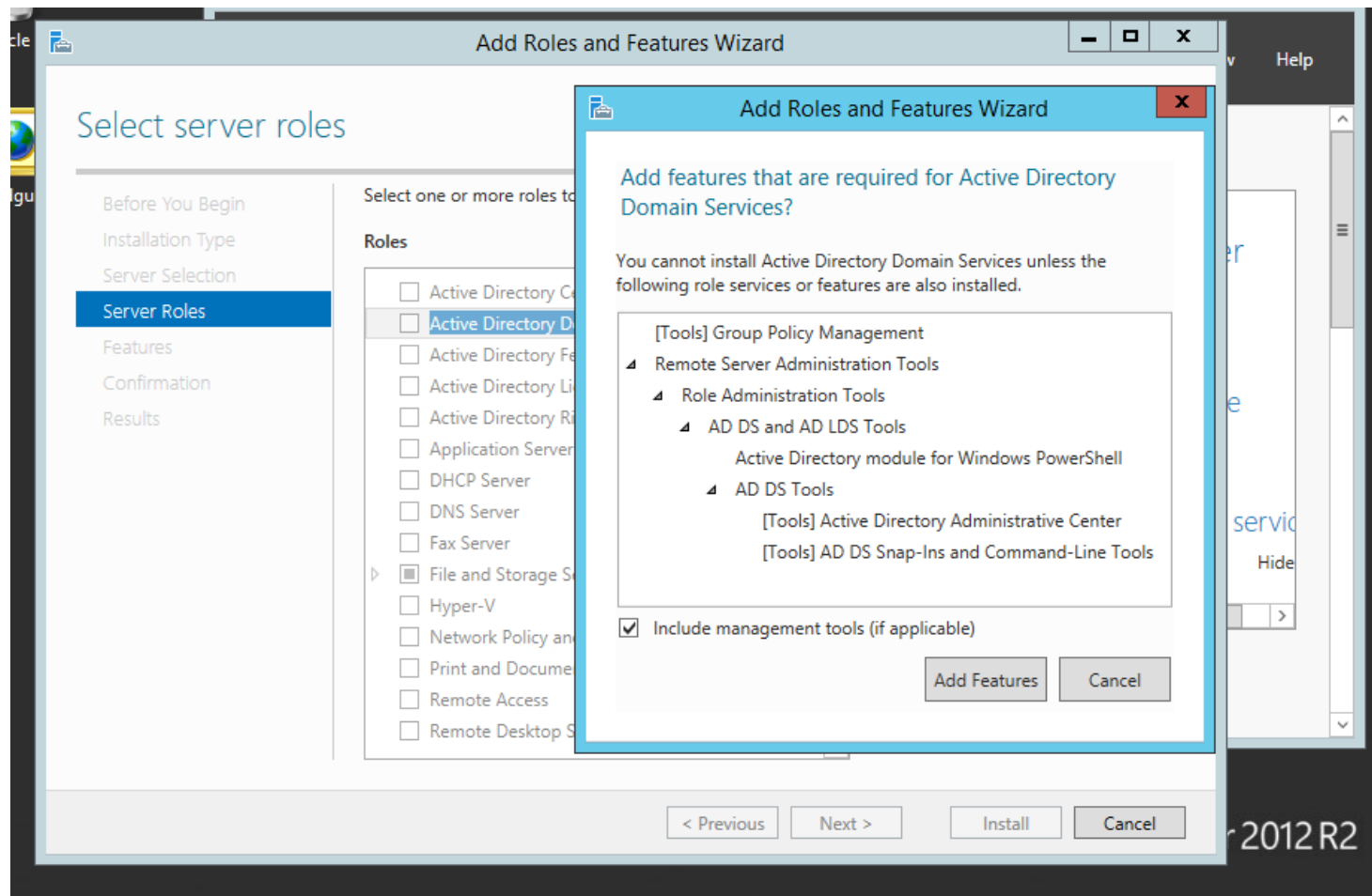
Seleção do Servidor



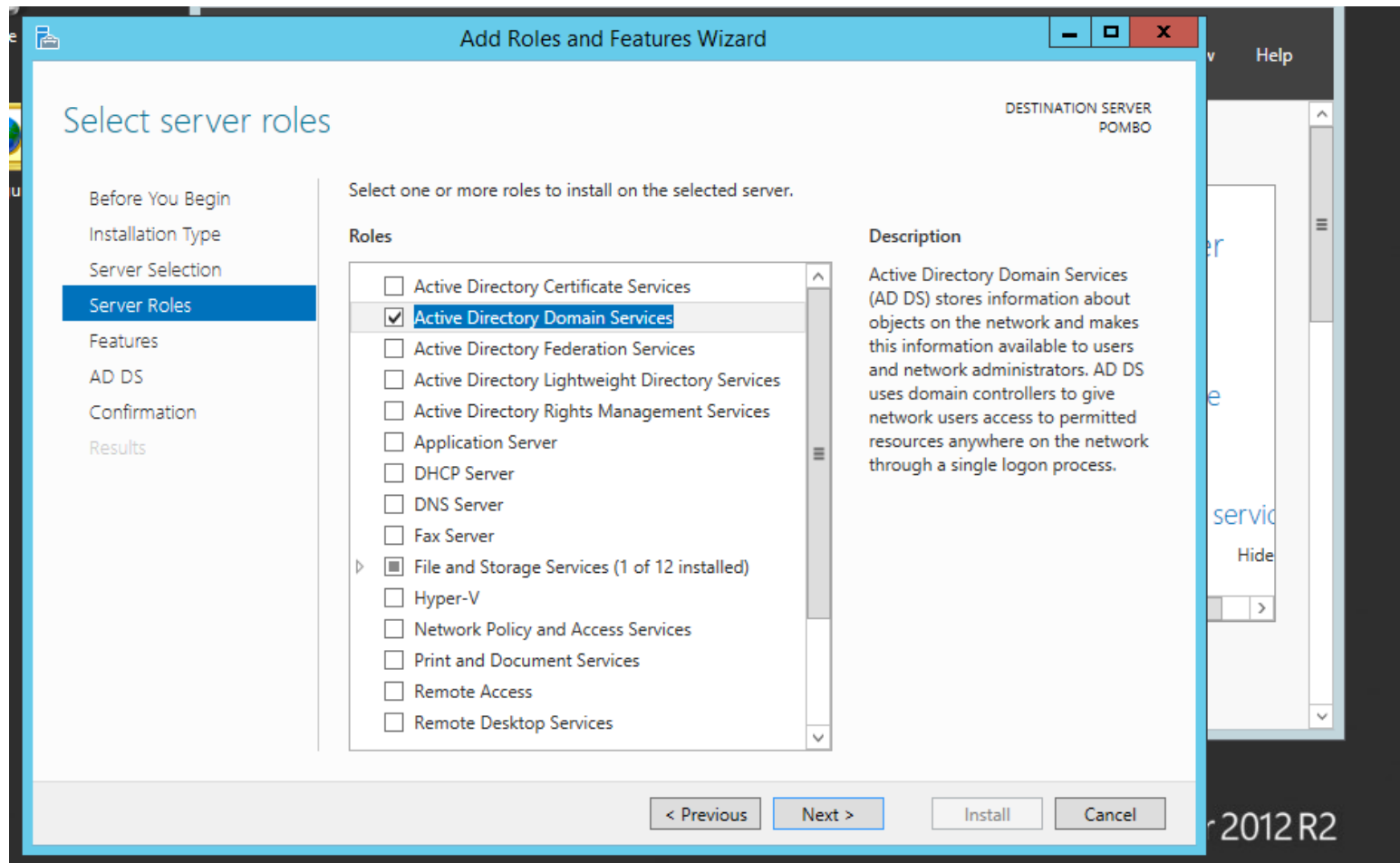
Seleção do Serviço a ser Instalado



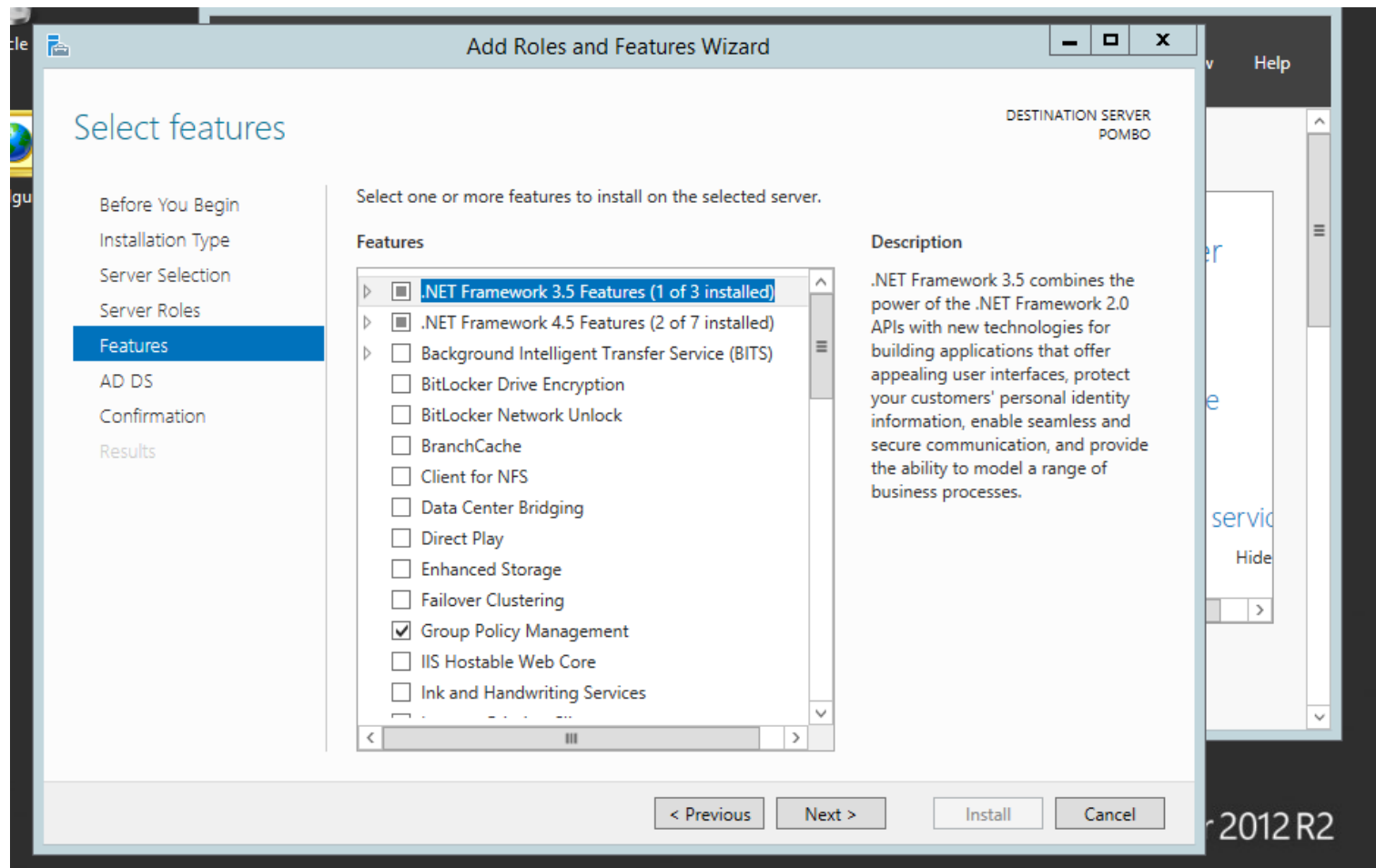
Serviço de AD-DS



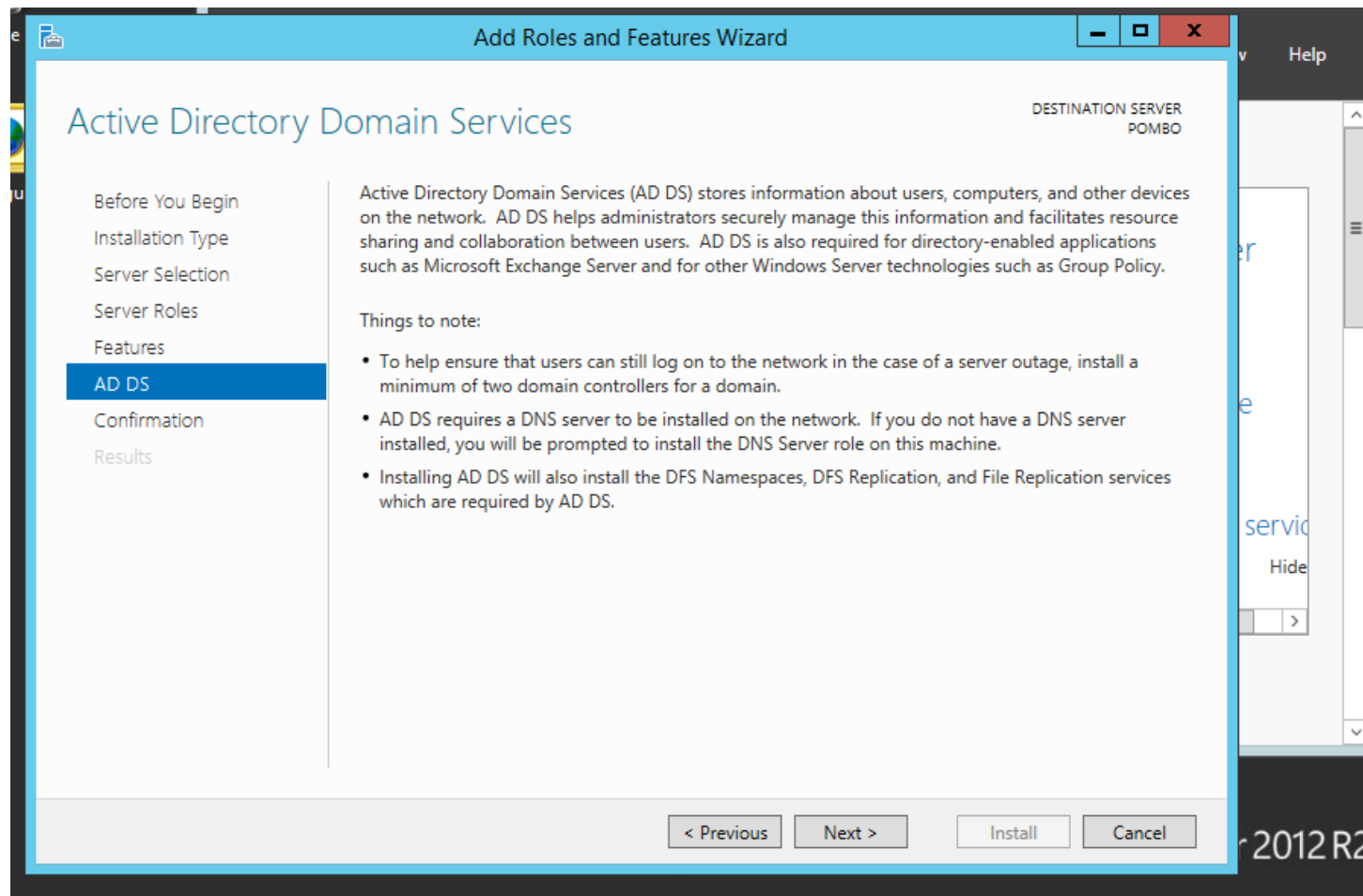
Descrição dos Serviços fornecidos pelo AD-DS



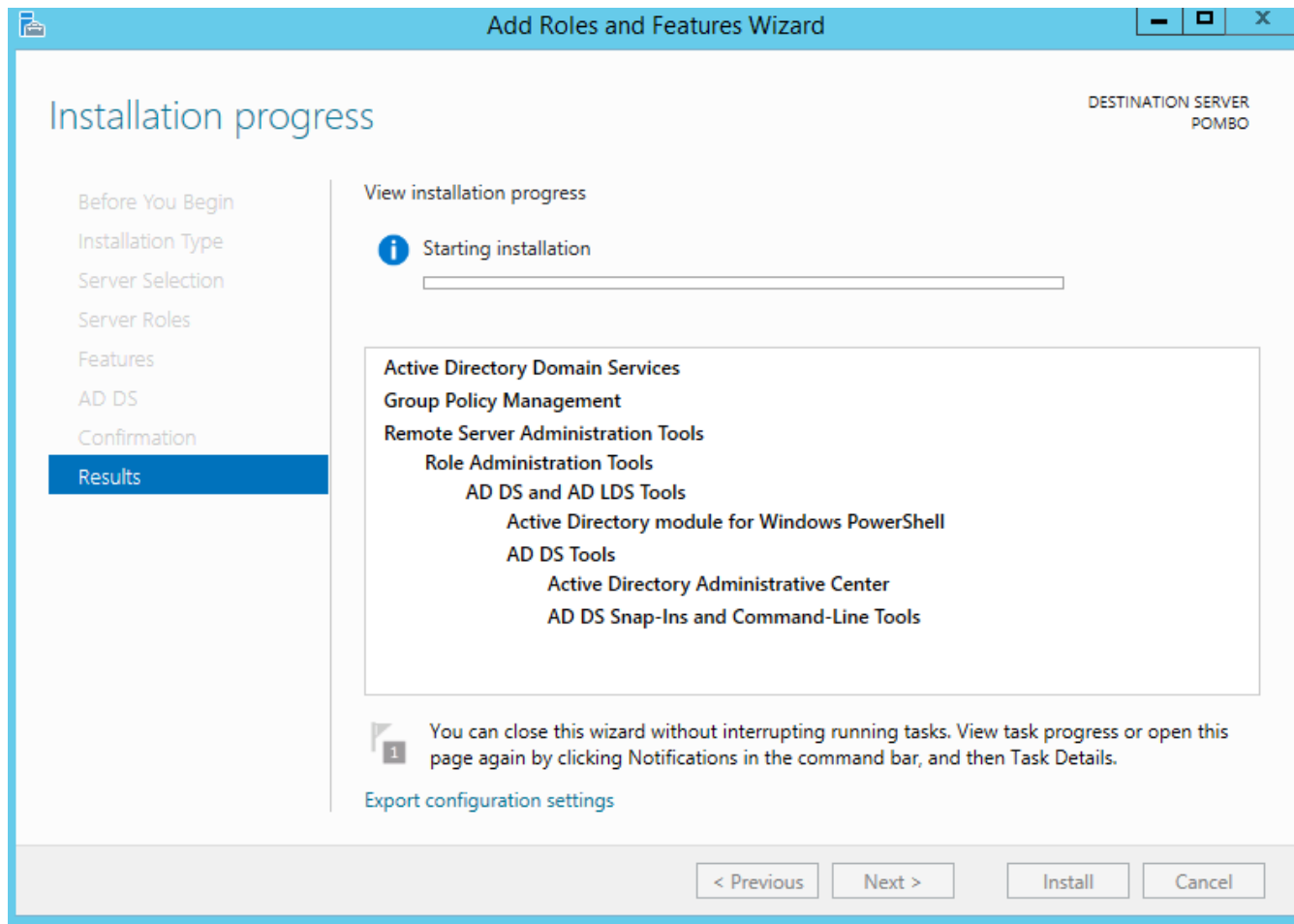
Recursos Adicionais para o AD-DS



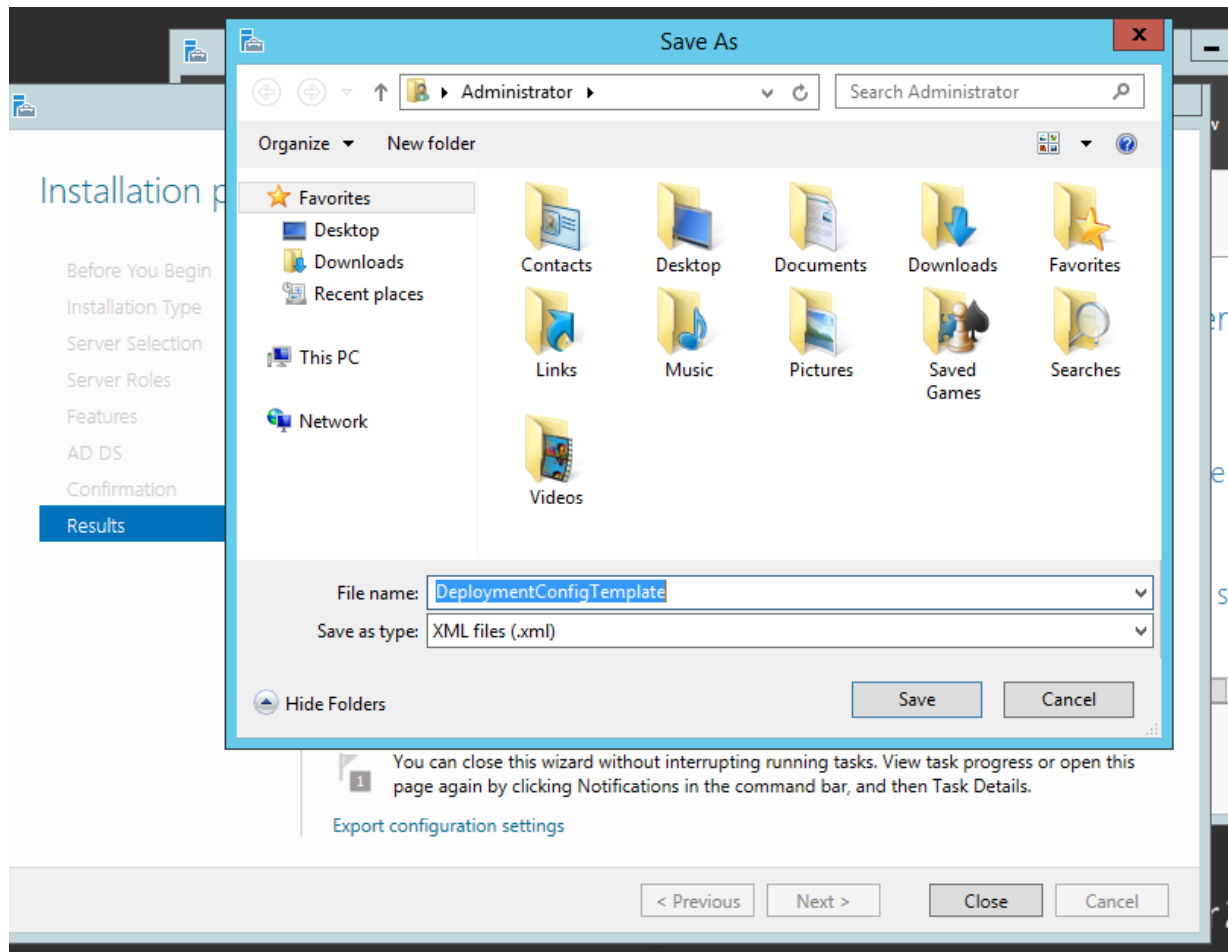
Descrição do AD-DS



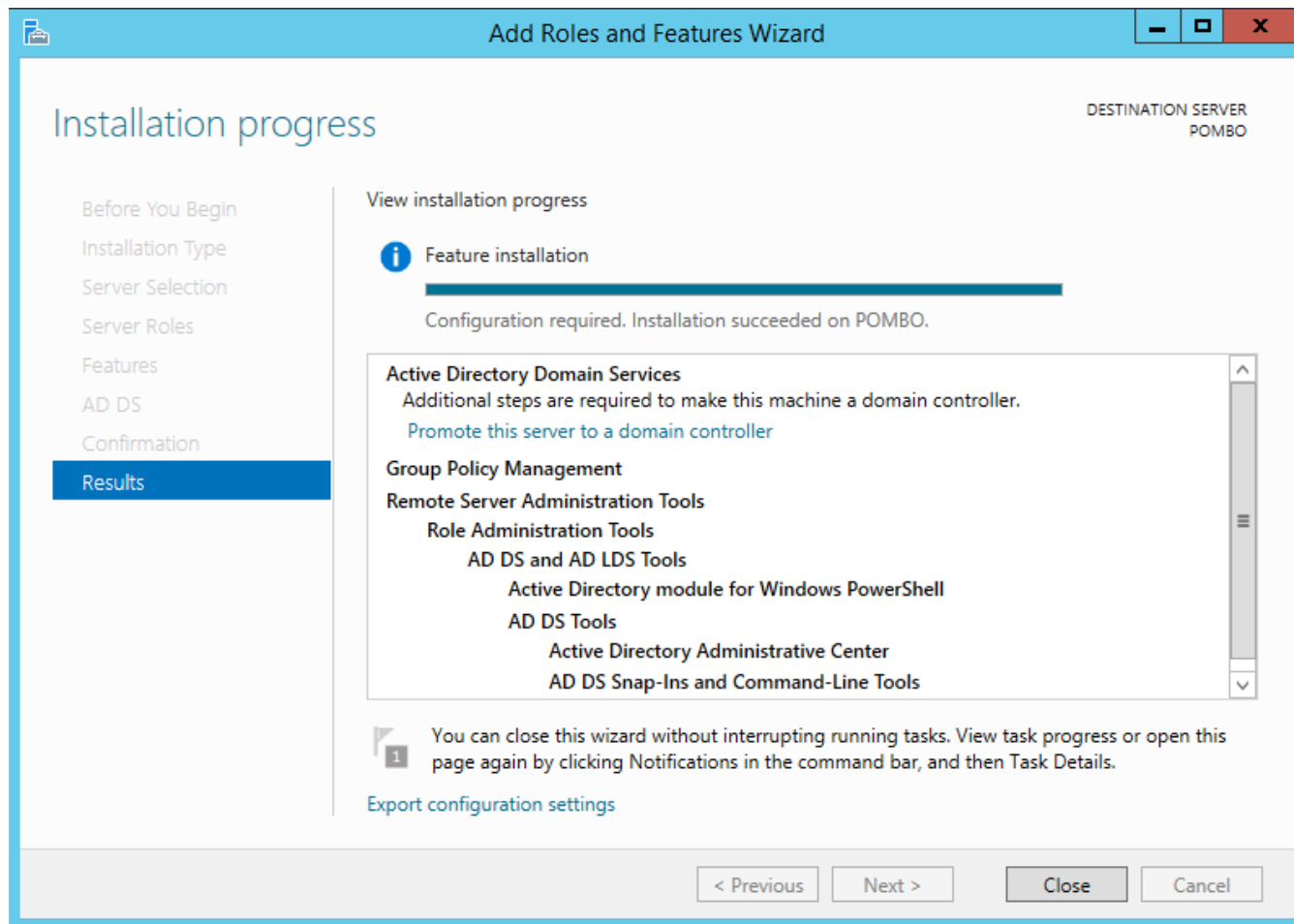
Assistente de Instalação do *Active Directory*



Exportar o arquivo de configuração



Promover o Servidor a um controlador de Domínio



Promover o Servidor a um controlador de Domínio

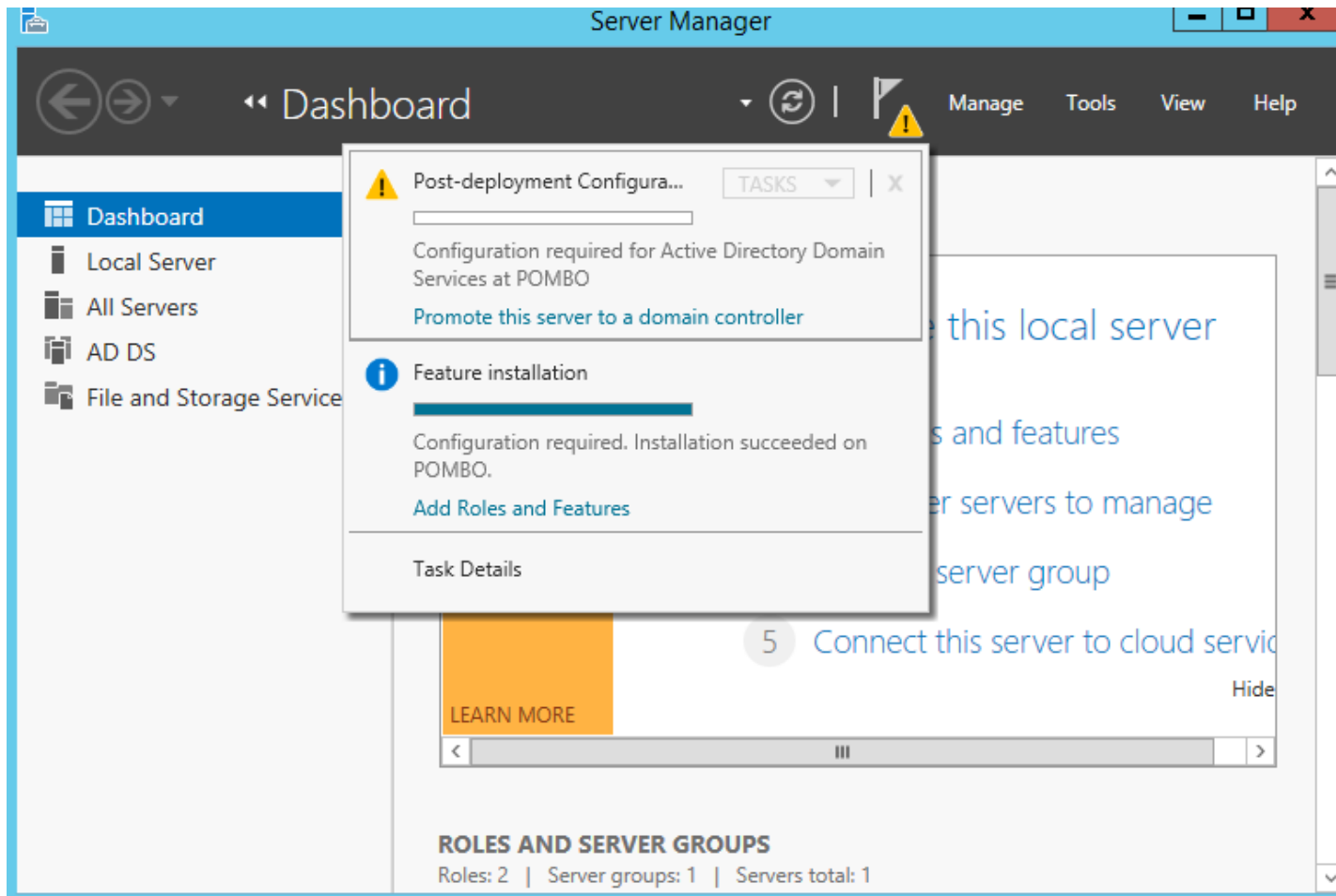
Active Directory Domain Services

Additional steps are required to make this machine a domain controller.

[Promote this server to a domain controller](#)

Group Policy Management

Promover o Servidor a um controlador de Domínio



Opções de configuração

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls. The main window has a blue header with the title 'Active Directory Domain Services Configuration Wizard'. Below the header, the left sidebar contains a list of steps: 'Deployment Configuration' (highlighted in blue), 'Domain Controller Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'Deployment Configuration' and shows the 'TARGET SERVER' as 'POMBO'. It contains three sections: 'Select the deployment operation' with three radio button options, 'Specify the domain information for this operation' with a 'Domain:' label and a text box followed by a 'Select...' button, and 'Supply the credentials to perform this operation' with the text '<No credentials provided>' and a 'Change...' button. At the bottom, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about deployment configurations' is located at the bottom of the main content area.

Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
POMBO

Deployment Configuration

Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select the deployment operation

- ☒ Add a domain controller to an existing domain
- ☐ Add a new domain to an existing forest
- ☐ Add a new forest

Specify the domain information for this operation

Domain: Select...

Supply the credentials to perform this operation

<No credentials provided> Change...

[More about deployment configurations](#)

< Previous Next > Install Cancel

Adição de uma nova floresta

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes a file icon, the text 'Active Directory Domain Services Configuration Wizard', and standard window controls. The main window has a light blue header with the title 'Deployment Configuration' on the left and 'TARGET SERVER POMBO' on the right. A vertical sidebar on the left contains a list of steps: 'Deployment Configuration' (highlighted in blue), 'Domain Controller Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'Select the deployment operation' and contains three radio button options: 'Add a domain controller to an existing domain', 'Add a new domain to an existing forest', and 'Add a new forest' (which is selected). Below this, the text 'Specify the domain information for this operation' is followed by a label 'Root domain name:' and a text input field with a red asterisk indicating a required field. At the bottom of the main content area is a link 'More about deployment configurations'. The bottom of the window features a grey bar with four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
POMBO

Deployment Configuration

Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select the deployment operation

☐ Add a domain controller to an existing domain

☐ Add a new domain to an existing forest

☒ Add a new forest

Specify the domain information for this operation

Root domain name: *

[More about deployment configurations](#)

< Previous Next > Install Cancel

Indicação do nome da floresta (Domínio)

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls (minimize, maximize, close). The main window has a blue header with the title 'Active Directory Domain Services Configuration Wizard'. Below the header, the window is divided into a left sidebar and a main content area. The sidebar contains a list of steps: 'Deployment Configuration' (highlighted in blue), 'Domain Controller Options', 'DNS Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'Deployment Configuration' and shows the 'TARGET SERVER' as 'POMBO'. It contains the following text and controls:

Select the deployment operation

- ☐ Add a domain controller to an existing domain
- ☐ Add a new domain to an existing forest
- ☒ Add a new forest

Specify the domain information for this operation

Root domain name:

More about deployment configurations

At the bottom of the window, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Nível funcional e Directory Services Restore Mode

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls. The main window has a blue header with the title 'Active Directory Domain Services Configuration Wizard'. Below the header, the page is titled 'Domain Controller Options'. On the right side, it says 'TARGET SERVER POMBO'. A left-hand navigation pane lists several steps: 'Deployment Configuration', 'Domain Controller Options' (which is highlighted with a blue background), 'DNS Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'Select functional level of the new forest and root domain'. It contains two dropdown menus: 'Forest functional level:' and 'Domain functional level:', both set to 'Windows Server 2012 R2'. Below these, a section titled 'Specify domain controller capabilities' contains three checkboxes: 'Domain Name System (DNS) server' (checked), 'Global Catalog (GC)' (checked), and 'Read only domain controller (RODC)' (unchecked). Further down, a section titled 'Type the Directory Services Restore Mode (DSRM) password' has two password input fields labeled 'Password:' and 'Confirm password:', each with a red asterisk indicating a required field. At the bottom of the main content area is a link that says 'More about domain controller options'. The bottom of the window features a grey bar with four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Active Directory Domain Services Configuration Wizard

Domain Controller Options

TARGET SERVER
POMBO

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Select functional level of the new forest and root domain

Forest functional level: Windows Server 2012 R2

Domain functional level: Windows Server 2012 R2

Specify domain controller capabilities

☒ Domain Name System (DNS) server
☒ Global Catalog (GC)
☐ Read only domain controller (RODC)

Type the Directory Services Restore Mode (DSRM) password

Password: *

Confirm password: *

[More about domain controller options](#)

< Previous Next > Install Cancel

Nível funcional da Nova Floresta

Domain Controller Options

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Select functional level of the new forest and root domain

Forest functional level:

Domain functional level:

Specify domain controller capabilities

☒ Domain Name System (DNS) server

☒ Global Catalog (GC)

Windows Server 2012 R2

Windows Server 2008

Windows Server 2008 R2

Windows Server 2012

Windows Server 2012 R2

TARGET SERVER
POMBO

- O nível funcional deve ser de acordo com os outros servidores que fazem parte da floresta.
- Recomenda-se a escolha da menor versão do servidor existe dentro da floresta.
- Nota: tem que olhar a floresta como um todo.

Especificações de Recursos de controlador de Domínio (DNS)

- O DNS veem totalmente integrado com o AD-DS
- Senha de Restauração dos serviços de Diretório (Nota: não é mandatorio que a senha seja igual a do Administrador)

The screenshot shows the 'Specify domain controller capabilities' step in the Windows Server Setup wizard. On the left, a navigation pane lists: Paths, Review Options, Prerequisites Check, Installation, and Results. The main area is titled 'Specify domain controller capabilities' and contains three checkboxes: 'Domain Name System (DNS) server' (checked), 'Global Catalog (GC)' (checked), and 'Read only domain controller (RODC)' (unchecked). Below these is the section 'Type the Directory Services Restore Mode (DSRM) password', which includes two password input fields labeled 'Password:' and 'Confirm password:', each with a red asterisk indicating a required field. At the bottom of the main area is a blue link that says 'More about domain controller options'. The bottom of the window features four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Paths

Review Options

Prerequisites Check

Installation

Results

Specify domain controller capabilities

☒ Domain Name System (DNS) server

☒ Global Catalog (GC)

☐ Read only domain controller (RODC)

Type the Directory Services Restore Mode (DSRM) password

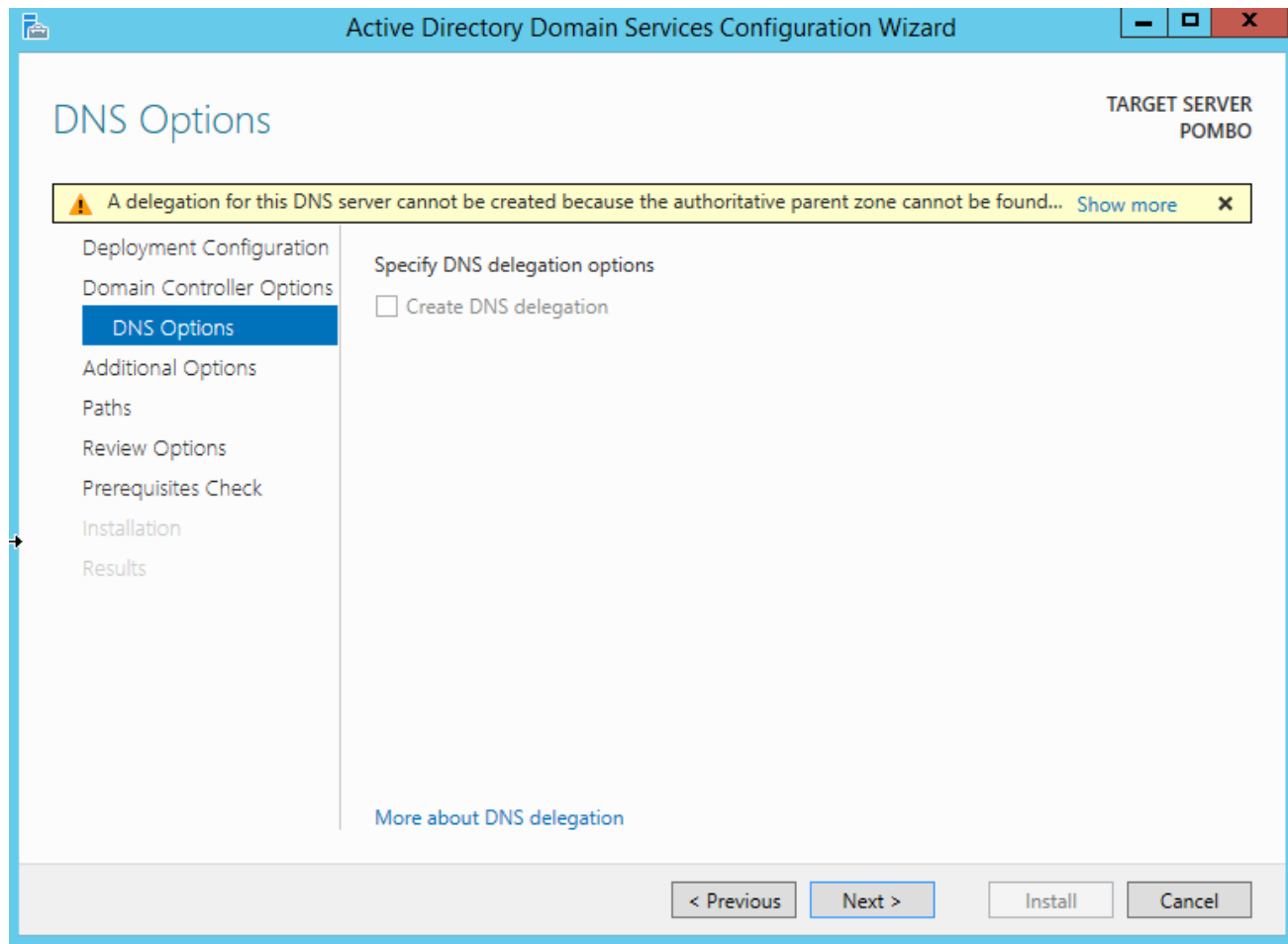
Password: *

Confirm password: *

[More about domain controller options](#)

< Previous Next > Install Cancel

Alerta do DNS



Nome do NetBIOS do Domínio

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls (minimize, maximize, close). The main window has a blue header with the title 'Active Directory Domain Services Configuration Wizard'. Below the header, the page is titled 'Additional Options'. On the right side, it says 'TARGET SERVER POMBO'. On the left, there is a vertical list of steps: 'Deployment Configuration', 'Domain Controller Options', 'DNS Options', 'Additional Options' (which is highlighted with a blue background), 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area contains the text 'Verify the NetBIOS name assigned to the domain and change it if necessary' followed by 'The NetBIOS domain name:' and a text input field containing 'FEUEM'. At the bottom of the main content area, there is a link that says 'More about additional options'. At the very bottom of the window, there are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Active Directory Domain Services Configuration Wizard

Additional Options

TARGET SERVER
POMBO

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name:

[More about additional options](#)

< Previous Next > Install Cancel

Localização dos Ficheiros

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes standard Windows window controls (minimize, maximize, close). The main window has a blue header bar with the title. On the left is a navigation pane with a tree view containing the following items: Deployment Configuration, Domain Controller Options, DNS Options, Additional Options, Paths (highlighted with a blue background and a mouse cursor), Review Options, Prerequisites Check, Installation, and Results. The main content area is titled 'Paths' and has a subtitle 'Specify the location of the AD DS database, log files, and SYSVOL'. It contains three text boxes with browse buttons (three dots) to the right: 'Database folder:' with 'C:\Windows\NTDS', 'Log files folder:' with 'C:\Windows\NTDS', and 'SYSVOL folder:' with 'C:\Windows\SYSVOL'. In the top right corner, it says 'TARGET SERVER POMBO'. At the bottom, there is a grey bar with four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about Active Directory paths' is located at the bottom of the main content area.

Active Directory Domain Services Configuration Wizard

Paths

TARGET SERVER
POMBO

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Specify the location of the AD DS database, log files, and SYSVOL

Database folder: C:\Windows\NTDS ...

Log files folder: C:\Windows\NTDS ...

SYSVOL folder: C:\Windows\SYSVOL ...

More about Active Directory paths

< Previous Next > Install Cancel

Resumo das escolhas efectuadas

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes the Windows logo, the text 'Active Directory Domain Services Configuration Wizard', and standard window controls. The main window has a light blue header with the title 'Review Options' and a mouse cursor icon. On the right side of the header, it says 'TARGET SERVER POMBO'. A left-hand navigation pane lists the following steps: 'Deployment Configuration', 'Domain Controller Options', 'DNS Options', 'Additional Options', 'Paths', 'Review Options' (which is highlighted with a blue background), 'Prerequisites Check', 'Installation', and 'Results'. The main content area is titled 'Review your selections:' and contains a scrollable list of configuration choices. These include: 'Configure this server as the first Active Directory domain controller in a new forest.', 'The new domain name is "feuem.ac.mz". This is also the name of the new forest.', 'The NetBIOS name of the domain: FEUEM', 'Forest Functional Level: Windows Server 2012 R2', 'Domain Functional Level: Windows Server 2012 R2', and 'Additional Options:' which includes 'Global catalog: Yes', 'DNS Server: Yes', and 'Create DNS Delegation: No'. Below this list, a note states 'These settings can be exported to a Windows PowerShell script to automate additional installations' with a 'View script' button. At the bottom of the window, there are four buttons: '< Previous', 'Next >' (highlighted with a blue border), 'Install', and 'Cancel'. A link 'More about installation options' is also present.

Active Directory Domain Services Configuration Wizard

TARGET SERVER
POMBO

Review Options

- Deployment Configuration
- Domain Controller Options
- DNS Options
- Additional Options
- Paths
- Review Options**
- Prerequisites Check
- Installation
- Results

Review your selections:

Configure this server as the first Active Directory domain controller in a new forest.

The new domain name is "feuem.ac.mz". This is also the name of the new forest.

The NetBIOS name of the domain: FEUEM

Forest Functional Level: Windows Server 2012 R2

Domain Functional Level: Windows Server 2012 R2

Additional Options:

Global catalog: Yes

DNS Server: Yes

Create DNS Delegation: No

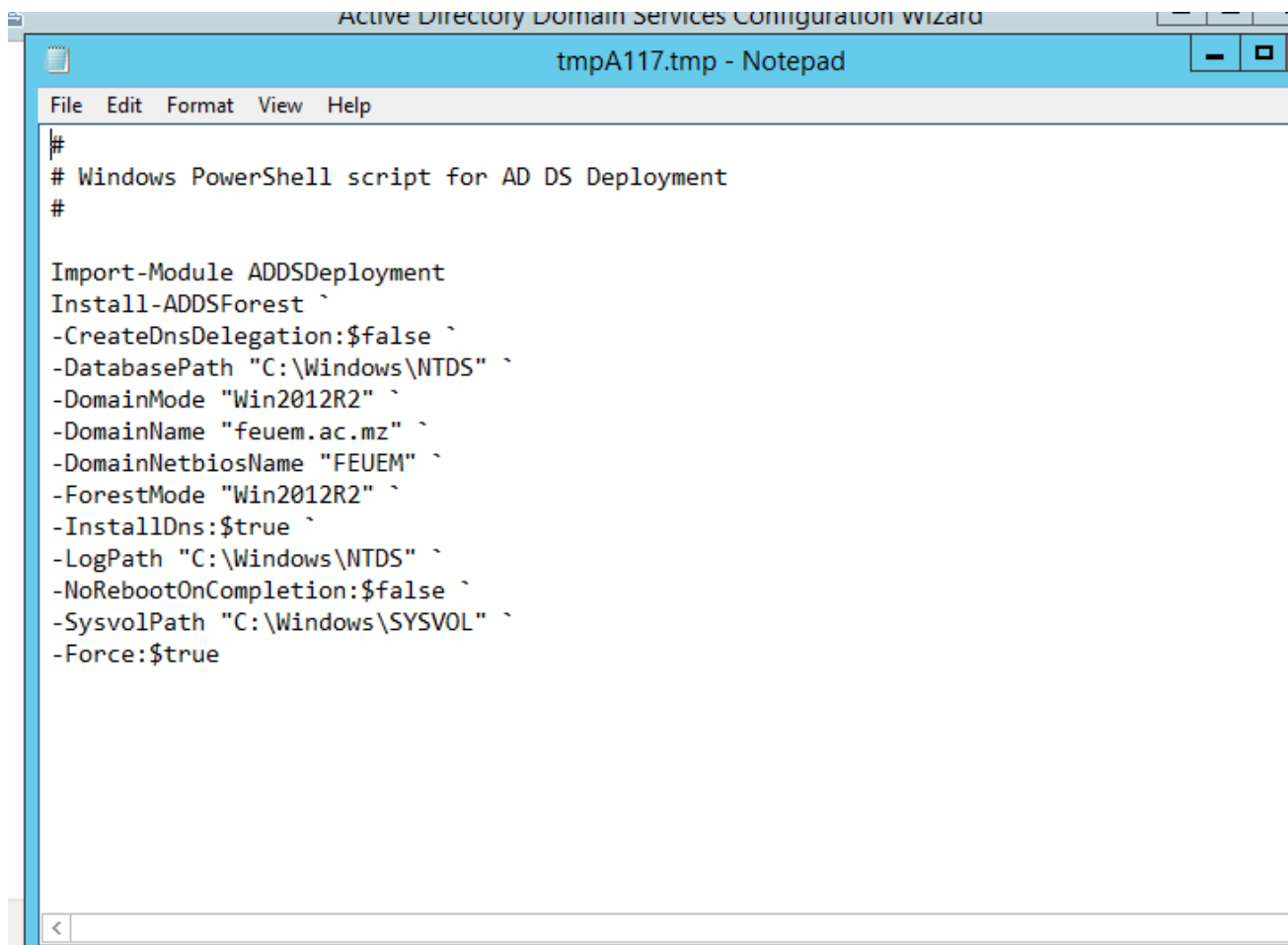
These settings can be exported to a Windows PowerShell script to automate additional installations

[View script](#)

[More about installation options](#)

< Previous Next > Install Cancel

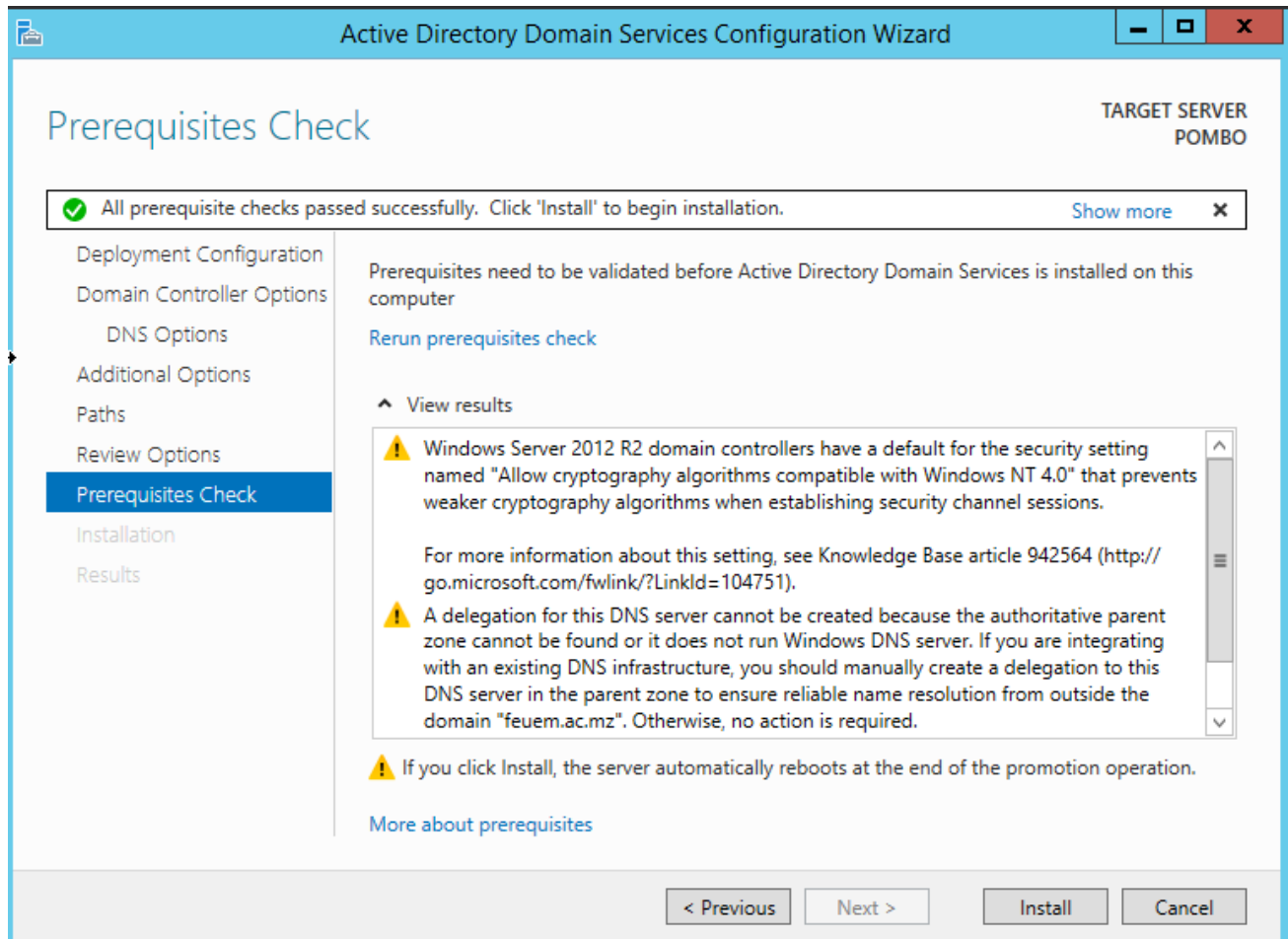
Script de Configuração



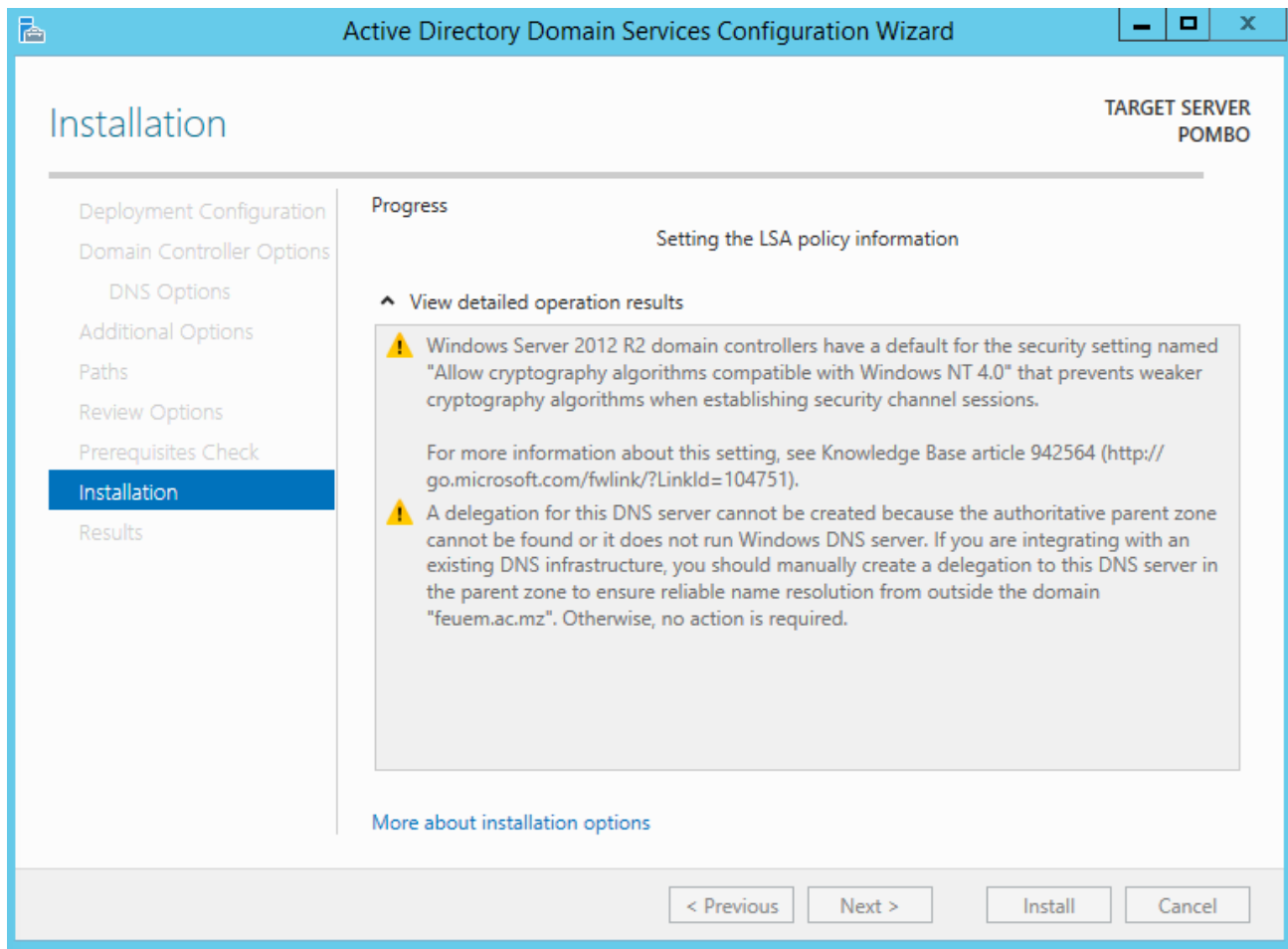
The image shows a screenshot of a Windows Notepad application window. The title bar reads "tmpA117.tmp - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The text area contains a PowerShell script for installing an Active Directory Domain Services (AD DS) forest. The script starts with a comment block, followed by the command to import the ADDSDeployment module and then the Install-ADDSForest command with various parameters. The script is as follows:

```
#  
# Windows PowerShell script for AD DS Deployment  
#  
  
Import-Module ADDSDeployment  
Install-ADDSForest `  
-CreateDnsDelegation:$false `  
-DatabasePath "C:\Windows\NTDS" `  
-DomainMode "Win2012R2" `  
-DomainName "feuem.ac.mz" `  
-DomainNetbiosName "FEUEM" `  
-ForestMode "Win2012R2" `  
-InstallDns:$true `  
-LogPath "C:\Windows\NTDS" `  
-NoRebootOnCompletion:$false `  
-SysvolPath "C:\Windows\SYSVOL" `  
-Force:$true
```

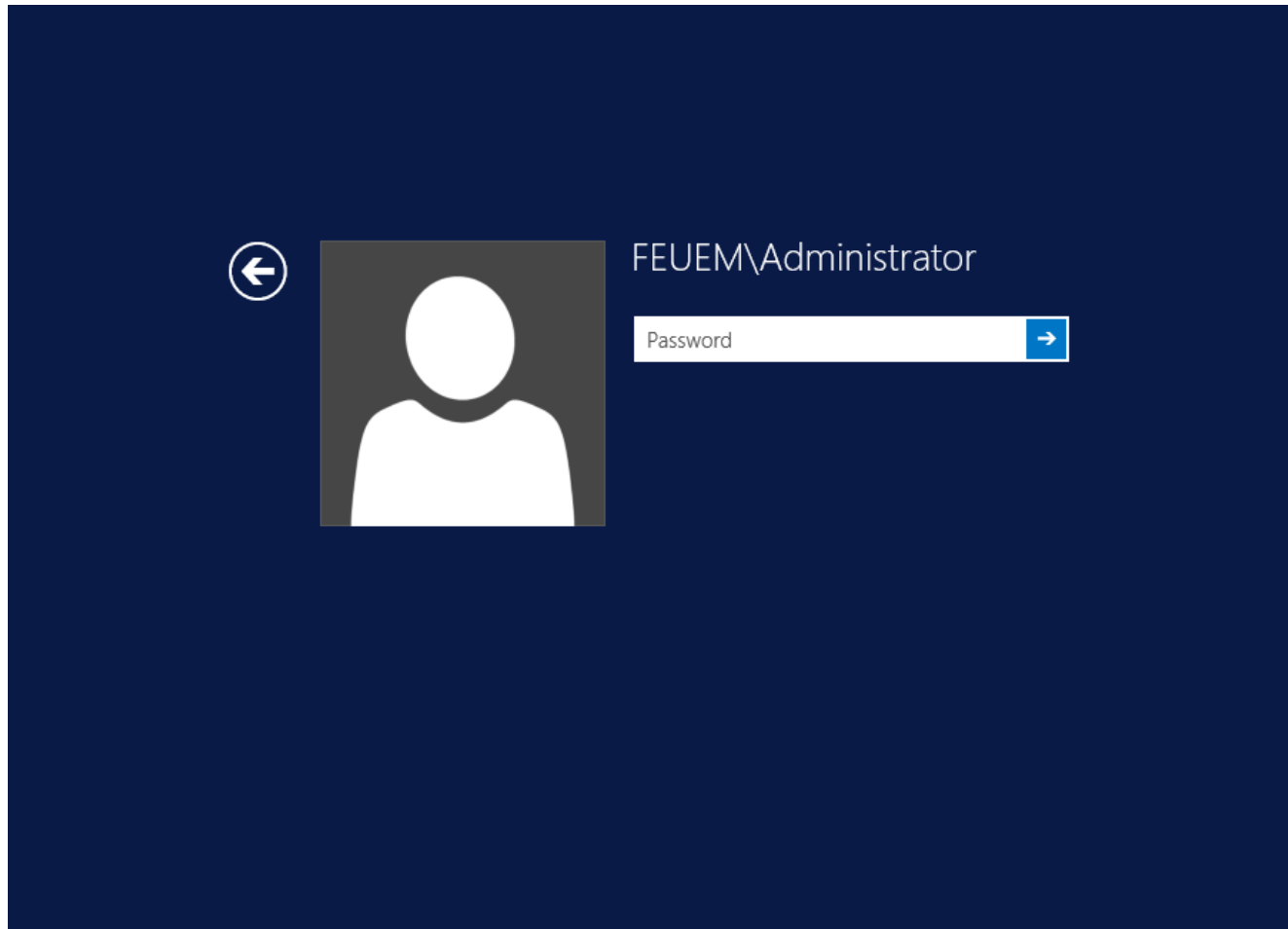
Verificação de Requisitos de Instalação



Instalação em Progresso



Maquina dentro do Domino



Funções configuradas no Servidor

The screenshot displays the Windows Server Manager interface. On the left is a navigation pane with the following items: Dashboard (selected), Local Server, All Servers, AD DS, DNS, and File and Storage Services. The main area is titled 'WELCOME TO SERVER MANAGER'. It features a 'QUICK START' section with a numbered list of five steps: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, and 5. Connect this server to cloud services. Below this is a 'WHAT'S NEW' section and a 'LEARN MORE' link. At the bottom, the 'ROLES AND SERVER GROUPS' section shows a summary: Roles: 3 | Server groups: 1 | Servers total: 1. Two role cards are visible: 'AD DS' and 'DNS', each with a count of 1. Both cards show a green upward arrow icon and a list of features: Manageability, Events, Services, Performance, and BPA results.

Dashboard

- Local Server
- All Servers
- AD DS
- DNS
- File and Storage Services ▸

WELCOME TO SERVER MANAGER

QUICK START

- 1 Configure this local server
- 2 Add roles and features
- 3 Add other servers to manage
- 4 Create a server group
- 5 Connect this server to cloud services

WHAT'S NEW

LEARN MORE

ROLES AND SERVER GROUPS
Roles: 3 | Server groups: 1 | Servers total: 1

Role	Count
AD DS	1
DNS	1

AD DS

- Manageability
- Events
- Services
- Performance
- BPA results

DNS

- Manageability
- Events
- Services
- Performance
- BPA results

Hide

Informações do Servidor

The screenshot displays the Windows Server Management console. The left-hand navigation pane includes links to Dashboard, Local Server (selected), All Servers, AD DS, DNS, and File and Storage Services. The main area is titled 'For POMBO' and contains a 'TASKS' dropdown menu. Below this, server information is presented in a grid-like format. The top section lists basic details: Computer name (POMBO), Domain (feuem.ac.mz), Last installed updates (Never), Windows Update (Not conf), and Last checked for updates (Never). The middle section shows configuration settings: Windows Firewall (Public: On), Remote management (Enabled), Remote Desktop (Disabled), NIC Teaming (Disabled), Ethernet (192.168.10.10), Windows Error Reporting (Off), Customer Experience Improvement Program (Not part), IE Enhanced Security Configuration (On), Time zone (UTC-08:), and Product ID (Not activ). The bottom section provides hardware and software details: Operating system version (Microsoft Windows Server 2012 R2 Datacenter), Hardware information (innotek GmbH VirtualBox), Processors (Intel(R) C), Installed memory (RAM) (0 GB), and Total disk space (49.66 GB). Below the server information, an 'EVENTS' section shows 'All events | 67 total' with a 'TASKS' dropdown. A search bar labeled 'Filter' is present, along with icons for list view, refresh, and a dropdown arrow. The events table has columns for Server Name, ID, Severity, Source, Log, and Date and Time. Two events are listed: a Warning event (ID 1014) from Microsoft-Windows-DNS Client Events and an Error event (ID 8200) from Microsoft-Windows-Security-SPP, both dated 6/27/2016 2:35:12 PM.

Computer name	POMBO	Last installed updates	Never
Domain	feuem.ac.mz	Windows Update	Not conf
		Last checked for updates	Never
Windows Firewall	Public: On	Windows Error Reporting	Off
Remote management	Enabled	Customer Experience Improvement Program	Not part
Remote Desktop	Disabled	IE Enhanced Security Configuration	On
NIC Teaming	Disabled	Time zone	(UTC-08:)
Ethernet	192.168.10.10	Product ID	Not activ
Operating system version	Microsoft Windows Server 2012 R2 Datacenter	Processors	Intel(R) C
Hardware information	innotek GmbH VirtualBox	Installed memory (RAM)	0 GB
		Total disk space	49.66 GB

Server Name	ID	Severity	Source	Log	Date and Time
POMBO	1014	Warning	Microsoft-Windows-DNS Client Events	System	6/27/2016 2:35:12 PM
POMBO	8200	Error	Microsoft-Windows-Security-SPP	Application	6/27/2016 2:35:12 PM

Administração dos Serviços

Server Manager

Server Manager ▸ DNS

Dashboard
Local Server
All Servers
AD DS
DNS
File and Storage Services ▸

SERVERS
All servers | 1 total

Filter

Server Name	IPv4 Address	Manageability	Last U
POMBO	192.168.10.10	Online - Performance counters not started	6/27/

EVENTS
All events | 1 total

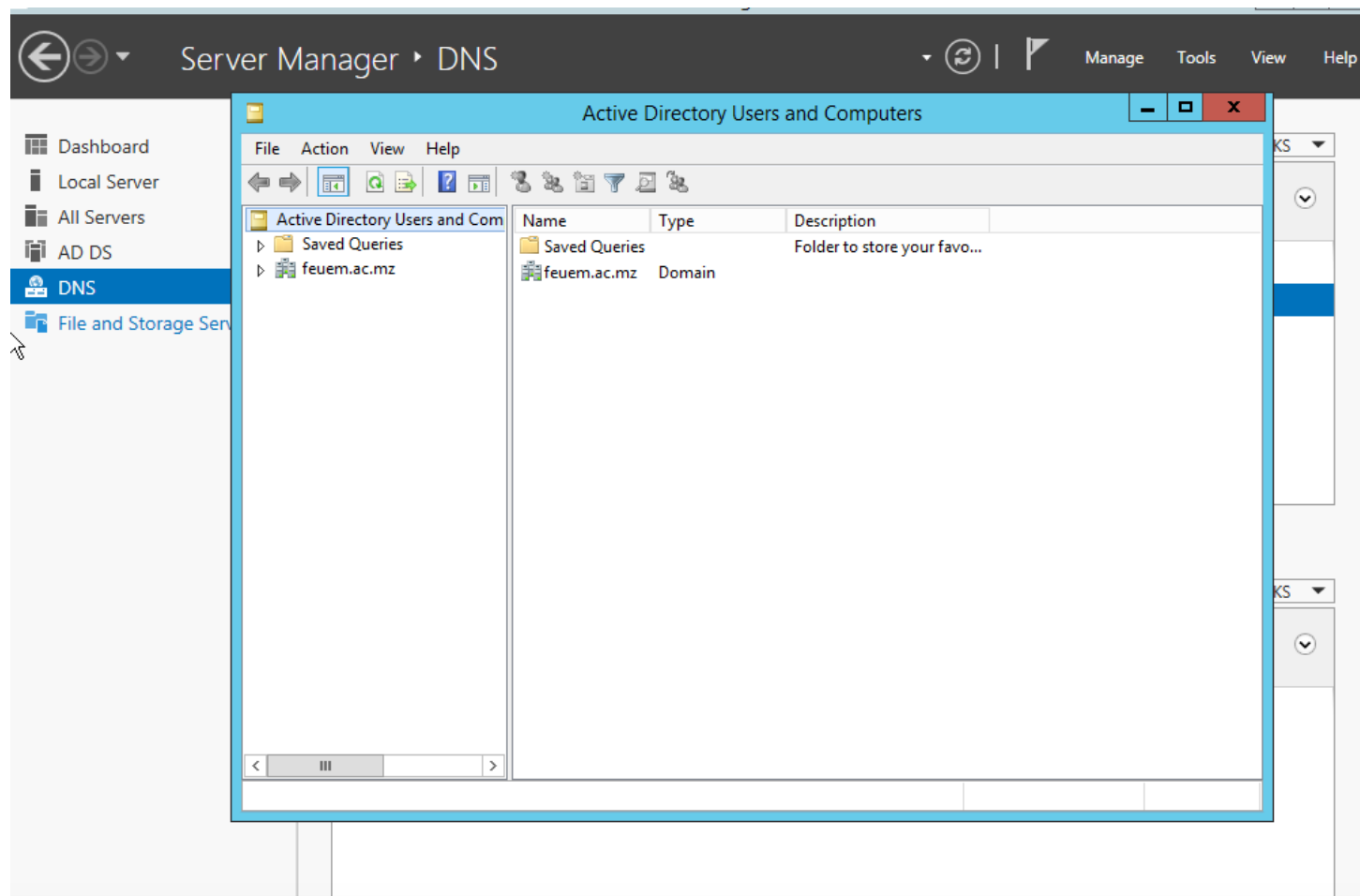
Filter

Server Name	ID	Severity	Source	Log
POMBO	4013	Warning	Microsoft-Windows-DNS-Server-Service	DNS S

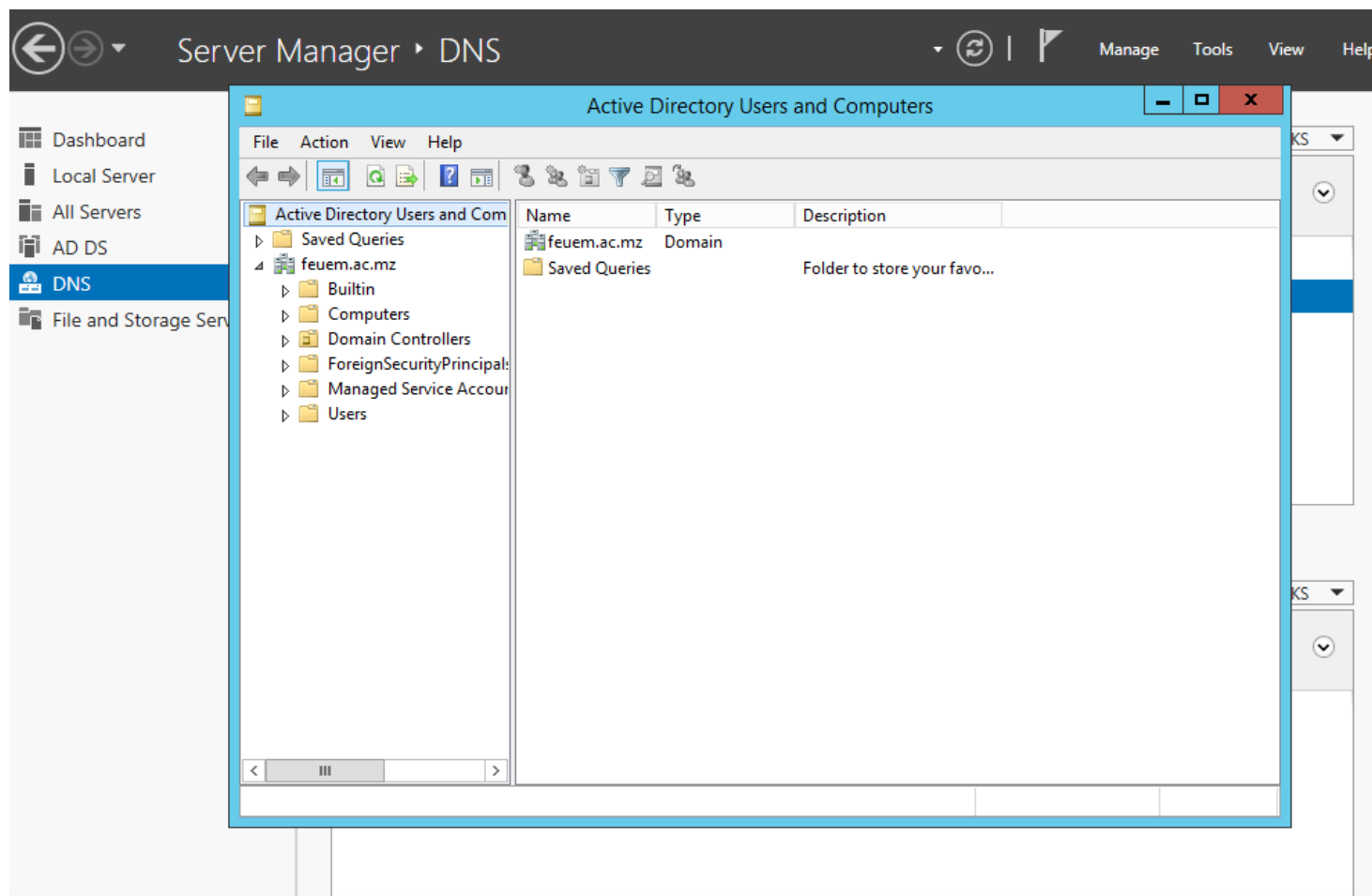
Tools

- 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
- DNS
- Event Viewer
- Group Policy Management
- iSCSI Initiator
- Local Security Policy
- Microsoft Azure Services
- 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 (x64)

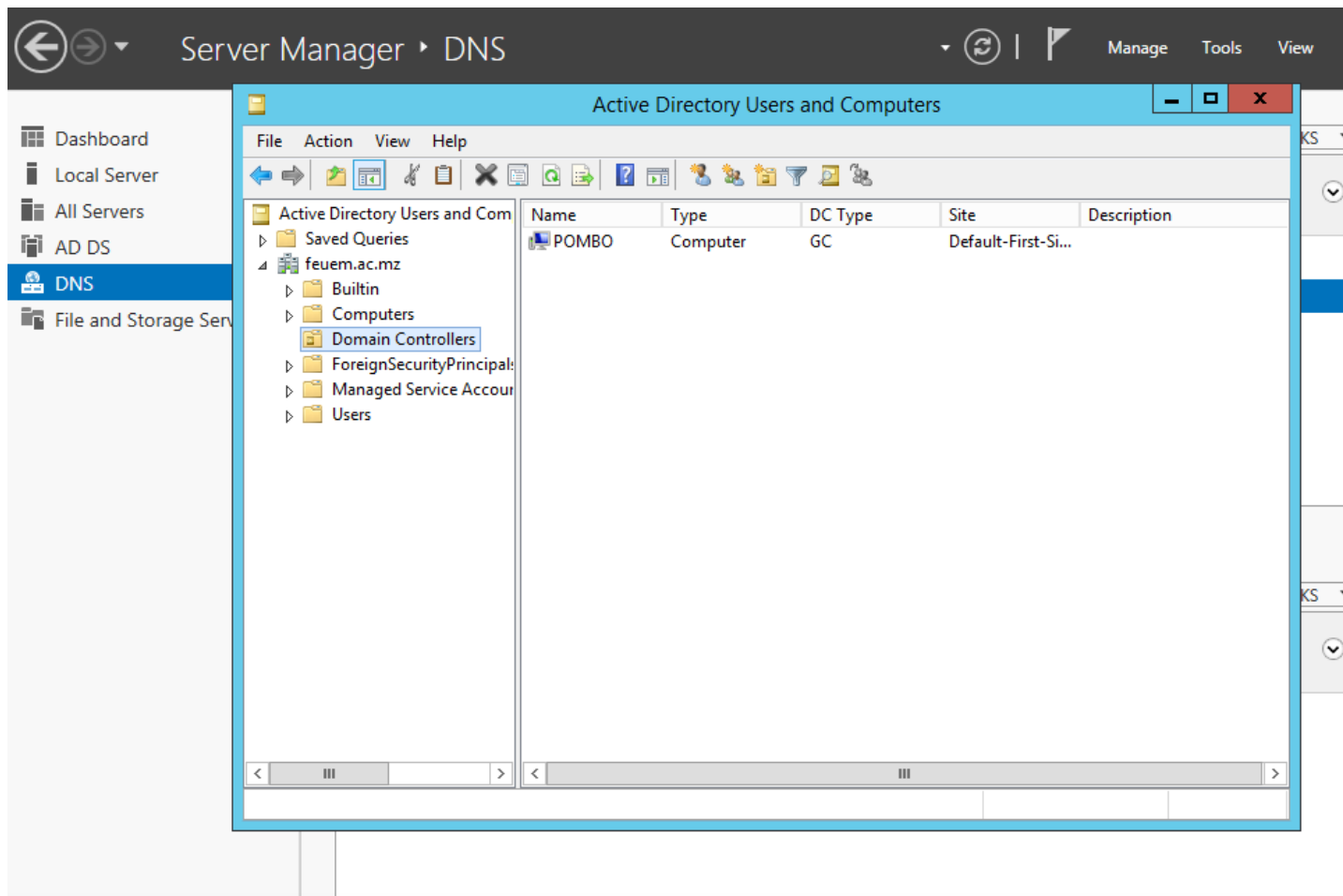
Administração do AD-DS



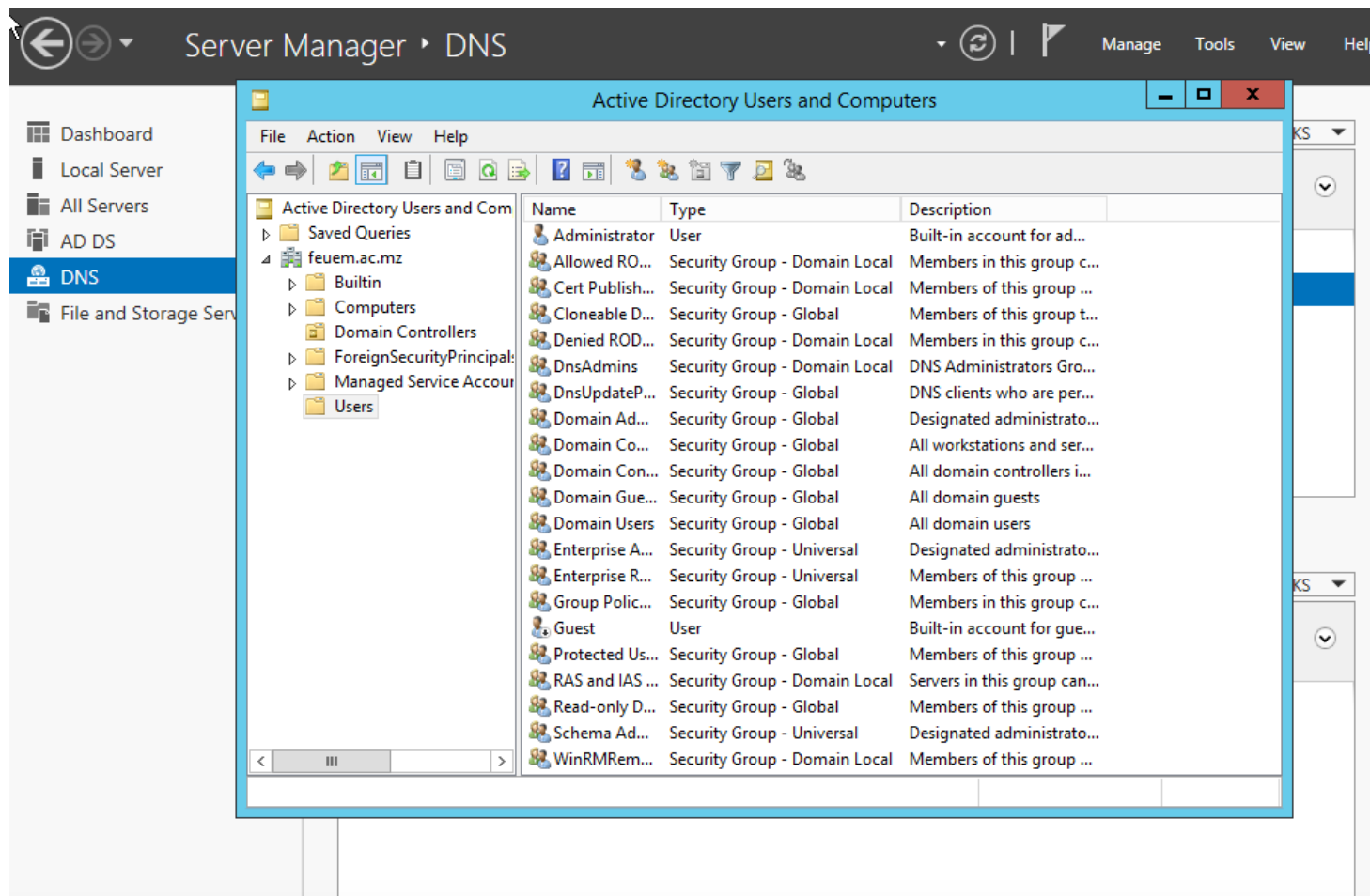
Administração do AD-DS



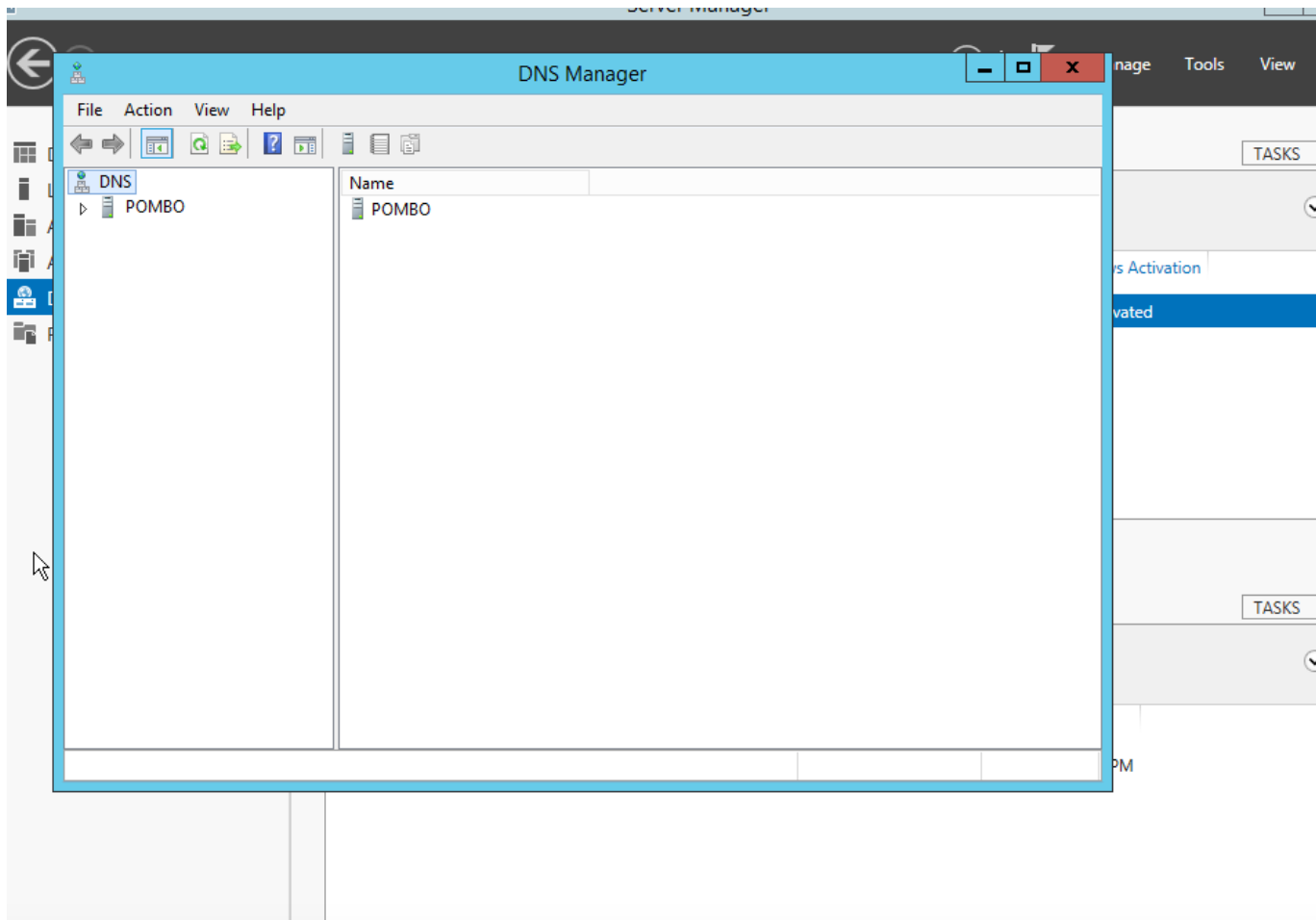
Controlador de Domínio



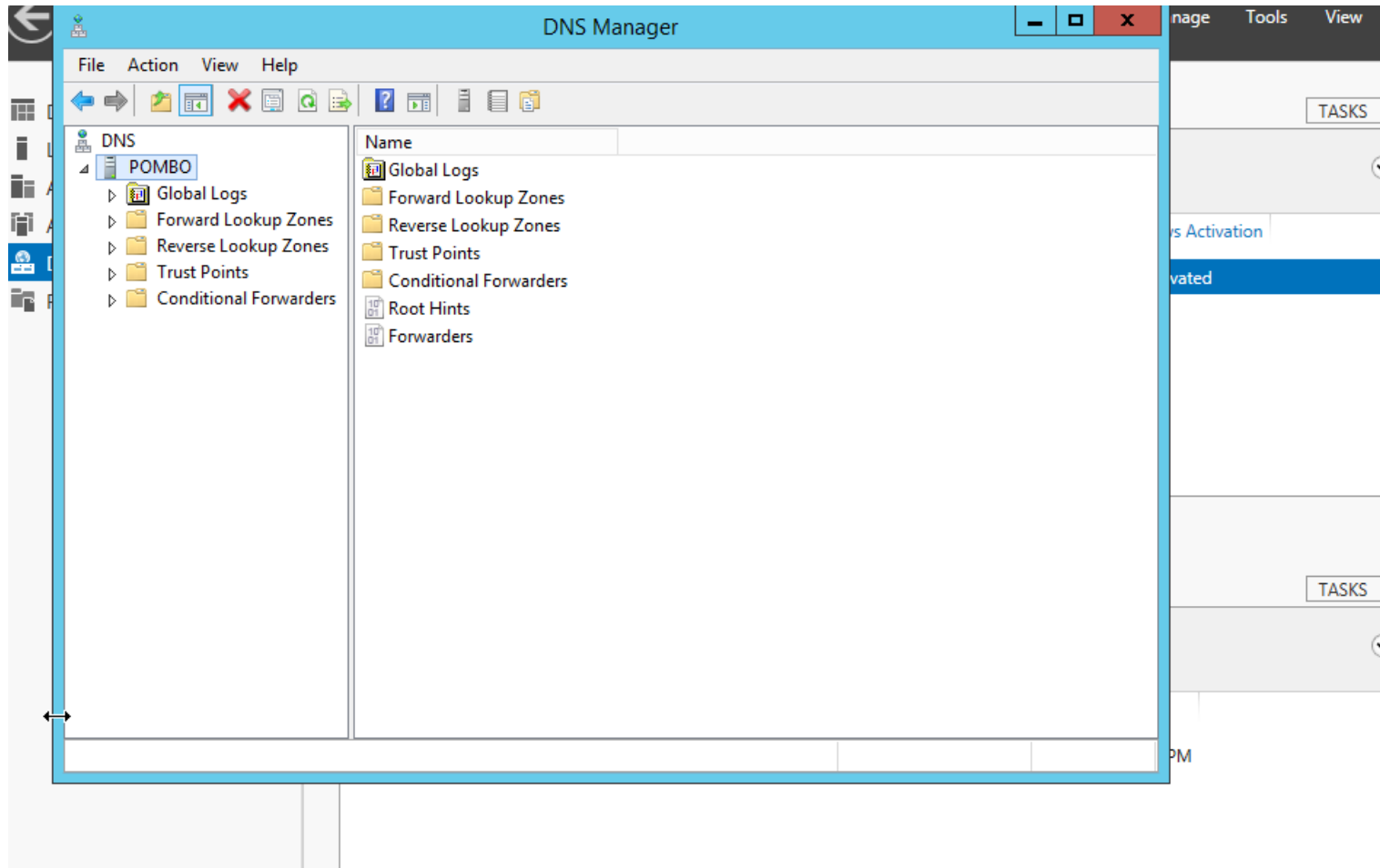
Usuário e Grupo Padrão do AD-DS



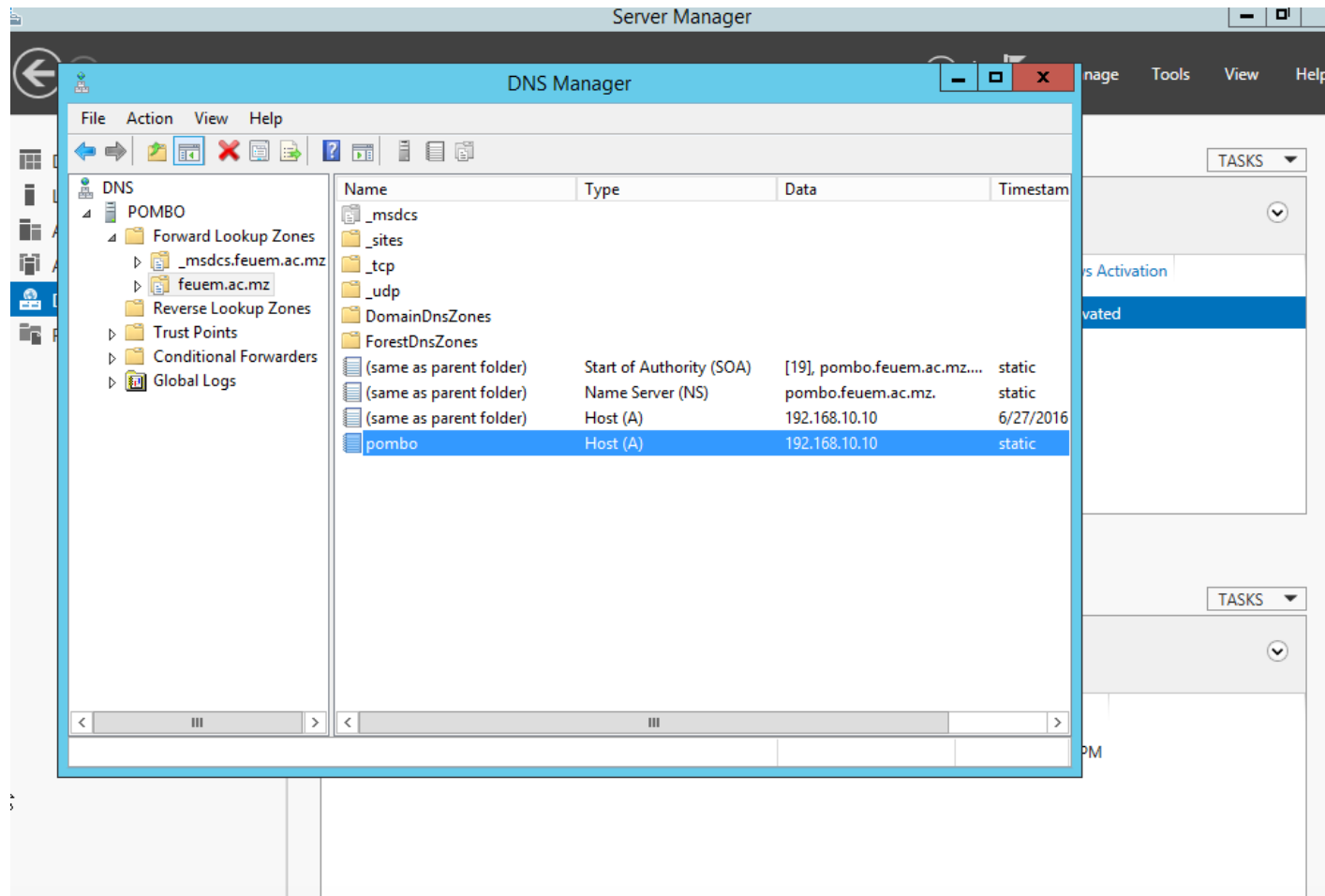
Servidor DNS



Servidor DNS



Zona de Pesquisa Directa (feuem.ac.mz)



Desafio

- O que entende por AD-DS
- Discuta sobre os protocolos X.500 e LDAP
- O que entende por DNS
- Qual a importância do AD-DS
- Defina floresta, Domínio, OU, Sites?
- Em que Protocolo é Baseado o AD-DS
- Diga o que é e como funciona o Kerberos