COMPUTER NETWORKING

ASSESSMENT 2

CREATE A CLIENT SERVER SWITCHED LOCAL AREA NETWORK, WITH SECURE ENDPOINTS

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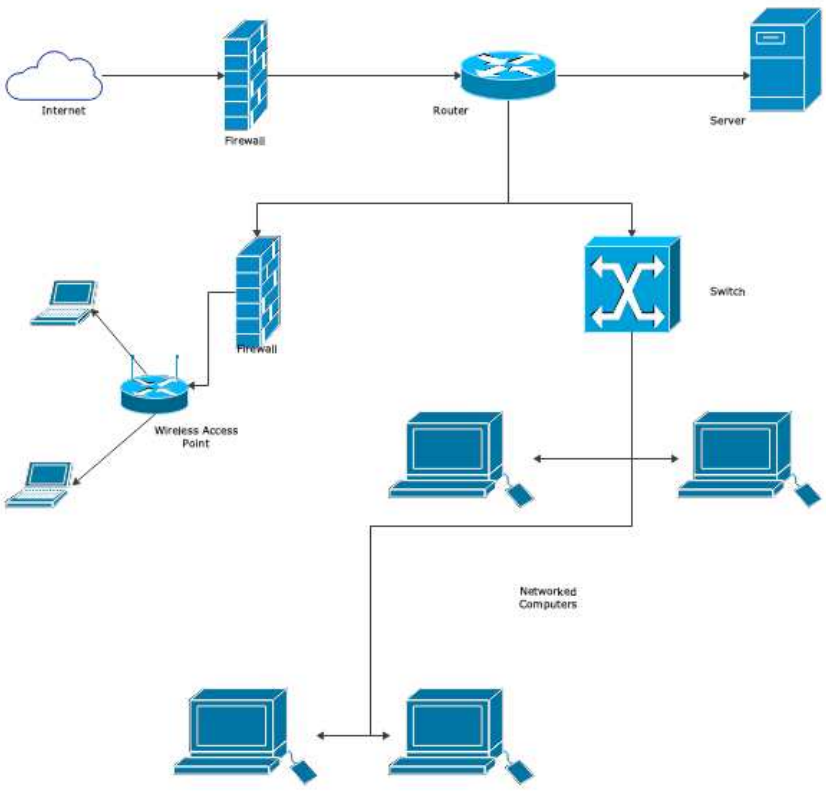
Scenario — You have been tasked with the setting up and configuring of a small local area network. This network should be set up with an emphasis on securing the endpoints of the network. To comply with this requirement, you can choose any suitable network operating system. You should be provided with suitable working hardware to allow this task to be completed.

Stage 1 — Select a suitable contemporary network topology

For this small network I have chosen to implement a star topology. The characteristics of this topology are flexibility, high speed, high reliability and high maintainability. It's easy to manage and maintain the network because each node require separate cable and easy to locate problems because cable failure only affect a single user. As I mentioned earlier it also provides very high speed of data transfer.



Stage 2 — Devise a suitable naming convention for the network hosts/nodes

Network: EK
Firewall: EK-FW-01
Router:EK-RT-01
Switch: EK-SW-01
Server:EK-SV-01
Computers: EK-PC-01

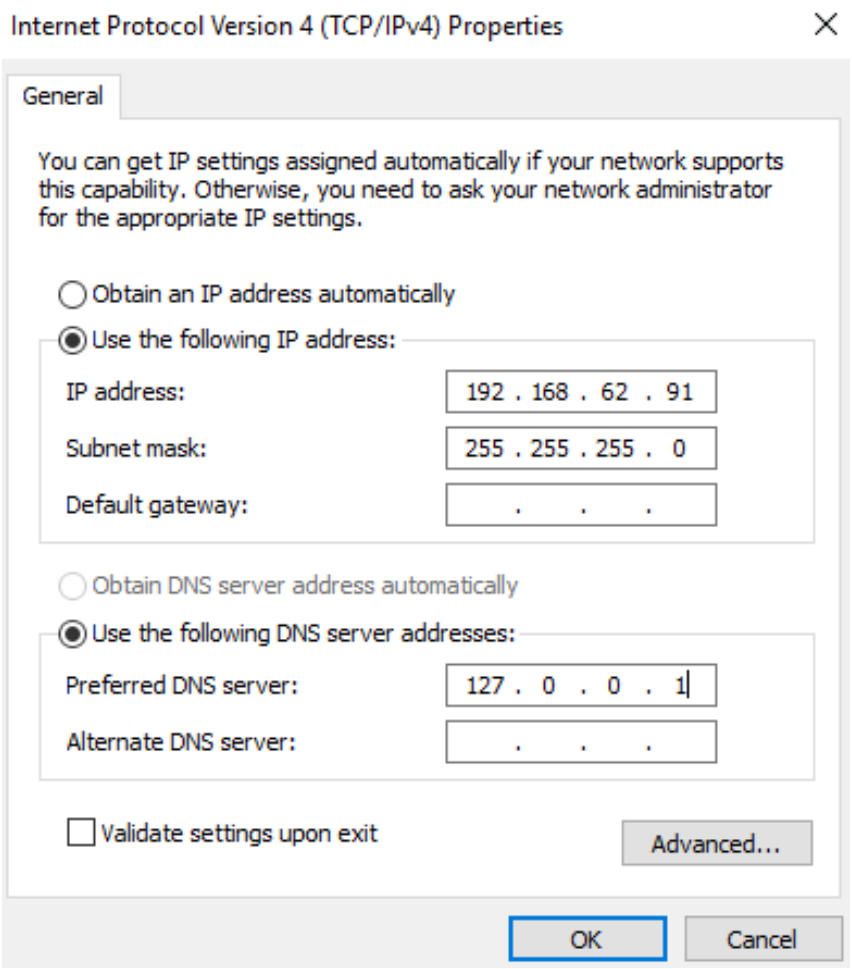
In cases where there are more than one equipment the name can be changed to 02, 03 etc.

Stage 3 — Devise a suitable logical addressing structure for the network hosts/nodes

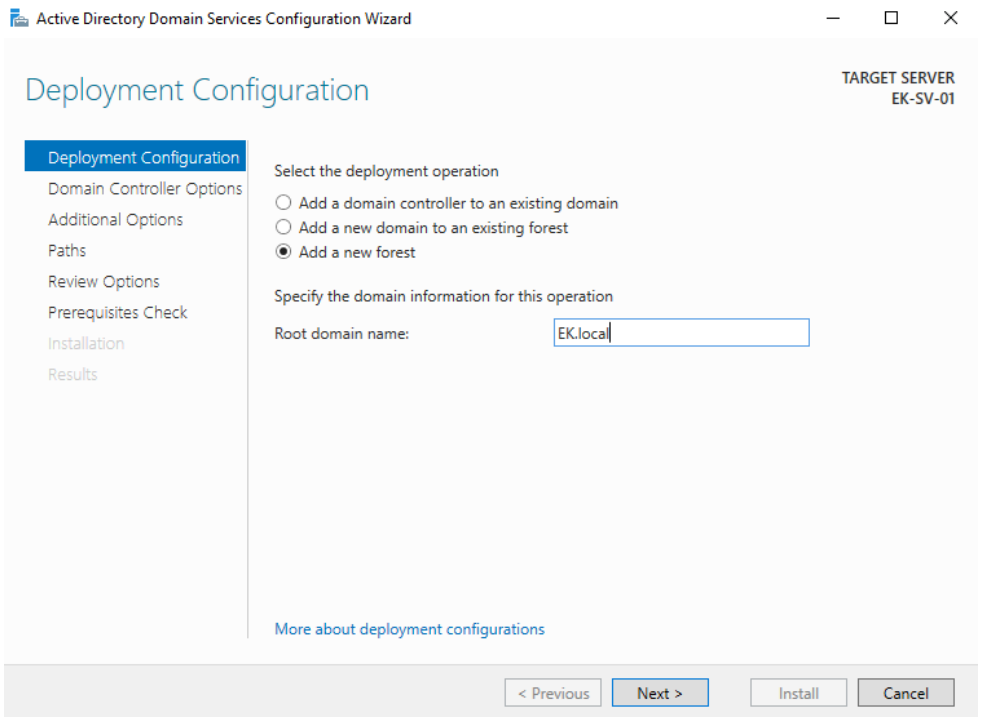
I implement two networks: an internal and a guest network.
The internal network IP address is 192.168.62.0/24 and the guest network IP is 192.168.63.0/24.

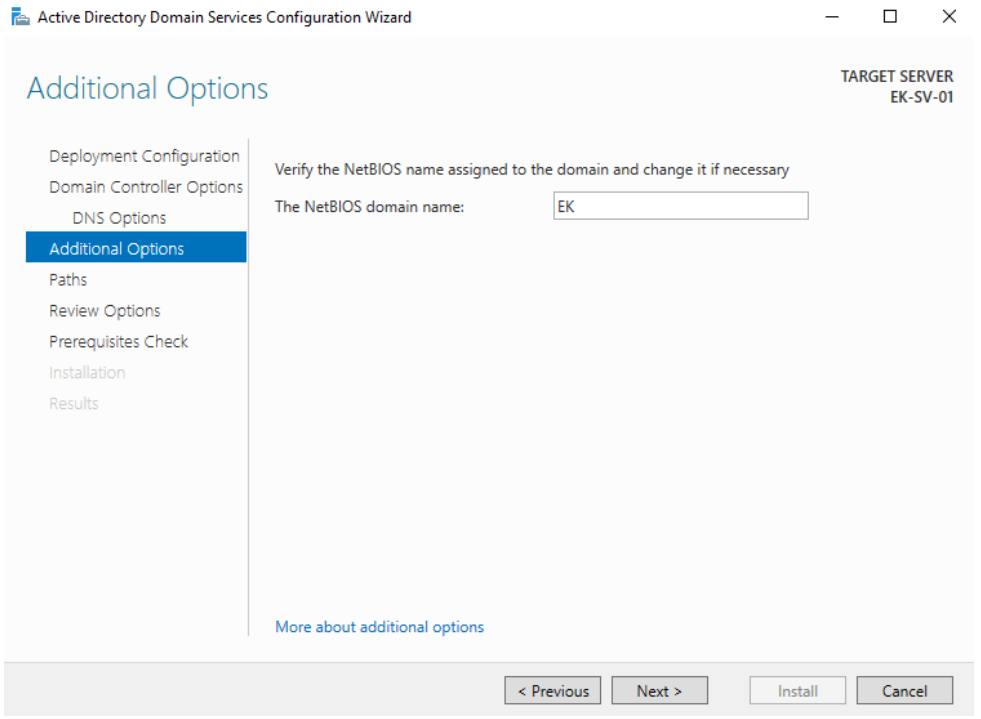
Stage 4 — Configure appropriate network authentication services and name resolution

After installing Windows Server I configure Active Directory, Domain Name Resolution and Dynamic Configuration Protocol.

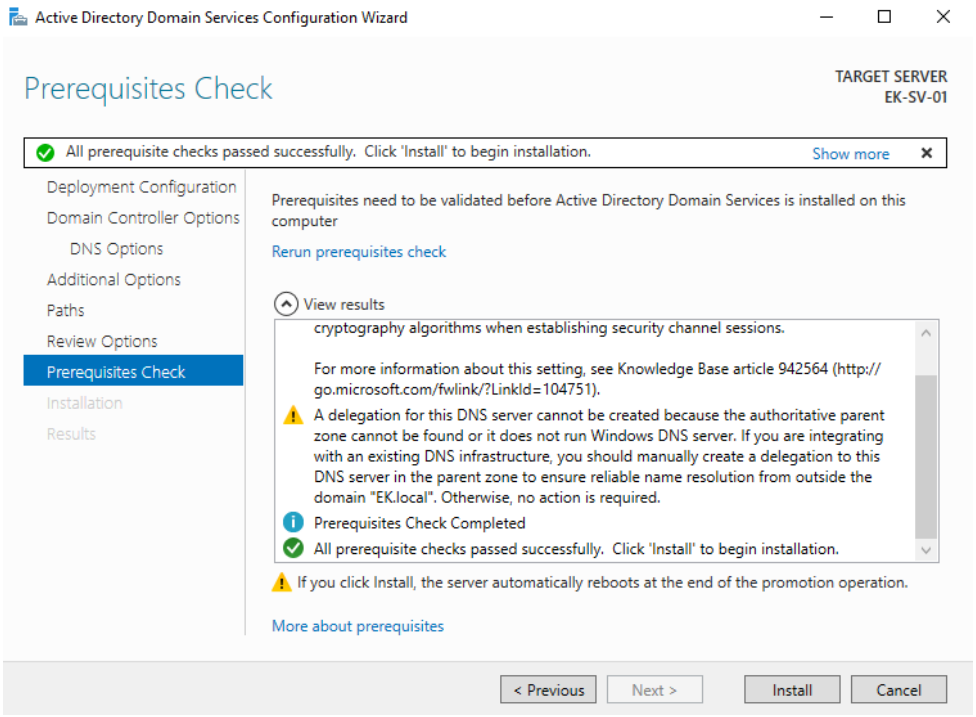


I add a static IP then configure the other settings in the Server Manager where I choose the 'Add roles and features' option and follow the instrucions.



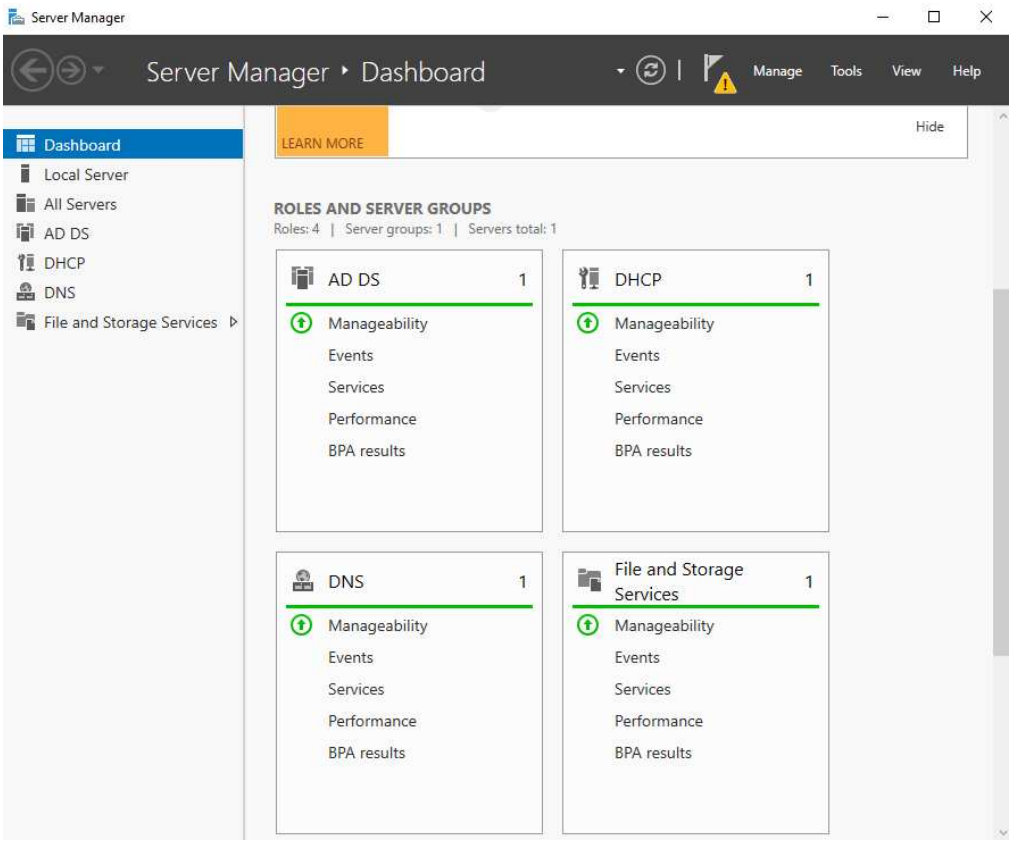


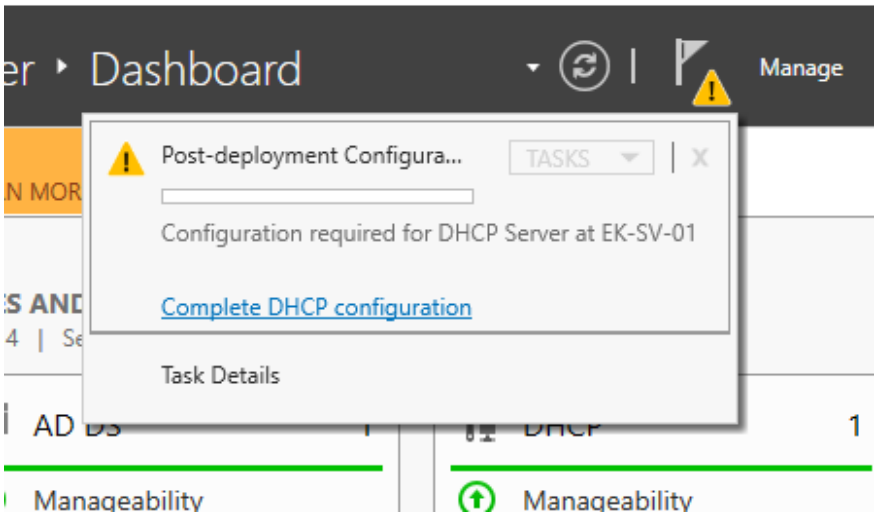
The prerequisite checks pass so I go ahead and click install.

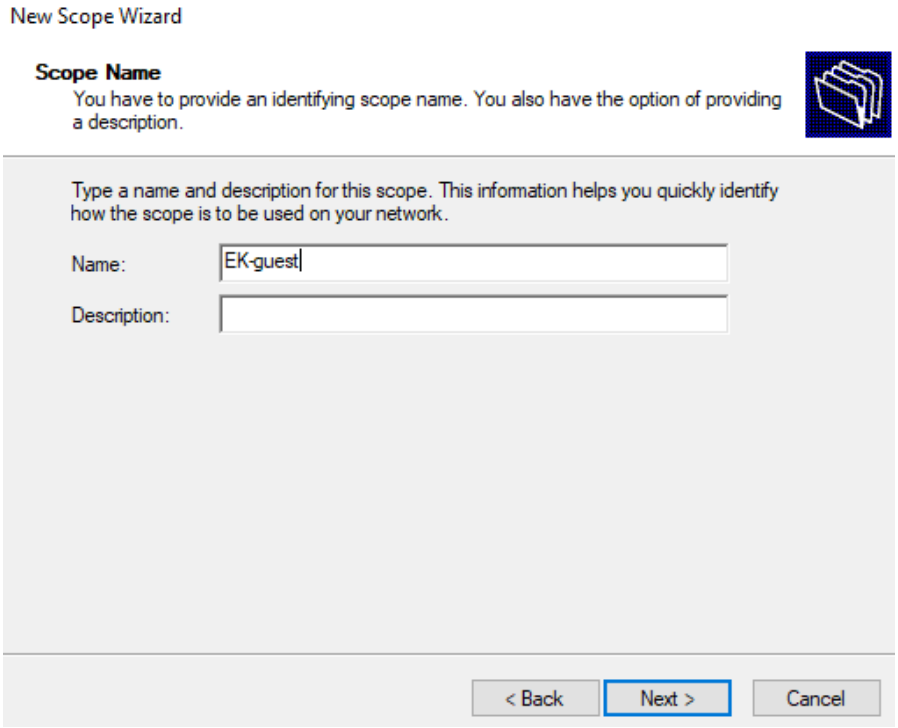


Stage 5 — Using the addressing scheme provided at stage 3, implement network DHCP services within the LAN

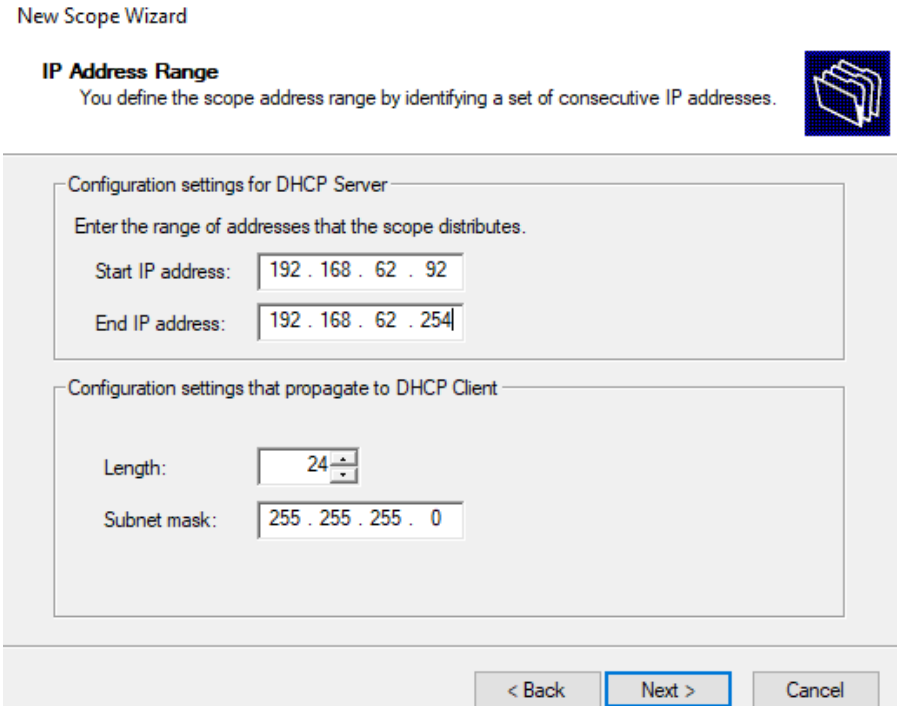
After opening the DHCP panel I configure the service in the post install wizard.

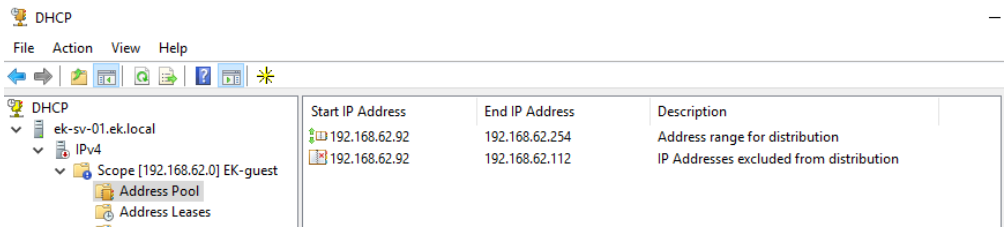



Dashboard
Manage
Post-deployment Configura...
TASKS
Configuration required for DHCP Server at EK-SV-01
Complete DHCP configuration
Task Details
Manageability
Manageability


New Scope Wizard
Scope Name
You have to provide an identifying scope name. You also have the option of providing a description.
Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.
Name:
EK-guest
Description:
< Back
Next >
Cancel

I also configure a DHCP scope and I set up the exceptions.



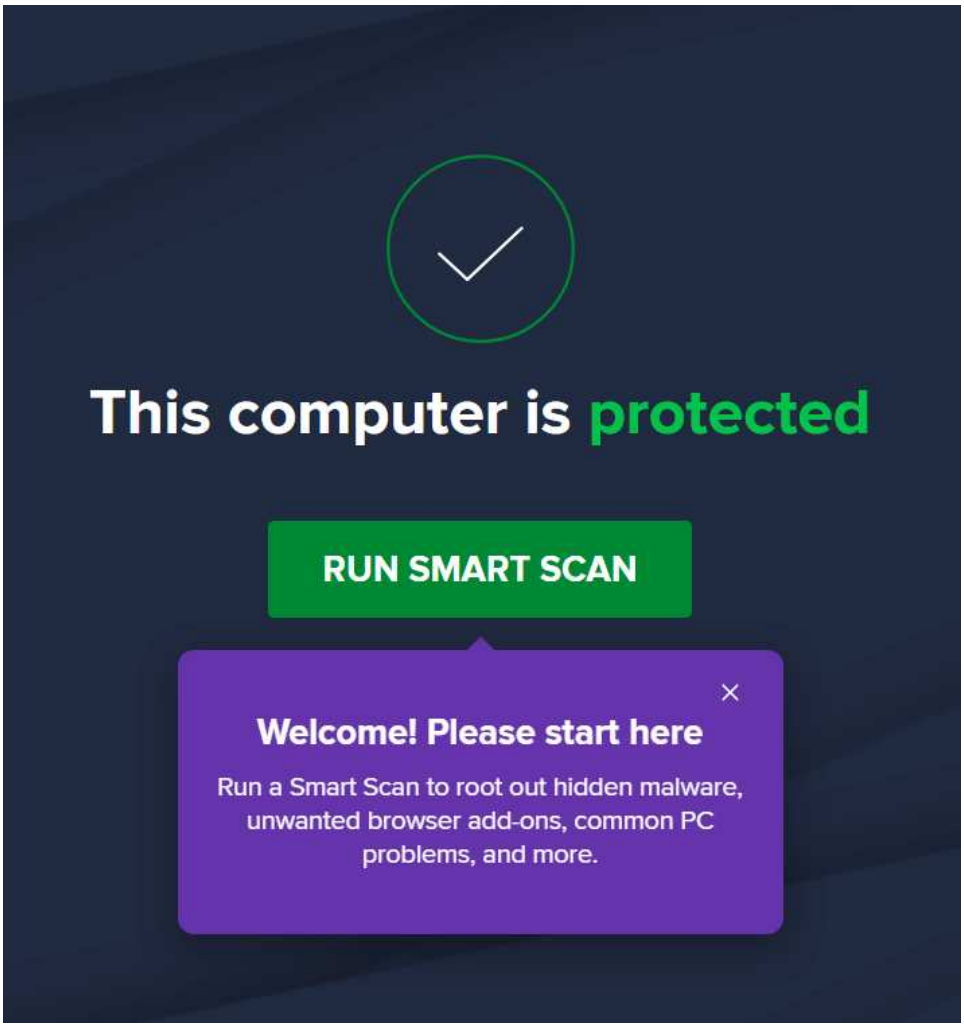


Stage 6 – Harden the endpoint devices/hosts by installing virus checking software

Products and services related to endpoint protection found on the market can be placed in these groups:

- Antivirus software or malware protection packages
- Fleet management solutions
- Remote imaging software
- HD encryption
- Display filters
- Smart browsers/browsing protection
- SaaS (Security as a Service)

In this particular case I install the Avast antivirus software.



Stage 7 — Configure endpoint devices' firewalls to allow network hosts to ping each other

After navigating to Windows Defender Firewall and Advanced Security I make sure the network hosts can ping each other. I choose Enable Rule to change the ICMP configuration.