# ICT & Infra S2, Connecting & Provisioning, week 7 ver. 2.0

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# Introduction

This assignment contains two parts:

* Configure VLAN for a guest network.
* Create firewall rules to protect private network from visiting guests.

The assignment must be done individually. You must create a new VLAN for your solution.

How to deliver your solution?

Fill in this document with required information about yourself. Answer to the questions and upload the document to the Canvas before its deadline (specified in the Canvas assignment).

### Assignment 1. Create and configure VLAN (guest network) for visiting guests.

### Difficulty: ★★★★☆.

VLANs (Virtual LANs) are logical grouping of devices in the same broadcast domain. VLANs are usually configured on switches by placing some interfaces into one broadcast domain and some interfaces into another. Each VLAN acts as a subgroup of the switch ports in an Ethernet LAN.

A VLAN acts like a physical LAN, but it allows hosts to be grouped together in the same broadcast domain even if they are not connected to the same switch.

Guest network is used primarily by visitors who require internet access but will not access private network and its resources.

Before executing the assignment, we assume:

* You have working firewall which gives internet access to a private network.
* There is VM which is not connected to Domain Controller. If you do not have such the host, you can run a new VM from Linux live USB/CD (for example: <https://lubuntu.me/downloads/>).

**Assignment:**

Create a new VLAN. You can use “Web interface VLAN configuration” tutorial from [Virtual LANs (VLANs) — pfSense VLAN Configuration | pfSense Documentation (netgate.com)](https://docs.netgate.com/pfsense/en/latest/vlan/configuration.html#web-interface-vlan-configuration)). Enable DHCP server of the newly created VLAN. Enable internet access and test if a guest client can go to the internet.

Additionally, you must enable trunk port on Private LAN interface (!) on the firewall. How to do it on Hyper-V: [Trunking With Hyper-V Networking - Working Hard In ITWorking Hard In IT](https://blog.workinghardinit.work/2015/10/13/trunking-with-hyper-v-networking/) and [ajdurant - Andy Durant](https://ajdurant.co.uk/posts/2020-05-29-windows-hyper-v-vlan-trunk/)

Provide few screenshots (evidence) of VLAN and DHCP server configuration. Explain the evidence!

**Graphical user interface, text, application, chat or text message

Description automatically generated**The first screenshot shows the newly created VLAN interface (OPT1) with VLAN tag 10 and having parent interface the normal LAN. It has a static IP of 192.168.10.254/24. In the third screenshot it can be seen the DHCP server configuration of OPT1 interface, which shows configure DHCP pool of 192.168.10.1-253/24

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

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### Assignment 2. Configure firewall to limit guest access to a private network and firewall UI.

### Difficulty: ★★☆☆☆.

A guest visiting a company can misuse the network connection and access company’s private information. Your task is to create few firewall rules, so the guest connected to the newly created VLAN will have the following rules:

* Prevent access to pfSense Web (configuration) UI from guest network.
* Permit WAN access (access to internet) but prevent access to private LAN.
* (optionally) enable and configure Squid Proxy server to track browsing activity of a guest.

Provide few screenshots (evidence) of configured firewall rules and proxy configuration. Explain the evidence!

**On the screenshot below two firewall rules for interface OPT1 can be seen. First one is blocking the access of VLAN10 users to LAN. The second rule is about granting access to VLAN10 to the Internet.**

**The third rule is floating and it blocks the access of VLAN10 users to the GUI of the pfSense.**

Graphical user interface, text, application

Description automatically generated**Graphical user interface, text, application

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