

Administration and management of network systems

1. Final task assignement

The competition is divided into 2 tests.

The competition consists of completing 3 modules.

Module 1 – “Windows Island” - Configuration of services based on Microsoft Windows OS.

Module 2 – “Linux Island” - Configuration of services based on - Linux OS.

Module 3 – “Network Island” - Configuration of local and global data transmission networks.

2. Allocated time: 6 hours.

The contest duration is 6 hours.

Day 1 - Module 1 and 2: 3 hours 30 minutes.

Day 2 - Module 3: 2 hours 30 minutes.

3. Requirements

Modules 1 and 2 are grouped together.

Module 1 – “Windows Island” - Configuration of services based on Microsoft Windows OS.

Module 2 – “Linux Island” - Configuration of services based on - Linux OS.

Day 1

Allocated time: 3h30

Recommendations to candidates:

At the end of your work, you must provide the virtual machines (VMs) in the off state for testing. In any case, all virtual machines will be restarted by the judges before the judging. If it is impossible to enter the system, the judges will not evaluate this part.

When working, be aware of possible power outages.

Situation:

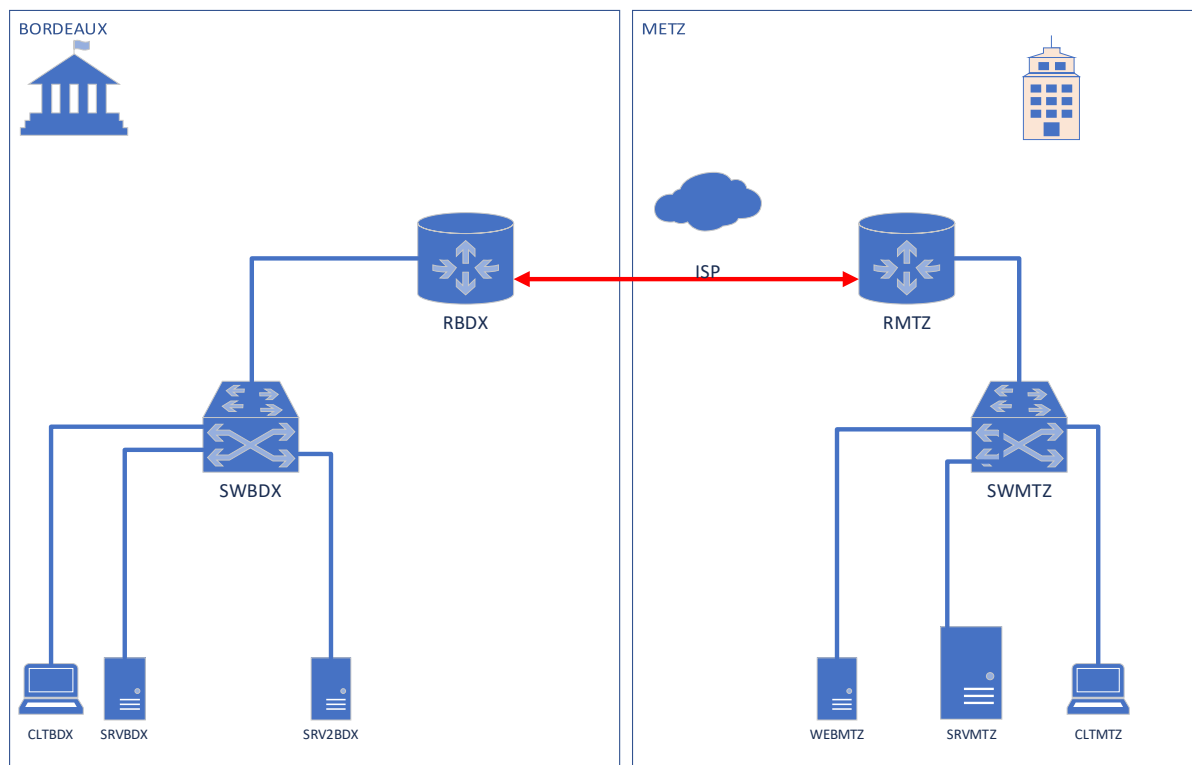
The Abilympics France association, which has its headquarters in BORDEAUX, is responsible for organizing the competition for the 10th international ABILYMPICS.

The chosen site is the city of METZ. In this context and in order to facilitate the work

of the judges, an extension of the computer network from BORDEAUX to the METZ site is planned. Your task is to replicate, in part, the network infrastructure.

For the whole subject the passwords will be **P@ssw0rd**

Physical Diagram:

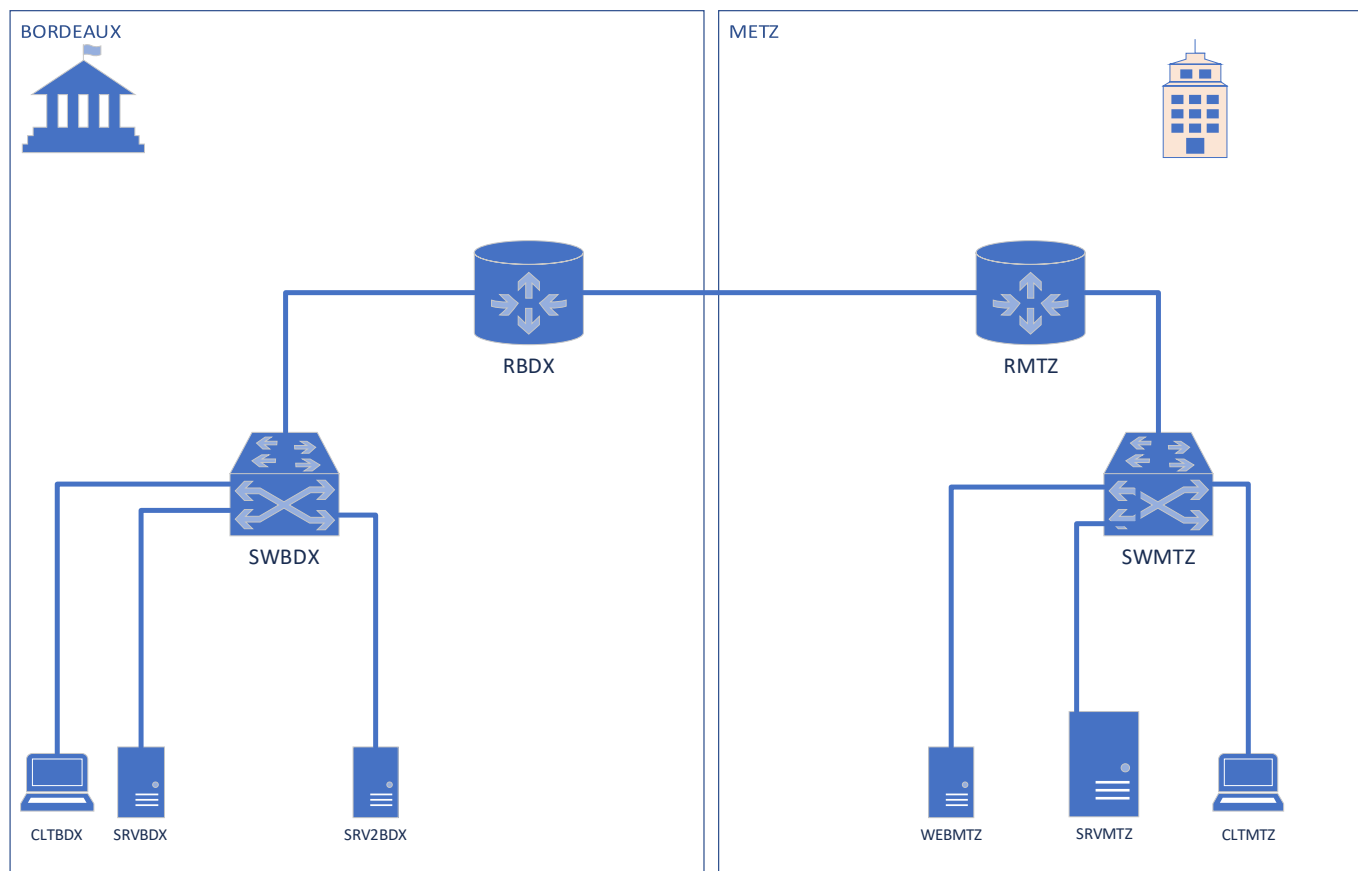


For the systems part, each site will be represented by a physical machine, each of which makes it possible to virtualize all the machines on the site using the Virtualbox tool.

You have two switches and two routers to simulate the interconnection of sites.

All machines (client server) will be in bridge mode on the network card integrated into the motherboard (named eth0 on the rest of the subject) so one link will be to SWBDX and SWMTZ from the physicals PC.

Simplified diagram for this test:



The link between the two sites is a Giga Ethernet link.

1- Network infrastructure

SITE TO SITE LINK

Port Gi0/0/0 on routers

BORDEAUX SITE:

Physical machine (Eth0) will be connected on port 1 of SWBDX

RBDX Gi0/0/1 will be connected on port 24 of SWBDX

METZ SITE:

Physical machine (Eth0) will be connected on port 1 of SWMTZ

RMTZ Gi0/0/1 will be connected on port 24 of SWMTZ

2- Infrastructure system

Addressing Plan

LAN BORDEAUX	172.30.0.0/18
LAN METZ	172.30.128.0 /18
WAN SITE TO SITE	1.0.0.16 /30

CLTBDX, WEBMTZ and CLTMTZ will be in dynamic address.
SRVMTZ will take the first address from METZ LAN
SRVBDX will take the first address of the BORDEAUX LAN
SRV2BDX will take the second address of the BORDEAUX LAN
RBDX Gi0/0/0 will take the first site-to-site WAN address
RMTZ Gi0/0/0 will take the last site-to-site WAN address
RBDX Gi0/0/1 will take the last address from the BORDEAUX LAN
RMTZ Gi0/0/1 will take the last address of the METZ LAN

BORDEAUX physical PC

IP address eth0 172.31.0.1 /16
IP address eth1 172.31.0.2 /16

METZ physical PC

IP address eth0 172.31.0.3 /16
IP address eth1 172.31.0.4 /16

Domain name

abilympics2023.org

Provide a basic configuration on the active equipment to establish a link between the two sites.

Creation of virtual machines using the VIRTUALBOX software on the BORDEAUX physical machine:

SRVBDX

Name SRVBDX
RAM 8Go, HDD 50 Go, 4 CPU
Network card in bridge mode on eth0 card.
OS Windows server 2022, administrator password: **P@ssw0rd**
1 partition C: named **system** 30 Go NTFS for OS
1 partition D: named **share** 20 Go NTFS.
society: **abilympics2023**
Organization: **abilympics**
Hostname: **srvbdx**

CLTBDX

Name CLTBDX
RAM 2Go HDD 30Go, 1CPU
Network card in bridge mode on eth0 card.
OS Windows 10 pro
Local administrator account **adloc** password: **P@ssw0rd**
Hostname: **cltbdx**

SRV2BDX

Name SRV2BDX

RAM 8Go, HDD de 50Go, 2CPU

Network card in bridge mode on eth0 card.

OS Windows server 2022, administrator password **P@ssw0rd**

1 partition C: named **system** 50 Go NTFS for the OS

Society: **abilympics2023**

Organization: **abilympics**

Hostname: **srv2bdx**

IMPORTANT

Make a snapshot named "%machine name%_base" for each machine at the end of the first installation (before advanced configuration).

Creation of virtual machines using the VIRTUALBOX software on the METZ physical machine:

SRVMTZ

Name SRVMTZ

RAM 8Go, HDD 50Go, 4 CPU

Network card in bridge mode on eth0 card.

OS Windows server 2022, administrator password **P@ssw0rd**

1 partition C: named **system** 50 Go NTFS for the OS

Society: **abilympics2023**

Organization: **abilympics**

Hostname: **srvmtz**

WEBMTZ

Name WEBMTZ

RAM 4Go, HDD 40Go, 2 CPU

Network card in bridge mode on eth0 card.

OS Linux DEBIAN 10, root password **toortoor!**

Full username adloc password **P@ssw0rd**

Hostname: **webmtz**

CLTMTZ

Name CLTMTZ

RAM 2Go, DD de 30Go, 1CPU

Carte réseau en mode pont sur la carte eth0.

OS Windows 10 pro

Local administrator account **adloc** password **P@ssw0rd**

Hostname: **cltmtz**

IMPORTANT

Make a snapshot named "%machine name%_base" for each machine at the end of the first installation (before advanced configuration).

3- srvbdx specifications

This server will be the main domain controller with the following services: Active directory, DNS, file server.

AD

Configure the Bordeaux Active Directory site with the domain name abilympics2023.org. (Netbios name ABILYMPICS2023)

DNS

srvbdx will be the main DNS server for the hosts of **abilympics2023.org** domain.

USERS and GROUP

Create the following users and groups.

The password for each user will be **P@ssw0rd**.

Name	First name	Login	Site	Departments
Leblanc	Mathieu	mleblanc	Bordeaux	Management
Laborde	Noemie	nlaborde	Bordeaux	Communication
Klein	Patrick	pklein	Bordeaux	IT
Kremer	Anne	akremer	Bordeaux	Works
Etchebarn	Patxi	petchebarn	Metz	Finance
Martin	Eve	emartin	Metz	Competition
Martinez	Lola	lmartinez	Metz	Competition

Users in the IT group will have full control over the domain.

Do not protect OUs against unintended deletions.

Create an OU at the root for each site.

Create a “computers_bdx” OU and “computers_mtz” OU. Place the computers and servers in these OU according to their distribution

Create a “groups_bdx” OU and “groups_mtz” OU. Place users in these OU according to their distribution.

Create a “users_bdx” OU and “users_mtz” OU. Place users in these OU according to their distribution.

GPO

Configure following policies:

- When connected on BORDEAUX Site: All users except users in IT group cannot launch cmd.exe and control panel. When connected to other site, this policy doesn't apply.
- All users in Works group can change their IP but must not be administrator of their PC.

File Shares

Configure srvbdc as File shares server.

All shares' folders will be in D:\Shares\ folder

- Create one share "profiles" that will contain all user's profiles. This share should not appear when browsing all shares in the server. Users' profiles will be place in sub directories of the profile share. Share, profile directory and sub directories should be restricted as much as possible.

- Create one share "user_homes" that will contain all user's home directory. Each user directory is subdir of this share. On clients, users will automatically mount this share as **H** letter.

- Create one share "departments" that will contain all departments shares. Each department is subdir of this folder. See the following informations:

Departments	Read only allowed departments	Read/write allowed departments
Management		Management
Communication	Management	Communication
Works	Finance	Works, Management
Finance	Works	Finance, Management
Competition	all	Competition, Management
IT		IT

On clients, users will automatically mount this share as **S** letter.

For each share, right must be applied using NTFS security (not share security). Also, users must see only shares where they have read (at least) access.

4. Specifications srv2bdc

This server is an additional domain controller for the abilympics2023.org domain. The AD database should be replicated from srvbdc only.

Install following services: DNS, DHCP, IIS

DNS

srv2bdc will be the secondary server for the abilympics2023.org domain

DHCP

Scope name : bordeaux

The DHCP pool must contain 256 addresses starting from the address 172.30.10.0 /18

Lease: 8h

Options: Primary and Secondary DNS server, Gateway, Domain Name

Reservation cltbdx will always take the second address from the pool.

Exclude: 172.30.10.50 to 172.30.10.60

IIS

Create an abilympics2023.org site accessible from http and https
Customize the home page with the message "Welcome to abilympics France internal webpage".

FTP

Install FTP service on D:/FTPfolder. The access must synchronize with AD users.

5. Specifications srvmtz

AD

This server will be the domain controller for the **metz.abilympics2023.org** subdomain. Replication from/to srvbdx should be scheduled every 15 minutes.

DNS

This server is the dns server for LAN METZ and the domain metz.abilympics2023.org.

DHCP

Scope name : metz

The DHCP pool must contain 1024 addresses starting from the address 172.30.130.0 /18

Lease: 4h

Options: DNS primary server (srvmtz) and secondary (srvbdx), gateway, domain name

The webmtz server will always be assigned the last address in the pool.

6. Specifications cltbdx

This machine must be a member of the abilympics2023.org domain and can be used for testing.

7. Specifications cltmtz

This machine must be a member of the metz.abilympics2023.org domain and can be used for testing.

8. Specifications webmtz

Install Debian10.

Root password **toortoor!** full username adloc password **P@ssw0rd**.

FQDN webmtz.metz.abilympics2023.org

Install the Apache web service,

customize the home page with the message "Welcome to 10th international Abilympics contest in METZ".

Create an IT group and add the corresponding account.

Module 3 – “Network Island” - Configuration of local and global data transmission networks.

Day 2

Allocated time: 2h30

Recommendations to contestants:

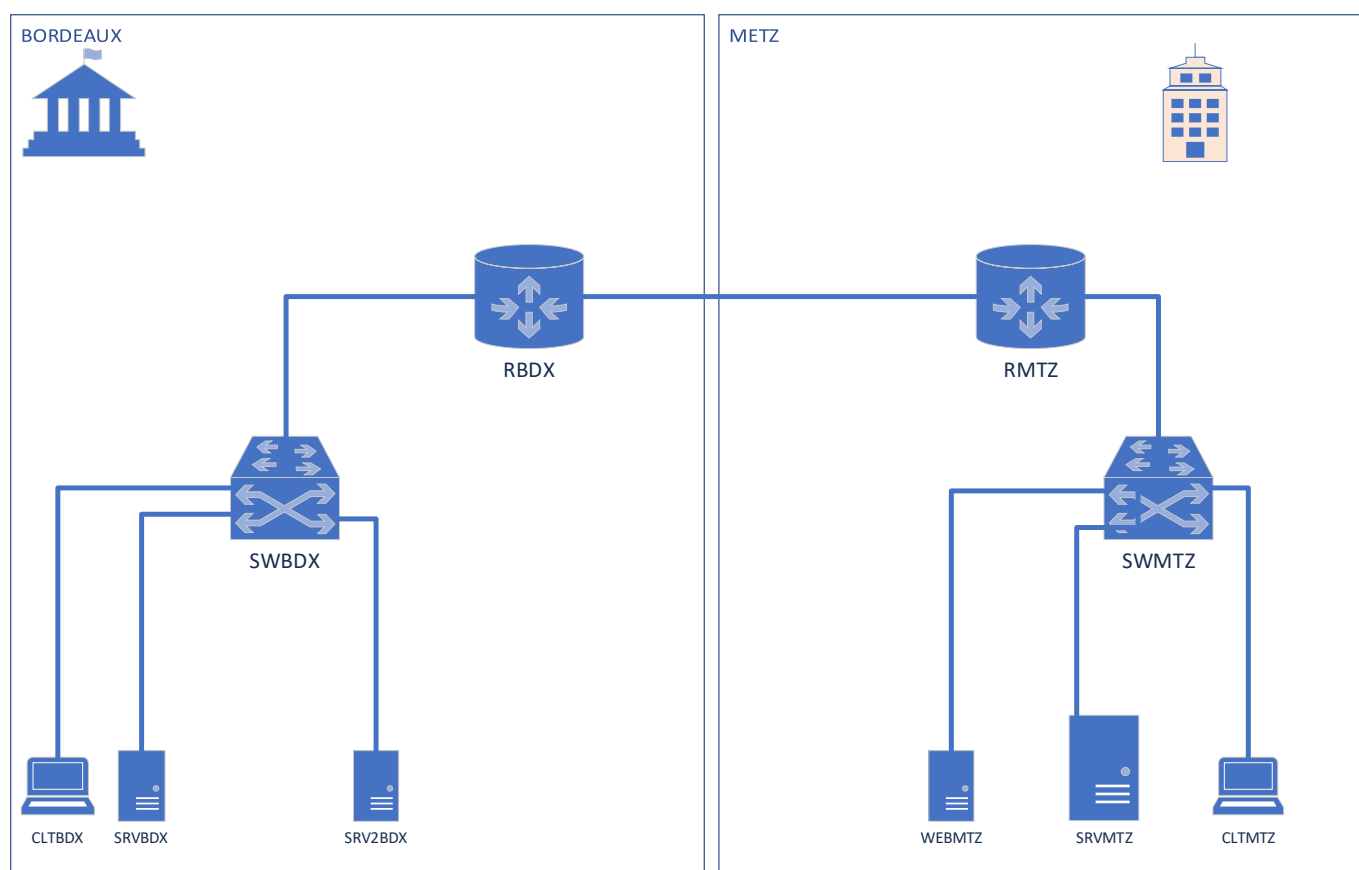
At the end of your work all sessions will be closed on all equipment. If it is impossible to enter the system, the judges will not evaluate this part.

When working, be aware of sudden power outages.

Situation:

As part of the 10th Abilympics World Competition, you are responsible for setting up network equipment for the "abilympics2023.org" association. This association has a historic site in BORDEAUX and a temporary extension to METZ.

Physical diagram:



All passwords will be P@ssw0rd except on the switches, routers and the root of the WEBMTZ machine which is toortoor!

You also have at your disposal a laptop that allow you to do tests and other settings. This equipment does not appear on the diagram.

1- Preparation

Computer changes from topic day 1.

All the machines have been reset to the "name of the machine_base" state thanks to your snapshot, so:

- Domains have been deleted
- Services have been removed
- The servers will be used as a simple computer
- Clients are no longer integrated into the domain
- All windows machines will be in the workgroup **ABL10**

The addressing plan has been changed.

Modification and verification to be done on the VMs before starting the machines:

- For SRVBDX and CLTBDX the network cards will always be in bridge mode on eth0
- For SRV2BDX the network card will be in bridge mode on eth1
- For SRVMTZ and CLTMTZ the network cards will always be in bridge mode on eth0
- For WEBMTZ the network card will be in bridge mode on eth1

Common configuration to all CISCO equipment:

- The hostname must match the plan
- Secret password: **Password**
- Domain name abilympics2023.org
- Connection to the console port of the switch's with password **Password**
- Connection to the console port of the routeurs with user adloc password **Password**
- All passwords will be encrypted
- Dns lookup will be disabled
- Use of telnet prohibited
- Provide a warning banner with the message "Warning Authorized Access Only"

2- Setting up the network infrastructure

Link to SWBDX

Equipment	Ports
PC BDX eth0	FA0/1
PC BDX eth1	FA0/19
RBDX (Gi0/0/1)	G0/1

Warning:

The connection of certain equipment may be modified depending on the tests to be carried out, but you must return your installation with the configuration above.

Link to SWMTZ

Equipment	Ports
PC MTZ eth0	FA0/13
PC MTZ eth1	FA0/19
RMTZ (Gi0/0/1)	G0/1

Warning:

The connection of certain equipment may be modified depending on the tests to be carried out, but you must return your installation with the configuration above.

Link site to site:

This link will be on Gi0/0/0 routeurs interfaces.

Configure the equipment taking into account the following addressing plan

Device	Interface	Protocol	IP / MASK
RBDX	Gi0/0/1.100	IPv4	172.17.0.1 / 16
RBDX	Gi0/0/1.200	IPv4	172.18.0.1 / 16
RBDX	Gi0/0/1.300	IPv4	172.19.0.1 /16
RBDX	Gi0/0/1.77	IPv4	172.20.0.1 /16
RBDX	Gi0/0/0	IPv4	2.1.1.9 / 30
RMTZ	Gi 0/0/1.77	IPv4	172.16.0.1 /24
RMTZ	Gi0/0/1.100	IPv4	172.16.1.1 /24
RMTZ	Gi0/0/1.200	IPv4	172.16.2.1 /24
RMTZ	Gi0/0/1.300	IPv4	172.16.3.1 /24
RMTZ	Gi0/0/0	IPv4	To be determinate
srvbdx	Eth0	IPv4	172.17.1.1 /16
cltbdx	Eth0	IPv4	dhcp
srv2bdx	Eth0	IPv4	172.18.1.1 /16
srvmtz	Eth0	IPv4	172.16.1.254/24
cltmtz	Eth0	IPv4	dhcp
webmtz	Eth0	IPv4	172.16.3.254 /24
SWBDX	VLAN 77	IPv4	172.20.100.1 / 16
SWMTZ	VLAN 77	IPv4	172.16.0.2 / 24

Physical machine BORDEAUX: eth0 192.168.1.1 /24 eth1 192.168.1.2/24

Physical machine METZ: eth0 192.168.1.3 /24 eth1 192.168.1.4 /24

3- Routers

Configure interfaces and sub-interfaces according to the addressing plan.

All routing will be done via static routes, provide a route for each network present in the installation.

Provide a last resort route to 10.0.0.1 for rbdx and 20.0.0.1 for rmtz, these addresses are not currently present in the installation, this is a future development.

SSH

RBDX and RMTZ,

- All remote access with SSH protocol version 2 on local database. User adloc password **Password** ; privilege 15
- RSA keys 1024 bits

NTP

- RBDX is NTP master server
- Other cisco devices will be synchronized via RBDX

DHCP

RBDX Vlan100

Pool 172.17.0.100 /16 to 172.17.1.200 /16

Exclusion 172.17.0.150 to 172.17.0.155

Options: gateway, dns (srvbdx), domain name

RBDX Vlan200

Pool: 10 addresses from 172.18.0.100 /16

Options: gateway, dns (srvbdx), domain name

RBDX Vlan300

Pool: 5 addresses from 172.19.0.100 /16

Options: gateway, dns (srvbdx), domain name

RBDX Vlan77

Pool: 2 addresses 172.20.0.10 /16 and 172.20.0.11/16

Options gateway, dns (srvbdx), domain name

RMTZ Vlan100

Pool 172.16.1.100 /24 to 172.16.1.200 /24

Exclusion 172.16.1.150 and 172.16.1.157

Options: gateway, dns (srvmtz), domain name

RMTZ Vlan200

Pool: 100 addresses from 172.16.2.100 /16

Options: gateway, dns (srvbdx), domain name

RMTZ vlan300

Pool: 3 adresses from 172.16.3.10 /24

Options: gateway, dns (srvbdx), domain name

RMTZ Vlan77

Pool: 172.16.0.100 /24 to 172.16.0.254 /24

Options: gateway, dns server (srvbdx) domain name

4- Switch

SSH

SWBDX and SWMTZ

- All remote access with SSH protocol version 2 on local database. User adloc password **Password**; Privilège 15.
- RSA keys 1024 bits

VLAN

Vlan: same on SWBDX and SWMTZ

ID	Name	Port	Equipment
100	data	ports 1 to 10	srvbdx cltbdx
200	voice	ports 13 to 18	srvmtz cltmtz
300	video	ports 19 and 21	Webmtz srv2bdx
77	mgt	Port 24	
99	depot	Unused ports	

Create the different VLANs.

Switch port security:

SWBDX

Only the mac address of SRV2BDX will be authorized on the corresponding port. The violation mode must be protected.

A maximum of five mac addresses will be authorized on all other used FastEthernet ports, they will be learned and recorded dynamically.

Unused ports will be disabled.

SWMTZ

Only the mac address of WEBMTZ will be authorized on the corresponding port. The violation mode must be restricted.

Three mac addresses maximum will be authorized on all other used FastEthernet ports, they will be learned and registered dynamically.

Unused ports will be disabled.

5- Filtering

When the laptop is connected on switches it will have a remote access via ssh protocol to all equipments.

Access to srv2bdx

- Full access for vlan100, vlan300 and vlan77 equipments
- Prohibited access for others.

Access to webmtz

- Access http et https only

Access to srvmtz

- No restriction

Access to srvidx

- Only equipment belonging abilympics2023.org domain will have access to this server
- Prohibited access for equipment's that are not part of the association.

4. Procedure

Day - 1 (March 23rd): On the day before the competition, contestants will be welcomed on the stand by the members of the jury. A briefing about the organization of the contest and about the security rules will be arranged. Each contestant will receive a schedule with the detailed working hours. Contestants will draw lots to be assigned to a work station, where they may drop off their equipment.

Day 1 (March 24th): Contestants will have 3 hours 30 minutes to complete the modules 1 and 2. The two modules will be organized in two groups. Contestants from a same delegation will be inevitably placed in the same group. Group 1 will complete the modules 1 and 2 in the morning. Group 2 will complete the modules 1 and 2 in the afternoon.

Day 2 (March 25th): The final task assignment for module 3 will be handed out to contestants. They will have 2 hours 30 minutes to complete the module.

5. Evaluation criteria

N°	Items to be evaluated	O/S	Scoring scale
Bordeaux site			33
01	Physical machines preparation and patching (IP address, patching) <i>Préparation et connexion des machines physiques (adresses IP, brassage)</i>	O	1
02	Creation and configuration of SRVBDX (Name, RAM, HDD, bridge mode on eth0, partitions, hostname, administrator password, IP address, snapshot) <i>Création et configuration de SRVBDX (nom, RAM, HDD, mode pont sur eth0, partitions, nom d'hôte, mot de passe administrateur, adresse IP, snapshot)</i>	O	2
03	Creation and configuration of SRV2BDX (Name, RAM, HDD, bridge mode on eth0, hostname, administrator password, IP address, snapshot) <i>Création et configuration de SRV2BDX (nom, RAM, HDD, mode pont sur eth0, nom d'hôte, mot de passe administrateur, adresse IP, snapshot)</i>	O	1,5
04	Creation and configuration of CLTBDX (Name, RAM, HDD, mode bridge on eth0, hostname, adloc account and password, snapshot) <i>Création et configuration de VMs (nom, RAM, HDD, mode pont sur eth0, compte adloc et mot passe, snapshot)</i>	O	0,5
05	Installation of AD and DNS services (domain name abilympics2023.org, service DNS ok test nslookup) <i>Installation des services AD et DNS (nom de domaine abilympics2023.org, test nslookup pour service dns)</i>	O	2
06	Creation and configuration of 7 users and 6 groups (login password) <i>Création et configuration des 7 utilisateurs et des 6 groupes (identifiants, mot de passe)</i>	O	2
07	Users in IT group full control over the domain <i>Les membres du groupe IT sont administrateurs du domaine</i>	O	1
08	Creation of OU (min : bdx or bordeaux, mtz or metz, computer, groups, users) <i>Création d'une OU (au min bdx ou bordeaux, metz ou metz, computer, groups, users)</i>	O	4
09	GPO cmd.exe and control pannel, (not protected against unintended deletions) GPO cmd.exe et panneau de configuration (pas de protection contre les suppressions involontaires)	O	3
10	GPO IP address (not protected against unintended deletions) GPO adresse IP (pas de protection contre les suppressions involontaires)	O	1

11	profiles directory sharing <i>Partage du dossier profile</i>	O	2
12	user_homes directory sharing <i>Partage du dossier user_homes</i>	O	2
13	departments directory sharing <i>Partage du dossier departments</i>	O	4
14	DHCP service on srv2bdx (pool, lease,options,reservation, exclusion) <i>Service DHCP sur srv2bdx (pool, bail,options, reservation, exclusion)</i>	O	4
15	IIS and FTP (http, https, message on web page, FTP OK) <i>IIS et FTP (http, https, message d'accueil sur la page web, FTP OK)</i>	O	2
16	cltbdx on the domain <i>cltbdx sur le domaine</i>	O	1
Metz site			17
17	Physical machines preparation and patching (IP address, patching) <i>Préparation et connection des machines physiques (adresse IP, brassage)</i>	O	1
18	Creation and configuration of SRVMTZ (Name, RAM, HDD, bridge mode on eth0, partitions, hostname, administrator password, IP address,snapshot) <i>Création et configuration de SRVBDX (nom, RAM, HDD, mode pont sur eth0, partitions, nom d'hôte, mot de passe administrateur, adresse IP, snapshot)</i>	O	1
19	Creation and configuration of WEBMTZ (Name, RAM, HDD, bridge mode on eth0, partitions, hostname, root password, IP address, snapshot) <i>Création et configuration de SRVBDX (nom, RAM, HDD, mode pont sur eth0, partitions, nom d'hôte, mot de passe administrateur, adresse IP, snapshot)</i>	O	2
20	Creation and configuration of CLTMTZ (Name, RAM, HDD, mode bridge on eth0, hostname, adloc account and password, snapshot) <i>Création et configuration de CLTMTZ (nom, RAM, HDD, mode pont sur eth0, compte adloc et mot passe, snapshot)</i>	O	1
21	AD and DNS services installation (metz.abilympics2023.org) <i>Installation des services AD et DNS (metz.abilympics.org)</i>	O	2
22	DHCP service (pool, lease, options, reservation) <i>Service DHCP (pool, bail, options, reservation)</i>	O	2
23	cltmtz on the domain <i>cltmtz sur le domaine</i>	O	1
24	Apache configuration installation (installation, home page) <i>Installation de la configuration d'Apache(installation, page d'accueil)</i>	O	3

25	Replication of AD base (groups and users are presents on others servers) <i>Réplication de la base AD (groupes et utilisateurs sont présents) sur les autres serveurs</i>	O	4
Site to site link			4
26	Patching and configuration on RBDX (ip address, hostname, patching) <i>Brassage et Configuration RBDX (adresse ip, nom d'hôte, brassage)</i>	O	1
27	Default route on RBDX <i>Route par défaut sur RBDX</i>	O	1
28	Patching and configuration on RBDX (ip address, hostname, patching) <i>Brassage et Configuration RBDX (adresse ip, nom d'hôte, brassage)</i>	O	1
29	Default route on RMTZ <i>Route par défaut sur RMTZ</i>	O	1
Module 3			46
30	Restore machines with snapshot and workgroup ABL10 <i>Restauration des machines avec les snapshots et groupe de travail ABL10</i>	O	2
31	SRVBBDX and CLTBBDX : NIC card bridge mode on eth0 <i>SRVBBDX et CLTBBDX : Carte réseau en mode pont sur eth0</i>	O	1
32	SRV2BDX : NIC card bridge mode on eth1 <i>SRV2BDX : Carte réseau en mode pont sur eth1</i>	O	1
33	SRVMTZ and CLTMTZ : NIC card bridge mode on eth0 <i>SRVMTZ et CLTMTZ : Carte réseau en mode pont sur eth0</i>	O	1
34	WEBMTZ : NIC card bridge mode on eth1 <i>WEBMTZ : carte réseau en mode pont sur eth1</i>	O	1
35	Site to site link on Gi0/0/0 of each routers (patching, ip address) <i>Lien site à site sur Gi0/0/0 de chaque routeurs (brassage, adresse ip)</i>	O	1
36	Routers global config (hostname, secret password, domain name, console port, service password encryption, dns lookup disabled, banner) <i>Configuration globale des routeurs (nom d'hôte, mot de passe secret, nom de domaine, port console, service de cryptage des mots de passe, service dns lookup désactivé, bannière)</i>	O	2
37	Routers interfaces and sub interfaces (ip address, tag) <i>Interfaces et sous interfaces (adresse IP, mode trunk)</i>	O	1
38	Router RBDX : routes to each networks and last resort <i>Routeur RBDX : routes statiques vers chaque réseaux et route par défaut.</i>	O	1

39	Router RMTZ : routes to each networks and last resort route <i>Routeur RM TZ: routes statiques vers chaque réseaux et route par défaut.</i>	O	1
40	Routers remote acces via ssh (version, user, password, privilege, rsa keys) <i>Accès distant sur les routeurs via ssh (version, utilisateur, mot de passe, privilège, clef rsa)</i>	O	2
41	NTP protocol on routers and switches <i>Protocole NTP sur les routeurs et les switches</i>	O	1
42	DHCP protocol on RBDX (vlan100, vlan200, vlan300, vlan77) <i>Protocole DHCP sur RBDX (vlan100, vlan200, vlan300, vlan77)</i>	O	4
43	DHCP protocol on RMTZ (vlan100, vlan200, vlan300, vlan77) <i>Protocole DHCP sur RMTZ (vlan100, vlan200, vlan300, vlan77)</i>	O	4
44	Switch SWBDX global config (hostname, secret password, domain name, dns lookup disabled, banner, ip address on VLAN 77) <i>Configuration globale de SWBDX (nom d'hôte, mot de passe secret, nom de domaine, service dns lookup désactivé, bannière, adresse IP sur vlan 77)</i>	O	1
45	Switch SWMTZ global config (hostname, secret password, domain name, dns lookup disabled, banner, ip address on VLAN 77) <i>Configuration globale de SWMTZ (nom d'hôte, mot de passe secret, nom de domaine, service dns lookup désactivé, bannière, adresse IP sur vlan 77)</i>	O	1
46	Switchs remote acces via ssh (version, user, password, privilege, rsa keys) <i>Accès distant sur les switches via ssh (version, utilisateur, mot de passe, privilège, clef rsa)</i>	O	1
47	VLAN on SWBDX and ports patching (vlans number and name, ports patching of the équipement) <i>VLAN sur SWBDX et brassage des ports (Numéro et nom des vlans brassage des équipements)</i>	O	2
48	Switch SWBDX tagged link <i>lien taggé sur SWBDX</i>	O	1
49	VLAN on SWMTZ and ports patching (vlans number and name, ports patching of the équipement) <i>VLAN sur SWMTZ et brassage des ports (Numéro et nom des vlans brassage des équipements)</i>	O	2
50	Switch SWMTZ tagged link <i>Lien taggé sur SWMTZ</i>	O	1
51	Switch ports security on SWBDX (SRV2BDX port, all others used ports, unused ports) <i>Sécurité des ports sur SWBDX (port sur SRV2BDX, tous les autres ports utilisés, ports non utilisés)</i>	O	3

52	Switch ports security on SWMTZ (WEBMTZ port, all others used ports, unused ports) <i>Sécurité des ports sur SWBDX (port sur WEBMTZ, tous les autres ports utilisés, ports non utilisés)</i>	O	3
53	Laptop filtering (remote access via ssh) <i>Filtrage portable (accès distant via ssh)</i>	O	2
54	Filtering acces to SRV2BDX <i>Filtrage des accès sur SRV2BDX</i>	O	2
55	Filtering acces to WEBMTZ <i>Filtrage des accès sur WEBMTZ</i>	O	2
56	Filtering acces to SRVBDX <i>Filtrage des accès sur SRVBDX</i>	O	2
TOTAL POINTS			100