



**DELIVERABLE D4.1
APPENDIX B**

**TESTBED SITES
AND
RESOURCES DESCRIPTION**

WP4 International Testbed Organisation

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Abstract: This document includes a detailed description of the resources at each site





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1. INTRODUCTION

1.1. PURPOSE

This Appendix document contains the details for testbed setup at each site in the CrossGrid project. It is not a frozen document, it will be evolving and the updated versions included in future reports. Also most of the info is updated on-line by the institutions and available through the corresponding web links, that are also referenced below.

The intended audience is the work package itself, and WP1, 2, and 3 regarding testbed support requirements and possibilities.

1.2. DESCRIPTION OF WORK FOR DETAILED TESTBED PLANNING PHASE

For all partners: Review the infrastructure (hardware and software), manpower and network resources (including contact with national Geant partners) available at each site. Define site expertise and special hardware infrastructure available. Prepare detailed planning for testbed installation.

This product is an Appendix to Deliverable D4.1: Public Report

1.3. DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

CrossGrid/X# The EU CrossGrid Project IST-2001-32243

DataGrid/EDG The EU DataGrid Project IST-2000-25182

1.4. REFERENCES

[1] CrossGrid Annex I v3.1

1.5. OVERVIEW

Section 2, provides the detailed description for each site.

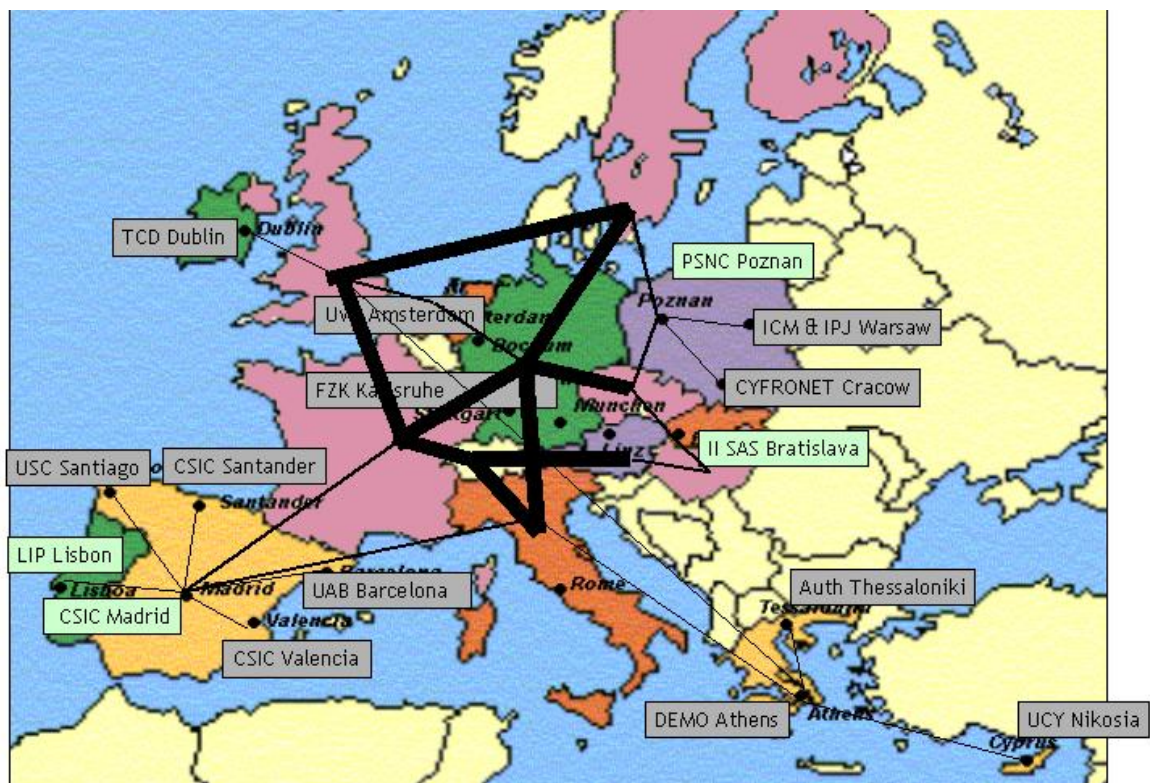
2. OVERALL DESCRIPTION

2.1. THE CROSSGRID TESTBED MAP

The CrossGrid international distributed testbed will share resources across fifteen European sites, to run interactive applications, is one of the challenging points of the CrossGrid project.

The sites list ranges from relatively small computing facilities in universities, to large computing centers, so offering an ideal mixture to test the possibilities of the Grid framework. National academic network providers and the high-performance European network, Geant, will assure the interconnectivity of all sites.

The figure shows the geographical map for the different nodes, including the major “network” links. This includes usually three steps: the local step (typically inside a University or Research Center, via Fast or Gigabit Ethernet), the jump via the national network provider (at speeds that will range from 34 Mbits/s to 622 Mbits/s or even Gigabit) to the national node, and finally the link to the Geant network (155 Mbits/s to 2.5 Gbits/s).



Several partners are national network providers or very close to them, they are marked in green.

2.2. TESTBED SITES LIST

The following table, with links updated by the testbed sites, is available from:

<http://grid.ifca.unican.es/crossgrid/wp4/internal/sites/>

CROSSGRID WP4 TESTBED SITES

SITE		Responsible	Status Update	Status of Installation	Remarks
<i>Link</i>	<i>Description</i>				
CYFRONET	Krakow	Andrej Ozieblo	23/may/02	Buying Equipment	
ICM	Warsaw	Wojciech Wislicki	23/may/02	Hardware setup	
INS	Warsaw	Wojciech Wislicki	23/may/02	Hardware setup	
UvA	Amsterdam	Dick van Albada	23/may/02	EDG SW Installed	
II SAS	Bratislava	Jan Astalos	23/may/02	Installing nodes	
FZK	Karlsruhe	Marcus Hardt	23/may/02	Installing nodes	
PSNC	Poznan	Pawel Wolniewicz	23/may/02	Buying Equipment	
UCY	Cyprus	George Tsouloupas	23/may/02	Buying Equipment	
TCD	Dublin	Brian Coghlan	23/may/02	Installing nodes	
CSIC (IFCA)	Santander	Rafael Marco	23/may/02	Installing nodes	
CSIC (IFIC)	Valencia	Josep Salt	23/may/02	Installing nodes	
UAB	Barcelona	Elisa Heymann	23/may/02	Buying Equipment	
USC-CESGA	Santiago	Carlos Fernandez	23/may/02	Hardware setup	
DEMO	Athens	Yannis Cotronis	23/may/02	Buying Equipment	
AUTH	Thessaloniki	Christos Kannelopoulos	23/may/02	Hardware setup	
LIP	Lisbon	Jorge Gomes	23/may/02	Installing nodes	

3. DETAILED INFORMATION ON TESTBED SETUP AT EACH SITE

3.1. CYFRONET(KRAKOW, POLAND)

Personnel:

Contact: Andrzej Oziebłomietek Pilipczuk

General Description: Cluster of 4 machines PIII 1 GHZ, dedicated to CrossGrid.

Hardware:

- Backbone: fast Ethernet (HP PROCURVE 4000 M including Gigabit uplink)
- Gatekeeper: TBD
- Computing Nodes: 4 dual PIII 1GHz CPU, 512 MB RAM, 20GB
- Storage Elements: idem
- LCFG Server: TBD
- Scheduling: TBD

Network :

- Local setup: 100 Mbps link to POL-34/155/622 backbone & Fast Ethernet (100 Mbps) Local Area Network National link: Polish National Research and Education Network POL-34/622(622 Mbps from Krakow to Poznań)
- Connection to Geant: 2.5 Gbps links in Poznan to Prague and Stockholm

Authentication :

- Certificates will be obtained from PSNC

Other :

Dedicated web server (eu-crossgrid.org)**Next upgrades:**

- Upgrade External Router

3.2. ICM (WARSAW,POLAND)

Personnel:

- *Contact:* Wojciech Wiślicki – wislicki@fuw.edu.pl Adam Padee – apadee@ire.pw.edu.pl Krzysztof Nawrocki – nawrocki@fuw.edu.pl Michał Bluj – mbluj@fuw.edu.pl

General Description: Cluster of IA32 machines dedicated to CrossGrid, will be able to join up to 16 nodes in production mode (part/time)

Hardware:

- Backbone: fast Ethernet
- Gatekeeper: PIII 600 MHz
- Computing Nodes: 4 Dual PIII 1 GHz, 1GB RAM

- Storage Element: PII 266 MHz
- LCFG Server: not yet
- Scheduling: PBS

Network :

- Local setup: 100 Mbps link to POL-34/155/622 backbone & Fast Ethernet (100 Mbps) Local Area Network ; Cluster address 192.86.14.* (ifj.edu.pl) National link: Polish National Research and Education Network POL-34/622(622 Mbps from Warsaw to Poznań)
- Connection to Geant: 2.5 Gbps links in Poznan to Prague and Stockholm

Authentication :

- Certificates are requested to PSNC

Other :

Non dedicated web server, web pages

Next upgrades:

- Installation of dual PIII in cluster as CE
- Storage Element with 0.5 to 1TB

3.3. INS (WARSAW, POLAND)**Personnel (in common with ICM):**

- **Contact:** Wojciech Wiślicki – wislicki@fuw.edu.pl Adam Padee – apadee@ire.pw.edu.pl Krzysztof Nawrocki – nawrocki@fuw.edu.pl Michał Bluj – mbluj@fuw.edu.pl

General Description: Cluster of IA32 machines dedicated to CrossGrid, will be able to join up to 16 nodes in production mode (part/time)

Hardware:

- Backbone: fast Ethernet
- Gatekeeper: PII 233 MHz
- Computing Nodes: 4 Dual PIII 1 GHz, 1GB RAM
- Storage Elements: PII 266 MHz
- LCFG Server: not yet
- Scheduling: PBS

Network :

- Local setup: 100 Mbps link to POL-34/155/622 backbone & Fast Ethernet (100 Mbps) Local Area Network ; Cluster address 193.0.86.* (fuw.edu.pl) National link: Polish National Research and Education Network POL-34/622(622 Mbps from Warsaw to Poznań)
- Connection to Geant: 2.5 Gbps links in Poznan to Prague and Stockholm

Authentication :

- Certificates will be obtained from PSNC

Other :

Non dedicated web server, web pages

- Next upgrades:**
- Installation of dual PIII in cluster as CE
 - SE with 0.5 to 1TB

3.4. UVA (AMSTERDAM, THE NETHERLANDS)**Personnel**

- **Contact:** Dick van Albada

General Description: UvA node in the DAS-2 network (cluster of 32 PC) available to support CrossGrid testbed.

Hardware:

- Backbone: local Myrinet 2000 + fast Ethernet
- Gatekeeper: Dual PIII 1 GHz 1GB RAM
- Computing Nodes: 32 Dual PIII 1 GHz 1 GB RAM, 80 GB HD
- Storage Elements: same
- LCFG Server: installed in NIKHEF (EDG Testbed)
- Scheduling: TBD

Network :

- Local setup: [Fast Ethernet \(100 Mbps\) + DAS-2 wide Myrinet 2000 Network Cluster address:](#)
- National link: SurfNet
- Connection to Geant: 2.5 Gbps links in Amsterdam

Authentication :

- CA for Holland from NIKHEF in EDG

Other :

Non dedicated web server, web pages

- Next upgrades:**
- TBD

3.5. IISAS (BRATISLAVA, SLOVAKIA)**Personnel**

- **Contact:** Jan Astalos,

General Description: Cluster of IA32 machines dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet
- Gatekeeper: Dual PIII 550 MHz 1GB RAM 40GB HD
- Computing Nodes: 16 PIV 1.8 GHz 256 MB RAM, diskless
- Storage Elements: PII 233 MHz 128 MB RAM 40GB HD
- LCFG Server: being installed
- Scheduling: PBS

Network :

- Local setup: [Fast Ethernet \(100 Mbps\) Local Area Network](#) Cluster address: 147.213.65.* ([savba.sk](#)) National link: IISAS to [SANET Network\(100 Mbps\)](#)
- Connection to Geant: 155 Mbits/s (2.5 Gbps in future) links in Bratislava to Prague and Budapest

Authentication :

- IISAS is CA signer for Slovakia, CA machine is a PC not in network

Other :

- Non dedicated web server in SparcStation 20
- TBD

3.6. FZK (KARLSRUHE, GERMANY)

Personnel

- **Contact:** Holger Marten
Marcus Hardt

General Description: Cluster of IA32 machines dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet switches with Gigabit uplink to Storage Elements.
- Gatekeeper: Dual PIII 1.26 GHz 1GB RAM
- Computing Nodes: 3 Dual PIII 1.26 GHz 1 GB RAM, 40 GB HD
- Storage Elements: 1 Dual PIII 1GHZ 1GB RAM , 2x8x100 GB HD (2 x Raid5(HW))
- LCFG Server: is installed
- Scheduling: PBS

Network:

- Local setup: Fast Ethernet (100Mbps) & Gigabit Ethernet (1 Gbps) LAN Backbone
- Cluster address: Several IPs in 141.52.27.*
- National link: 34 Mbps link Karlsruhe-Frankfurt (via DFN)

- Connection to Geant: 2.5 Gbps link Frankfurt-Geant

Authentication:

- FZK is CA signer for Germany, CA machine is a PC not in network

Other:

- Non dedicated web server, web pages

Next upgrades:

- Sourceforge Webservice: Dual PIII 1GHz 1GB RAM, 2x8x100 GB HD (2 x Raid5(HW))
- Bandwidth upgrade to 622Mbps

3.7. PSNC (POZNAN, POLAND)

Personnel:

- **Contact:** Pawel Wolniewicz

General Description: Cluster of IA32 machines dedicated to CrossGrid, will be able to join up to 8 nodes in production mode (part/time)

Hardware:

- **Computing elements**
 - 3 x dual PentiumIII 1,26 GHz, 1GB RAM
 - 1 x dual Pentium III Xeon 500MHz, 512 MB RAM
 - 4 x dual PentiumIII 1,26 GHz, 1GB RAM available from GridLab testbed
- **Storage element**
 - Pentium III Xeon 500MHz, 8x36GB SCSI disk
- **Gatekeeper**
 - Pentium IV 1,7 GHz, 1 GB RAM
- **Switch - 24 ports Ethernet 100 and 1 Gigabit port**

Network :

- **Local setup:** 100 Mbps link to POL-34/155/622 backbone & Fast Ethernet (100 Mbps) Local Area Network Cluster addressNational link: Polish National Research and Education Network POL-34/622
- **Connection to Geant:** 2.5 Gbps links in Poznan to Prague and Stockholm

Authentication :

- PSNC is CA signer for Poland, CA machine is a PC not in network

Other :

- Non dedicated web server, web pages
- Next upgrades:**

- Installation of previously described equipment (arriving to PSNC)

3.8. UCY (NIKOSIA, CYPRUS)

Personnel

- **Contact:** George Tsouloupas/Marios Dikaiakos

General Description: Cluster of IA32 machines dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet
- Gatekeeper: IBM X220 PIII 1.2 GHz, 512 MB RAM, 18 GB HD SCSI
- Computing Nodes: 4 Fujitsu-Siemens PIV 2.2 GHz 1 GB RAM, 40 GB HD
- Storage Elements: 1 PIV 2.2GHz 1GB RAM , 3x18 GB HD
- LCFG Server: PIV 1.7 GHz 1GB RAM, 40 GB HD
- Scheduling: PBS

Network :

- Local setup: 100 Mbps link to & Fast Ethernet (100 Mbps) Local Area Network Cluster address: 194.42.7.* (cs.ucy.ac.cy) National link: National Research Network
- Connection to Geant: 34 Mbits/s link to Athens (now 2 Mbits/s)

Authentication :

- UCy is CA signer for Cyprus, CA machine is a PC not in network

Other :

Non dedicated web server, web pages **Next upgrades:**

- Previous Equipment being installed

3.9. TCD (DUBLIN, IRELAND)

Personnel

- **Contact:** Brian Coghlan

General Description: Several Beowulf Clusters of IA32 machines available for CrossGrid testbed

Hardware:

- Backbone: Gigabit
- Gatekeeper: TBD
- Computing Nodes: 3 Beowulf clusters
- Storage Elements: 1 PC
- LCFG Server: installed
- Scheduling: PBS

Network :

- Local setup: SCI with different topologies + Fast Ethernet (100 Mbps) Local Area Network Cluster address 134.226.53.* (tcd.ie) National link: National Research Network
- Connection to Geant: 34 Mbits/s link to Dublin

Authentication :

- TCD is CA signer for Ireland, CA machine is a PC not in network

Other :

Non dedicated web server, web pages **Next upgrades:**

- New equipment being installed

3.10. CSIC-IFCA(SANTANDER, SPAIN)

Personnel

- **Contact:** Rafael Marco David Rodriguez
Oscar Ponce

General Description: Cluster of IA32 machines, partially dedicated to CrossGrid, can join up to 64 nodes in production mode (part time)

Hardware:

- Backbone: fast Ethernet (3COM 4400 fast Ethernet switches, stacked at 2Gigabit) + Gigabit (3COM xxxx switch for Gatekeeper, Storage Elements)
- Gatekeeper: SMP Xeon Server (IBM x250, 2 Xeon 700 MHz, 2 GB RAM, 5x36 GB HD RAID 5)
- Computing Nodes: Dual PIII 1.26 GHz, 640 MB RAM, 36 GB SCSI+60 GB IDE
- Storage Elements: idem
- LCFG Server: dedicated PIII 1GHz 512 RAM, 40GB IDE

Network :

- Local setup: Class C local subnetwork, 183.144.209.* (ifca.unican.es) , fast-ethernet, 100 MBps connection to local National network connection in the University of Cantabria
- National link: 34 Mbps connection Santander-Madrid (RedIris)
- Connection to Geant: Spanish connection to Geant in Madrid is 2.5 Gbps.

Authentication :

- IFCA is CA signer for Spain, CA machine is PC P90 not in network

Other :

- V.O. server being setup

- Dedicated web server (grid.ifca.unican.es) IBM x230 e-server (PIII-1GHz, 18GB SCSI, 256 RAM)

Next upgrades:

- Gatekeeper and SE will get Gigabit NICs
- Santander-Madrid link will be upgraded to 622 Mbps

3.11. CSIC-IFIC (VALENCIA, SPAIN)**Personnel**

- **Contact:** Javier SanchezSantiago Gonzalez
Josep Salt

General Description: Cluster of IA32 machines, partially dedicated to CrossGrid, can join up to 196 nodes in production mode (part/time)

Hardware:

- Backbone: fast Ethernet (9 Catalyst 3524 fast Ethernet switches, with Gigabit uplink) + 2 Gigabit
- Gatekeeper:
- Computing Nodes: AMD K7 1.2 GHz, 1GB RAM, 40 GB IDE
- Storage Elements: idem
- LCFG Server: dedicated

Network :

- Local setup: Class C local subnetwork, 147.156.160.* (ific.uv.es) , fast-ethernet, Gigabit connection to local National network connection in the University of Valencia
- National link: 155 Mbps connection Valencia-Madrid (RedIris)
- Connection to Geant: Spanish connection to Geant in Madrid is 2.5 Gbps.

Authentication :

- CA certificates obtained from IFCA

Other :

-

Next upgrades:

- Valencia-Madrid link will be upgraded to 1 Gbps

3.12. UAB (BARCELONA, SPAIN)**Personnel**

- **Contact:** Elisa Heymann, Miquel Angel Senar

General Description: Cluster of 11 machines dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet (3COM switch 16P)
- Gatekeeper: Pentium IV 1.8Ghz, 1GB RAM (RIMM), 120GB HD
- Computing Nodes: 10 Pentium IV 1.8Ghz, 512Mb RAM (RIMM), 40GB HD
- Storage Elements: same
- LCFG Server: being installed
- Scheduling: Condor, Condor-G.

Network :

- Local setup: 100 Mbps link & Fast Ethernet (100 Mbps) Local Area Network Cluster address: 158.109.65.36 (aoxgrid.uab.es) National link: 1 Gbits/s connection Barcelona-Madrid (RedIris)
- Connection to Geant: Spanish connection to Geant in Madrid is 2.5 Gbps.

Authentication :

- CA certificates obtained from IFCA

Other :

- IFAE DataGrid testbed in same research campus

Next upgrades :

- -

3.13. USC-CESGA (SANTIAGO DE COMPOSTELA, SPAIN)

Personnel

- **Contact:** Ignacio LopezCarlos Fernandez

General Description: Cluster of IA32 machines dedicated to CrossGrid

Hardware:

- Backbone: Gigabit
- Gatekeeper: TBD
- Computing Nodes: 5 Dual PIII 1,13 GHz, 512MB RAM, 18 GB SCSI HD Gigabit Ethernet
- Storage Elements: same
- LCFG Server: being installed
- Scheduling: PBS

Network :

- Local setup: Gigabit Local Area Network Cluster address: 193.144.34.* (cesga.es) National link: 1 Gbits/s connection CESGA-Madrid (RedIris) (now is 40 Mbits/s)

- Connection to Geant: Spanish connection to Geant in Madrid is 2.5 Gbps.

Authentication :

- Certificates are obtained from IFCA

Other :

- Non dedicated web server, web pages
- National link to Madrid will be upgraded to 622Mbits/s (or 1Gbit/s)

3.14. DEMO (ATHENS, GREECE)**Personnel**

- *Contact:* Yiannis Cotronis

General Description: Cluster of IA32 machines, exclusively dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet
- Gatekeeper:
- Computing Nodes: 4 x dual PIII 1.26 GHz
- Storage Elements: same
- LCFG Server: dedicated PC
- Scheduling: TBD

Network :

- Local setup: departmental fast-ethernet, inter University 155 Mbits/s, connection to local National network connection 24 Mbits/s
- Cluster Address: (di.uoa.gr) Three Class C local subnetworks, 195.134.65.* 195.134.66.* 195.134.67.*, The specific IPs for the CrossGrid cluster are 195.134.67.170-175
- National link: 24 Mbits/s connection from University
- Connection to Geant: Greek connection to Geant is 2x155 Mbits/s.

Authentication :

- Certificates will be obtained from AUTH

Other :

-

Next upgrades:

- Connection to National network will be 1.5Gbits/s
- Connection to GEANT will soon be upgraded to 2x622

3.15. AUTH (THESSALONIKI, GREECE)

Personnel

- **Contact:** Christos Kanelopoulos

General Description: Cluster of IA32 machines, partially dedicated to CrossGrid

Hardware:

- Backbone: fast Ethernet
- Gatekeeper:
- Computing Nodes: 4 x dual PIII 1.26 GHz
- Storage Elements: same
- LCFG Server: dedicated PC
- Scheduling: TBD

Network :

- Local setup: fast-ethernet, 622 Mbits/s connection to local National network
- Cluster address: 155.207.123.* (physics.auth.gr)
- National link: 622 Mbits/s connection via University (now is 25 Mbits/s)
- Connection to Geant: Greek connection to Geant is 2x155 Mbits/s, Athens link is 155 Mbits/s.

Authentication :

- AUTH is CA signer for Greece, CA machine is PC not in network

Other :

-

Next upgrades:

- TBD

3.16. LIP (LISBON, PORTUGAL)

Personnel

- **Contact:** Jorge GomesJoao Martins
Mario David

General Description: Cluster of IA32 machines, partially dedicated to CrossGrid, can join up to 32 nodes in production mode (part/time)

Hardware:

- Backbone: fast Ethernet
- Gatekeeper:
- Computing Nodes: Dedicated PIV 1.7GHz, 512 MB RAM, 40 GB IDE

- Production farm with 30 nodes PIII 900 MHz
- Storage Elements: Dual PIII rack mount server with dual 64 bit PCI bus
 - 3ware 7810 IDE RAID controller;
 - Intel Gigabit Ethernet interface;
 - 8x 80GB disks + 20GB system disk
- LCFG Server: dedicated PC
- Scheduling: Condor + PBS

Network :

- Local setup: fast-ethernet, 34 Mbits/s connection to local National network connection at LIP
- Cluster address: (lip.pt)
- National link: 34 Mbps connection for LIP (FCCN)
- Connection to Geant: Portuguese connection to Geant is 622 Mbits/s, Lisbon-Madrid link is 622 Mbits/s.

Authentication :

- LIP is CA signer for Portugal, CA machine is PC not in network

Other :

- V.O. server being setup
-

Next upgrades:

- TBD