



Setting up multiple UNICORE sites with the graphical installer

UNICORE Team
unicore-support@lists.sourceforge.net

November 19, 2009

Contents

1 Introduction	1
1.1 About This Document	1
1.2 Installation Scenarios	2
1.2.1 Scenario 1: All sites within one firewall	2
1.2.2 Scenario 2: All sites with individual firewalls	2
2 Scenario 1: All sites within one firewall	3
2.1 Install UNICORE/X, Gateway, XUADB, Global Registry	3
2.2 Add additional sites	4
3 Scenario 2: All sites with individual firewalls	5
3.1 Install UNICORE/X, Gateway, XUADB, Global Registry	5
3.2 Add additional sites	5
4 Notes	5
Glossary	6

1 Introduction

1.1 About This Document

This is a short description of how to set up a multiple site grid with the graphical installer of the UNICORE quickstart.

Section 1.2 gives an overview of how the components will be set up and how they work together. You can directly jump to sections 2 or 3 if you are not interested in (or already know) the UNICORE internals.

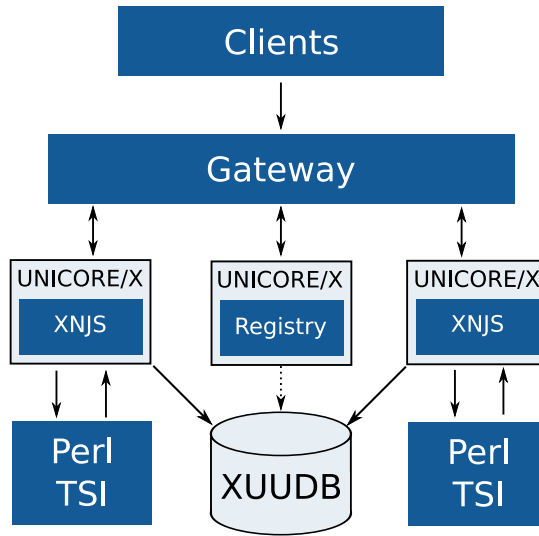


Figure 1: Single-Site Configuration with Global Registry

1.2 Installation Scenarios

1.2.1 Scenario 1: All sites within one firewall

There are different ways to set up your UNICORE installation. One scenario is UNICORE running in-house to allow access to several local target systems. Imagine you have one or more target systems you want to be accessible through UNICORE and you want to install the general UNICORE services on different machines for security or load distribution purposes. Then you strive for a configuration as shown in Figure 1.

The [Gateway](#) is the entrance to the site through which all services can be reached. The [Gateway](#) port is the only one which needs to be open for https connections from the outside world. The [Global Registry](#) provides information about all services except [Gateway](#) and [XUADB](#). The services dynamically register with the [Global Registry](#), they contact the [Global Registry](#) through the [Gateway](#).

1.2.2 Scenario 2: All sites with individual firewalls

In the second scenario, the UNICORE installation spreads across multiple physical locations, each of which deploying a separate firewall. In this case, each site needs its own [Gateway](#) as an entry point, and each site needs the [Gateway](#) port to be opened in the firewall. Assume that each site runs its own [XUADB](#) as to be able to administer user access on its own. One site needs to run the [Global Registry](#) to provide information about all grid-wide services, this [Global Registry](#) will be set up behind that site's [Gateway](#). See Figure 2.

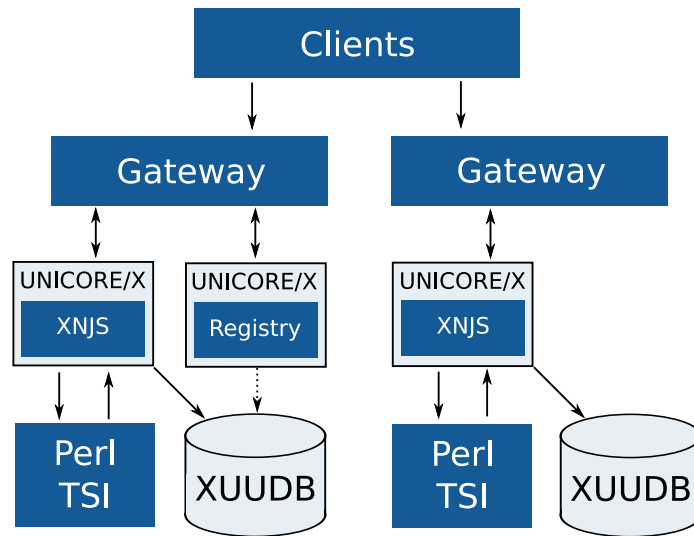


Figure 2: Multi-Site Configuration with Global Registry

2 Scenario 1: All sites within one firewall

Setup:

- One machine with [Gateway](#), [Global Registry](#), [XUADB](#), [UNICORE/X](#) and embedded Java [TSI](#).
- Each additional site with [UNICORE/X](#) and embedded Java [TSI](#)
- [XUADB](#) that manages users for each [UNICORE/X](#) individually

If your installation is accessible from outside, exchange the demo user certificates as soon as possible!

2.1 Install UNICORE/X, Gateway, XUADB, Global Registry

1. Login to the machine and start the graphical installer of the UNICORE Core Server bundle by executing:

```
java -jar unicare-servers-6.2.2.jar
```

2. On screen 5, select the following components to be installed:

- UNICORE/X
- Gateway
- XUADB
- TSI
- Registry

3. On screen 6, replace **all** host names with the full qualified host name or IP address of the current machine (they are set to `localhost` by default). ¹
4. Still on screen 6, change the name of the site and the component ID (**GCID**) to something you like, e.g. `SITE1`.
5. On screen 7, check `Use external registry` and replace `localhost` in the registry URL with the full qualified machine name or IP address of the current machine.
6. Screen 9: If you plan to let your **Global Registry** use an **XUADB** for authorisation later on, change the component ID (**GCID**) to a reasonable value, e.g. `REGISTRY`.
7. Finish the installation and start the components via the `start.sh` script.

2.2 Add additional sites

1. Login to the new machine and start the quickstart graphical installer on the new site's machine. On screen 5, select the following components to be installed:
 - `unicorex`
 - `TSI`
2. On screen 6, enter the host and port of the **Gateway** you installed in Section .
3. Still on screen 6, replace the host name of the **UNICORE/X** with the full qualified host name or IP address of the current machine.
4. Still on screen 6, change the name of the site and the component ID (**GCID**) to something you like, e.g. `SITE2`.
5. Still on screen 6, enter the host and port of the **XUADB** you installed in .
6. On screen 7, check `Use external registry` and enter the URL of the **Global Registry** you installed in Section . Not that the **Global Registry** via the Gateway, so the hostname and port should be the Gateway's.
7. Finish the installation.
8. Go to the machine where you installed the **Gateway**, **Global Registry** and **XUADB**. Open `gateway/conf/connection.properties` and add a line for the second **UNICORE/X**. (There should be already a line for the first **UNICORE/X**, copy and alter it).
9. Change to the **XUADB** directory and add a user for the second **UNICORE/X**, e.g.:


```
bin/admin.sh add SITE2 ../certs/demouser.pem rbreu user
```

(where `SITE2` is the component ID (**GCID**), not the site name, although both may be the same)
10. Start your new **UNICORE/X** via the `start.sh` script on that machine.

¹For test purposes, you can install all "sites" on one machine, then `localhost` will be just fine. In this case remember to change the default port for any additional `unicorex`.

3 Scenario 2: All sites with individual firewalls

Setup:

- One machine with [Gateway](#), [Global Registry](#), [XUADB](#), [UNICORE/X](#) and embedded Java [TSI](#)
- Each additional site with [UNICORE/X](#), [Gateway](#), [XUADB](#) and embedded Java [TSI](#)

If your installation is accessible from outside, exchange the demo user certificates as soon as possible!

3.1 Install UNICORE/X, Gateway, XUADB, Global Registry

Follow the instructions given in [6](#) and open the [Gateway](#) port in the firewall.

3.2 Add additional sites

1. Start quickstart graphical installer on the new site's machine. Select the following components to be installed:
 - unicorex
 - Gateway
 - xuadb
 - TSI
2. Replace **all** host names with the full qualified host name or IP address (they are set to localhost by default).
3. Change the name of the site and the component ID (**GCID**) to something you like, e.g. `SITE2`.
4. Check `Use external registry` and enter the URL of the [Global Registry](#) you installed in [Section 6](#).
5. Open the [Gateway](#) port in the firewall.
6. Start your new components.

4 Notes

You can easily mix Scenario 1 and 2. Actually, if you set up the first machine with [Gateway](#), [Global Registry](#), and [XUADB](#), it doesn't matter whether additional [UNICORE/X](#) have own [Gateways](#) and [XUADBs](#) or not.

For production, you should replace the demo certificates with real ones and use classical [TSIs](#). Depending on how heavily your UNICORE installation is used, it may be a good idea to put [Gateway](#) and [Global Registry](#) on a separate machine without any [UNICORE/X](#).

Glossary

- Gateway** A site's Gateway to the public network. It is designed to be the only component which has an open port in the firewall, and it can serve multiple UNICORE components within the same firewall.
- GCID** The [XUADB](#) returns success if the user certificate matches an [XUADB](#) entry **and** if the GCID of that entry matches the GCID of the requesting component. Thus it is possible to share a [XUADB](#) between several components where each component uses a different set of [XUADB](#) entries (by giving each component a different GCID). To share XUADB entries between multiple components, give these components the same GCID.
- Global Registry** The Global Registry is the main entry point to a UNICORE Grid. All components (e.g. [UNICORE/X](#)) which are to be accessible Grid-wide have to register with the Global Registry.
- TSI** The Target System Interface executes a system specific job on the target system on behalf of a user. It communicates with the local resource management system.
- UNICORE/X** UNICORE/X is the central server component. It asks the [XUADB](#) for authorisation of a request. Jobs are passed to the [TSI](#) for execution.
- XUADB** The UNICORE user database maps a user certificate to the local user account and the user role. It is used to manage the access to UNICORE resources.