

## caArray Two-Server Install

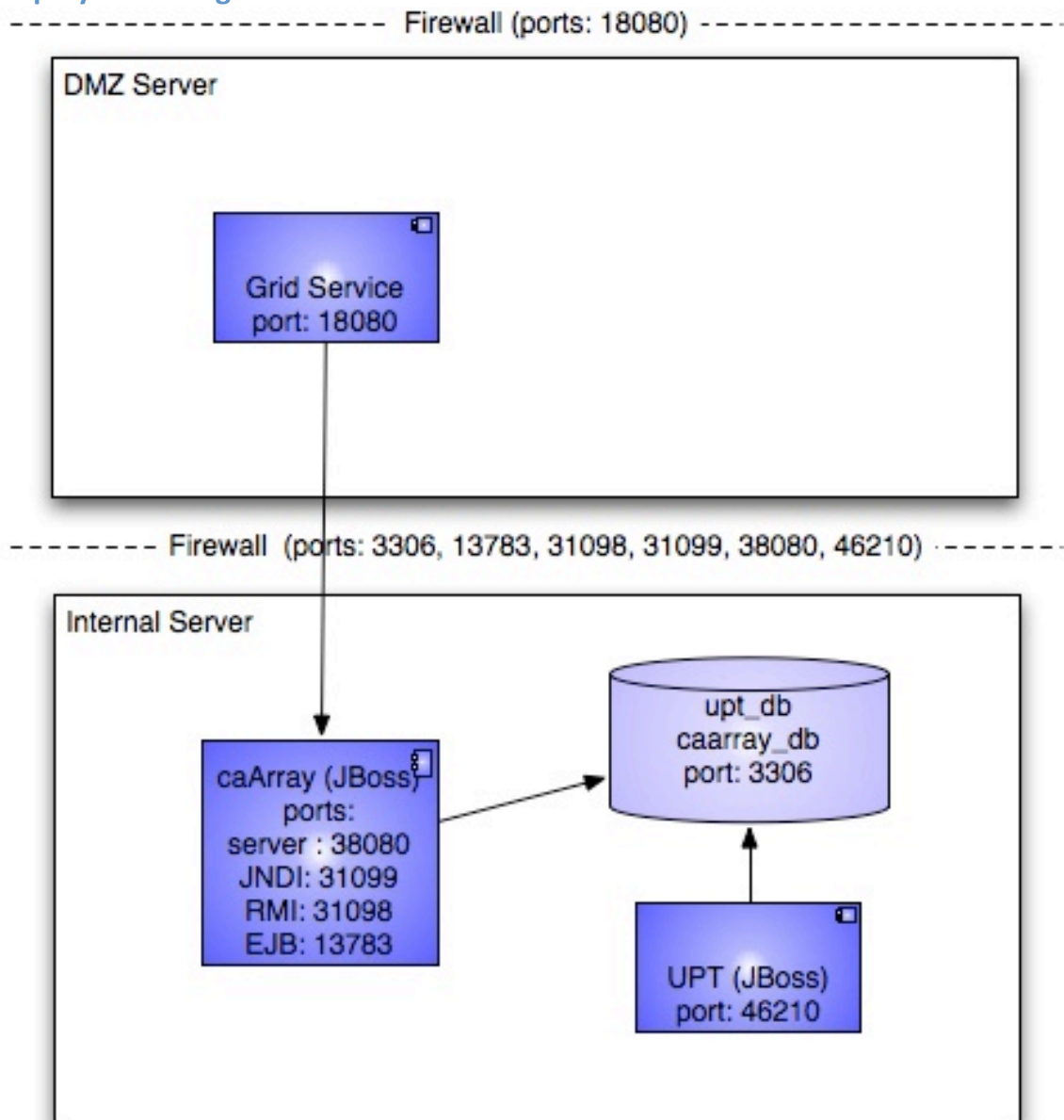
|   |   |
|---|---|
| Purpose.....  | 1 |
| Deployment Diagram.....                             | 2 |
| Internal Server Install (MySQL, UPT, caArray) ..... | 3 |
| DMZ Server Install (Grid Service Only) .....        | 5 |
| Testing the installation .....                      | 6 |

### Purpose

These instructions support the installation of caArray across two servers rather than the default single-server deployment as provided by the caArray 2.1.1 installer. This deployment allows Cancer Centers to install the Grid Service to a server in a less secure LAN segment while installing the caArray Application, UPT and MySQL to a server on a protected internal LAN segment.

These instructions were written to support command line installation on Linux servers.

## Deployment Diagram



## Internal Server Install (MySQL, UPT, caArray)

A. Install Prerequisites using the instructions from the [LSD Installation Guide](#) .

1. Install Prerequisites
2. Set environment variables for Ant and Java
3. Install MySQL (pages 7-9)
  - a. Install MySQL
  - b. Configure MySQL
  - c. Create a database and user for caArray (page 8)
    - i. Open terminal and type 'mysql'
    - ii. Type: create database caarray\_db;
    - iii. Type: GRANT ALL PRIVILEGES on caarray\_db.\* to '<db\_user>'@'%' IDENTIFIED BY '<db\_password>' WITH GRANT OPTION;
  - d. Setup MySQL to run as a service

B. Install UPT using the instructions from the [UPT Installation Guide](#)

1. On Linux, the installation cannot run as root. Create a system user for the installation (our user was caArrayUser). The 'adduser' command varies so you'll have to check the man page on your host. Example instructions for creation of the account is documented at :  
<http://www.jboss.org/community/docs/DOC-12305>
2. 'su' to user created in step 1.
3. Download and extract the command line
  - a. Command Line:  
`wget --no-check-certificate`  
[https://gforge.nci.nih.gov/frs/download.php/5363/upt\\_install\\_3.2.0.zip](https://gforge.nci.nih.gov/frs/download.php/5363/upt_install_3.2.0.zip)
4. Extract the installation files
  - a. `unzip -q upt_install_3.2.0.zip -d /tmp/upt`
5. Set install.properties values
  - a. Note: update authentication.type in install.properties to 'db' if not using LDAP.
6. Run Ant install as your system user.
7. Record server port from install.properties for use in configuring firewall.

C. Install caArray Application

Note: These steps have been altered to allow a two-server installation:

1. Login as non-root user (or su to user)
2. Download the Command line installer
  - a. `wget --no-check-certificate`

[https://gforge.nci.nih.gov/frs/download.php/5177/caarray\\_distribution\\_2\\_1\\_1.zip](https://gforge.nci.nih.gov/frs/download.php/5177/caarray_distribution_2_1_1.zip)

- b. `unzip -q caarray_distribution_2_1_1.zip -d /tmp/caarray`
3. Edit `install.properties` (backup for DMZ server install)
  - a. Provide information for all "REPLACE\_\*" entries
  - b. Special changes:
    - i. `database.server=<internal server hostname>`
    - ii. `jboss.server.hostname=<internal server hostname>`
    - iii. `grid.static.hostname=<dmz server hostname>`
    - iv. `upt.url=http://<internal server hostname>:46210/upt`
4. Edit `build.xml` to add an "[install:internal](#)" target

```
<target name="install:internal" description="Installs and configures JBOSS,
creates database, and deploys application"
  depends="
    install:validation:pre-install,
    install:jboss:stop,
    install:validation:pre-install:ports,
    install:clean,
    install:init,
    install:database,
    install:jboss,
    install:jboss:start,
    install:validation:post-install
  "/>
```
5. Install
  - a. Example : `su caArrayUser -c "ant install:internal"`
6. Setup `caArray` to run as a service
  - a. <http://www.jboss.org/community/docs/DOC-12305>
7. Open firewall ports (these are the defaults, change if you altered the ports)
  - a. MySQL : 3306 (if using remote admin. tools)
  - b. `caArray` server : 38080 (for Web UI)
  - c. UPT server : 46210 (for Web UI)
  - d. EJB : 13783
  - e. JNDI : 31099
  - f. RMI : 31098

## DMZ Server Install (Grid Service Only)

- A. Install Prerequisites using the instructions from the [LSD Installation Guide](#) .
  1. Install JDK and Ant
  2. Set environment variables for Ant and Java
  
- B. Install caArray Grid Service
  1. If Linux, create a system user for the installation (the installation cannot run as root.)
  2. Login as non-root user (or su to user)
  3. Download the Command line installer
    - a. `wget --no-check-certificate`  
[https://gforge.nci.nih.gov/frs/download.php/5177/caarray\\_distribution\\_2\\_1\\_1.zip](https://gforge.nci.nih.gov/frs/download.php/5177/caarray_distribution_2_1_1.zip)
    - b. `unzip -q caarray_distribution_2_1_1.zip -d /tmp/caarray`
  4. Replace install.properties with backup version from internal server
  5. Edit caarray/bda-utils/resource/template-binding.xml
    - a. Replace reference to 'localhost' with reference to properties  
From:  
`"java.naming.provider.url=${jboss.bind.address:localhost}:@grid.hajndi.port@"`  
To:  
`java.naming.provider.url=@grid.server.hostname@:@grid.hajndi.port@`
  6. Edit build.xml to add an "install:dmz" target  
`<target name="install:dmz" description="Installs and configures grid service"  
depends="  
install:validation:pre-install,  
install:grid:stop,  
install:validation:pre-install:ports,  
install:clean,  
install:init,  
install:carray-grid,  
install:grid:start,  
install:validation:post-install  
"/>`
  7. Install
    - a. Example : `su caArrayUser -c "ant install:dmz"`
  8. Setup caArray to run as a service
    - a. <http://www.jboss.org/community/docs/DOC-12305>
  9. Open firewall ports (these are the defaults, change if you altered the ports)
    - a. grid server : 18080

## Testing the installation

We use some sample data and applications that are available from the NCI

[https://gforge.nci.nih.gov/docman/index.php?group\\_id=305&selected\\_doc\\_group\\_id=3670&language\\_id=1](https://gforge.nci.nih.gov/docman/index.php?group_id=305&selected_doc_group_id=3670&language_id=1)

1. Download the API Client Examples to the DMZ server
2. Extract the zip.
3. Download the caArray Test Data.
4. Extract the data.
5. Edit build.xml
  - a. `<property name="server.hostname" value="<internal server hostname " />`
  - b. `<property name="server.jndi.port" value="31099" />`
  - c. `<property name="globoss.server.hostname" value="127.0.0.1" />`
  - d. `<property name="globoss.server.http.port" value="18080" />`
6. Build the project
  - a. 'ant'
7. Use the caArray Web UI to create an experiment and upload the sample data
  - a. Log in to the app as caarrayuser, caArray2!
  - b. Go to "Manage Array Designs" and import a new array design (README points you to Test3.cdf).
  - c. After the design has been imported, go to "Create an Experiment" and create an experiment (README tells you what title to use).
  - d. The experiment's array provider should be Affymetrix and the assay type should be gene expression; all other fields can be set to whatever you wish.
  - e. Go to the Data tab of the experiment and upload the data files (README points you to the data files zip)
  - f. Select the data files and Import.
  - g. After the import is done, click on "Submit Experiment Proposal".
  - h. Click on "Make Experiment Public".
8. Use ant to test access from the grid server to the caArray server
  - a. 'ant run\_search\_java'
  - b. 'ant run\_search\_grid'
  - c. 'ant run\_search\_using\_credentials\_java' (requires creation of a special account in UPT for caArray : user: caarrayGuest pass: caarrayGuest)
  - d. 'ant run\_download\_file\_java'
  - e. 'ant run\_download\_file\_grid'
  - f. 'ant run\_download\_parsed\_data\_java'
  - g. 'ant run\_download\_parsed\_data\_grid'
  - h. 'ant run\_download\_parsed\_data\_from\_file\_java'
  - i. 'ant run\_download\_array\_design\_java'
  - j. 'ant run\_download\_array\_design\_grid'