Chesar 3 installation manual
Server (i.e. 'distributed') version

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Contents

1. Introduction

Thank you for choosing to install the Chesar 3 application. Chesar is an application developed by the European Chemicals Agency (ECHA) to help companies carry out their chemical safety assessments (CSAs) and prepare their chemical safety reports (CSRs) and exposure scenarios (ES) for communication in the supply chain.

This document will guide you through the steps required to install and configure Chesar 3 server version, and covers 2 situations:

- You do not have any version of Chesar installed, and you want to install Chesar 3.
- You already have Chesar v2.3 installed, and you want to upgrade to Chesar 3.

If you have any other situation, please contact our helpdesk:

http://echa.europa.eu/contact/helpdesk-contact-form

Please note that the installation of Chesar 3 server version requires a high degree of IT technical expertise. We recommend that this setup is performed by IT service personnel.

This guide provides some quick-start descriptions on how to perform the technical configurations. These instructions should not be seen as a substitute for any of the official documentation including administration guides which can be found on the Oracle, Glassfish, Tomcat and Derby product websites.

2. Prerequisites

If you have Chesar 2.3 data, **please make sure that all your data is safely backed up**. After you have backed-up your data, you will need to migrate the data using the migration tool (see section 4: Migrate Chesar 2.3 to Chesar 3).

In case you are one of the companies that assisted ECHA in performing testing/evaluation of beta versions of the Chesar and migration tool software, please remember that you must **not** reuse any of the data that you generated during this beta testing, in this new version of Chesar. This might corrupt your Chesar data.

2.1. Hardware requirements

Minimum hardware recommendations for a server installation with 2 to 10 simultaneous users and less than 500 substances:

	Characteristics	Value
Application server	CPU/Cores	Dual Core/ 3.0 GHz
	Memory	4 GB
Database server	CPU/Cores	Dual Core/ 3.0 GHz
	Memory	4 GB
Network	Topology/Firewall/Proxy	Connection between database and application server (Gigabit wired)
Client machine (with browser)	CPU/Cores	Dual Core/ 2.0 GHz
	Memory	4 GB

2.2. Software requirements

Before installing Chesar 3 server software package you must first install Java, a database

server (e.g. Derby Network Server or Oracle) and an application server (e.g. Tomcat or Glassfish).

Chesar 3 server package has been tested using the following:

Software	Product	Version	Comments
Operating System	Microsoft Windows	7, 8, 10	We are not aware of any limitations that would prevent Chesar 3 from working on Windows Server 2008 or 2012.
	Linux		
Java	JRE	8	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Database server	Network Derby Server (free)	10.12	http://db.apache.org/derby
	Oracle (commercial)	11g, 12c	http://docs.oracle.com/en/database/
Application server	Tomcat	8	http://tomcat.apache.org/
	Glassfish	4	https://glassfish.java.net/
Browser	Internet Explorer	11	https://www.microsoft.com/en-gb/download/internet-explorer.aspx
	Mozilla Firefox		https://www.mozilla.org/en-GB/firefox/new/
	Chrome		https://www.google.com/chrome/browser/desktop/index.html

Unlike Chesar 2, please note that Chesar 3 is not compatible with Postgres db.

2.3. Security

The Chesar application contains a basic username / password feature aimed at reducing the risk of accidental modification of data. This functionality is not intended to protect against wilful or malicious attempts to gain access to or modify data. Chesar must be installed within a securely protected environment.

3. Install Chesar 3 server version

Chesar 3 server version supports different types of databases (Derby and Oracle) and different types of application servers.

This installation manual explains in detail how to install Chesar 3 server version with Derby Network Server and with Tomcat. It also provides the Chesar specific instructions for installation with Oracle and Glassfish.

3.1. Set up database server

Chesar 3 server version supports two types of databases: free Derby Network Server and commercial Oracle.

Please read the chapter below that is relevant to your choice.

3.1.1. Set up Derby Network Server (Java DB Server)
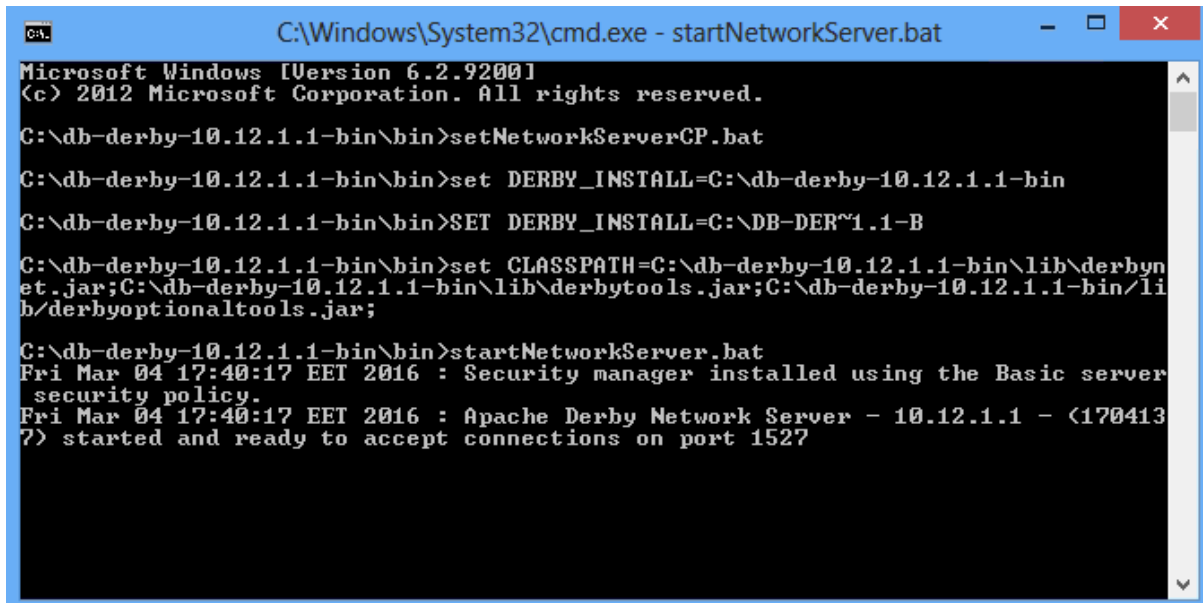
Install Derby Network Server

See [Annex: Install Derby Network Server](#) for the details on how to install Derby Network Server.

Note: Please install latest version of Derby Network Server.

Start Derby Network Server

Open command prompt, cd to %DERBY_HOME%\bin and run the following command there:

`startNetworkServer.bat`

You can also change the Derby Network Server port by using the following command:

`startNetworkServer.bat -h <hostname> -p <portnumber>`

For example this command starts Derby server on the port 3306 and allows only local connections.

`startNetworkServer.bat -h localhost -p 3306`

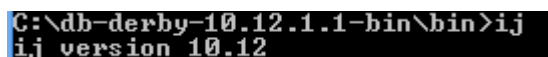The command below would allow connections from any computer:

`startNetworkServer.bat -h 0.0.0.0 -p 3306`

However be aware that allowing connection from any computer may not be the best option from the security perspective.

Create Chesar 3 database

Start *ij* tool and createij the database and user for Chesar 3:

`ij`


```
connect
'jdbc:derby://<database_server_url>:<port>/<database>;create=true;user=<username
```

```
>;password=<password>';
```

For example this command creates the database chesar3, the user chesar3 with the password chesar3

```
connect
'jdbc:derby://localhost:3306/chesar3;create=true;user=chesar3;password=chesar3';
```

```
ij> connect 'jdbc:derby://localhost:3306/chesar3;create=true;user=chesar3;passwo
rd=chesar3';
ij>
```

3.1.2. Set up Oracle Database

Install Oracle Database

See http://docs.oracle.com/en/database/ for the details on how to install Oracle database.

Note: Chesar 3 was tested with Oracle 11g and 12c.

Create Chesar 3 tablespace and user

Execute the following commands in SQL Plus:

```
create tablespace chesar3
 datafile '/u02/oradata/orcl/chesar3.dbf'
 size 100M
 autoextend on
 next 50M
 maxsize 200M;
grant create session to chesar3 identified by "chesar3";
grant create table to chesar3;
grant create view to chesar3;
grant create sequence to chesar3;
alter user chesar3 quota unlimited on chesar3;
alter user chesar3 default tablespace chesar3;
```

3.2. Migrate from Chesar 2.3 database to Chesar 3 database

Note: This is an optional step in case you want to transfer the information available in Chesar 2.3 database to Chesar 3 database.

See section 4: Migrate Chesar 2.3 to Chesar 3 for the steps to install and run the migration tool.

3.3. Set up application server (or servlet container)

Although we have tested Chesar 3 server version with two types of application server: lightweight Tomcat and feature-reach Glassfish, we are not aware of any limitations that would prevent Chesar 3 from being deployed and run on any other Java EE compatible application server.

Chesar 3 is compatible with IUCLID 6. It is possible to install both on the same computer (physical server or virtual machine), however we recommend to install Chesar 3 under a separate Glassfish/Tomcat from the one used for IUCLID 6.

Please read the chapter below that is relevant to your choice.

3.3.1. Set up Tomcat

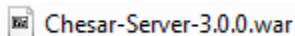See Annex: Install Tomcat for the details on how to install Tomcat.

3.3.2. Set up Glassfish

See https://glassfish.java.net/ for the details on how to install Glassfish.

3.4. Deploy Chesar 3

Download Chesar 3 server package

Download the Chesar 3 server package (*Chesar-Server-3.0.0.war*) from the Chesar website (https://chesar.echa.europa.eu/) to your computer.

Chesar-Server-3.0.0.war

Configure Chesar3

**Note:** The default Chesar 3 configuration means:

- Database vendor is Derby
- Derby Network Server is running on the port 3306
- Database name is chesar3
- Username and password are both chesar3
- Logs folder location is relative to the current working directory: <working-dir>\chesar3-logs

If you have set up the database according to this configuration then you do not need to change the database configuration.

Rename Chesar3 war file to zip.

Chesar-Server-3.0.0.war.zip
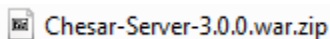
Open the zip with a tool like File Explorer or 7Zip, enter the *config* folder and extract *application.properties*.

Chesar-Server-3.0.0.war.zip\config\

Name

application.properties
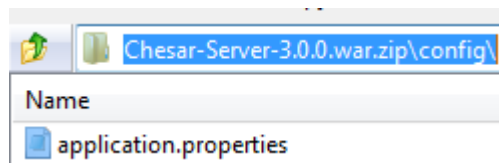
Edit the extracted file *application.properties* and enter configuration:

1. Database connection properties according to the database server (see Set up database server): vendor, URL, username and password
2. Log configuration properties: log folder location, logging level

The screenshot below shows the default configuration:

```
 1   chesar.database.vendor=derby
 2   chesar.database.url=jdbc:derby://localhost:3306/chesar3
 3   chesar.database.username=chesar3
 4   chesar.database.password=chesar3
 5   chesar.database.dropFirst=false
 6
 7   chesar.general.tempDir=c:/temp/chesar3
 8   chesar.general.iuclidPluginUrl=/iuclid6-ext/api/ext/v1
 9   chesar.general.csrDocbookTemplate=00_csr_main
10
11   chesar.log.location=chesar3-logs
12   chesar.log.level=debug
```

Note: Please change the log folder location, otherwise the logs will be written under the current working directory. E.g. in case of Tomcat: <Tomcat-install-folder>\bin\chesar3-logs

Replace the file *application.properties* from the zip with the edited one.

Rename the zip file back to war.

Chesar-Server-3.0.0.war

Deploy Chesar 3 war file to Tomcat

Please read the section below that is relevant to your application server.

Deploy to Tomcat

Copy the war file into <Tomcat-install-folder>\webapps

Soon Chesar should appear among the Applications. It should be running.

If everything went well, you should be able to login to Chesar by clicking on the name of applications in the Path column on the screenshot above. You can also access it via the following link:

```
http://localhost:8080/Chesar-Server-3.0.0
```

In case of problems check the log files in the folder:

```
<Tomcat-install-folder>\logs
```

Deploy to Glassfish

Use the `asadmin deploy` command:

```
<Glassfish-install-folder>/bin/asadmin deploy --contextroot Chesar-Server-3.0.0
Chesar-Server-3.0.0.war
```

In case of problems check the log files in the folder:

```
<Glassfish-install-folder>\glassfish\domains\domain1\logs
```

4. Migrate Chesar 2.3 to Chesar 3

This step is needed in case you want to transfer the information available in Chesar 2.3 to Chesar 3.

## 4.1. Download and install the Chesar 2.3 to Chesar 3 migration tool

Once you downloaded the migration tool (chesar-migration-tool-1.0.0.zip) from Chesar website (https://chesar.echa.europa.eu/) to your computer, you need to unzip it.

## 4.2. Checks to do before running the migration tool

1. Make sure that Chesar 2.3 application is stopped.
2. Do not start Chesar 3 before running the migration tool. If you have already started Chesar 3, you should first drop the database and create a new one (see Set up database server).

4.3. Run the migration tool

1. Go to the **migration tool installation folder**, i.e. where you have unzipped the migration tool e.g.: C:\\chesar-migration-tool-1.0.0
2. Double-click **chesar3migration.bat**
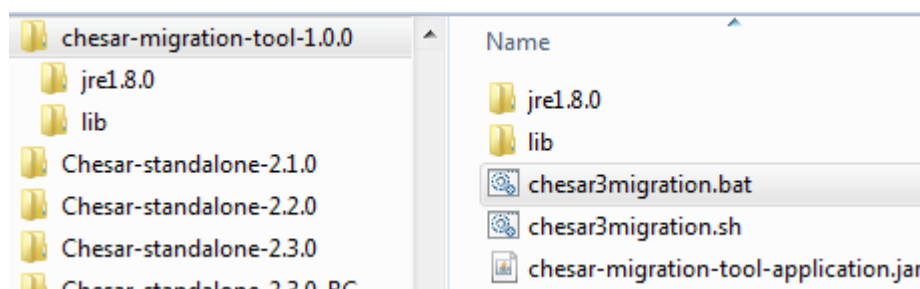
3. The dialog below should appear (the start-up time can take a couple of seconds max ~1 minute)
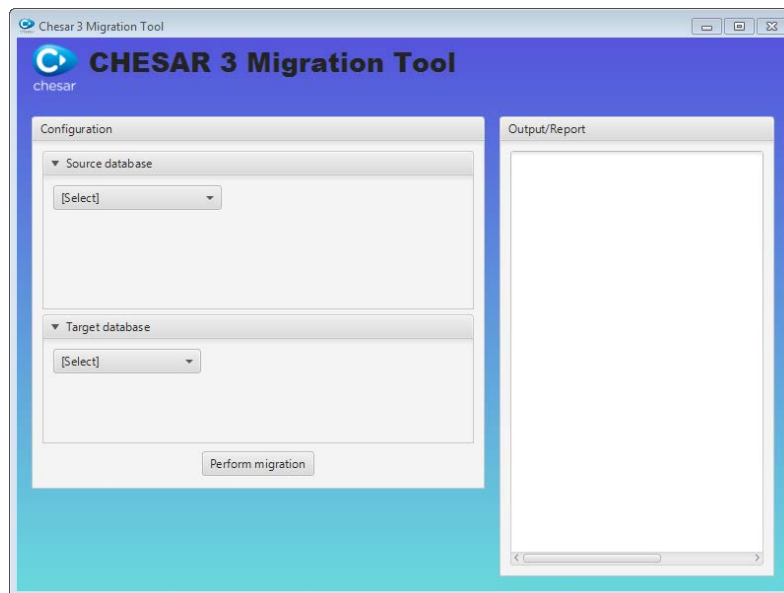
4. Configure **Source database**:
   a. If Chesar 2.3 was using PostgreSQL database then select
      - *Distributed (Postgresql)* in the picklist
      - URL (e.g.: jdbc:postgresql://localhost:5432/chesar2)
      - Username (e.g.: postgres)
      - Password (e.g.: postgres)
   b. If Chesar 2.3 was using Oracle database then select
      - *Distributed (Oracle)* in the picklist
      - URL (e.g.: jdbc:oracle:thin:@myhost:1521/orcl)
      - Username (e.g.: chesar2)
      - Password (e.g.: chesar2)

   Note: take a look at the *database.properties* file found at: chesar2.3.war/WEB-INF/classes/database.properties

5. Configure **Target database**:
   a. If Chesar 3 is using Derby Network Server database then select
      - *Distributed (Derby)* in the picklist
      - URL (e.g.: jdbc:derby://localhost:3306/chesar3)
      - Username (e.g.: chesar3)
      - Password (e.g.: chesar3)
   b. If Chesar 3 is using Oracle database then select
      - *Distributed (Oracle)* in the picklist
      - URL (e.g.: jdbc:oracle:thin:@myhost:1521/orcl)
      - Username (e.g.: chesar3)
      - Password (e.g.: chesar3)

   Note: the settings should correspond to the database server set up for Chesar 3 (see Set up database server).

6. Press **Perform migration** button to start the migration process.
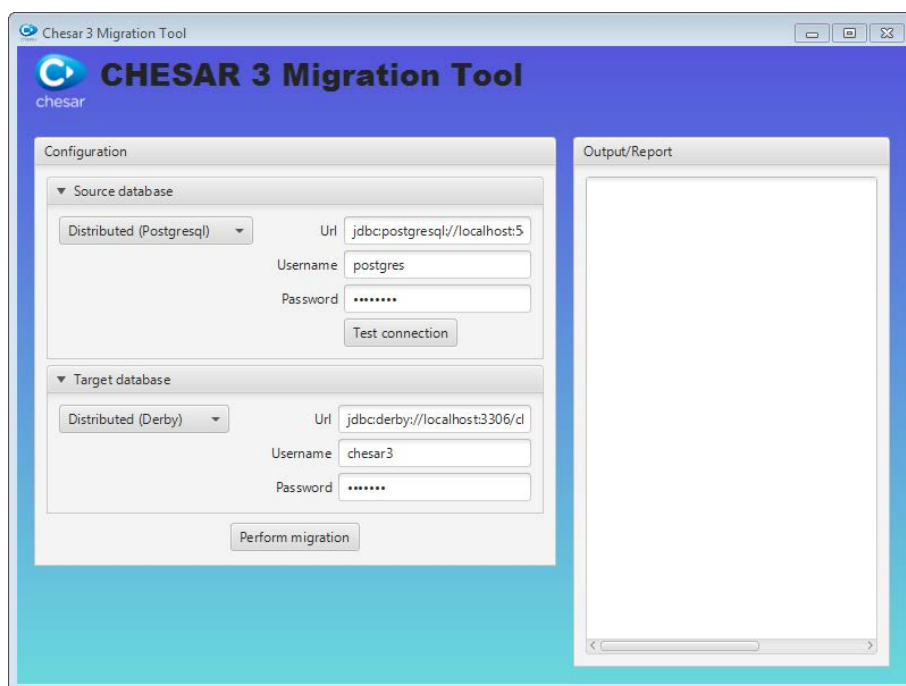
7. You can follow the migration step-by-step on the user interface of the migration tool. The time needed for completing the migration is correlated to the size of your Chesar 2.3 database (number of substances), to the number of contributing activities for each use and to the number of SCEDs/SpERCs/determinants defined. The migration may last from few minutes to few hours.
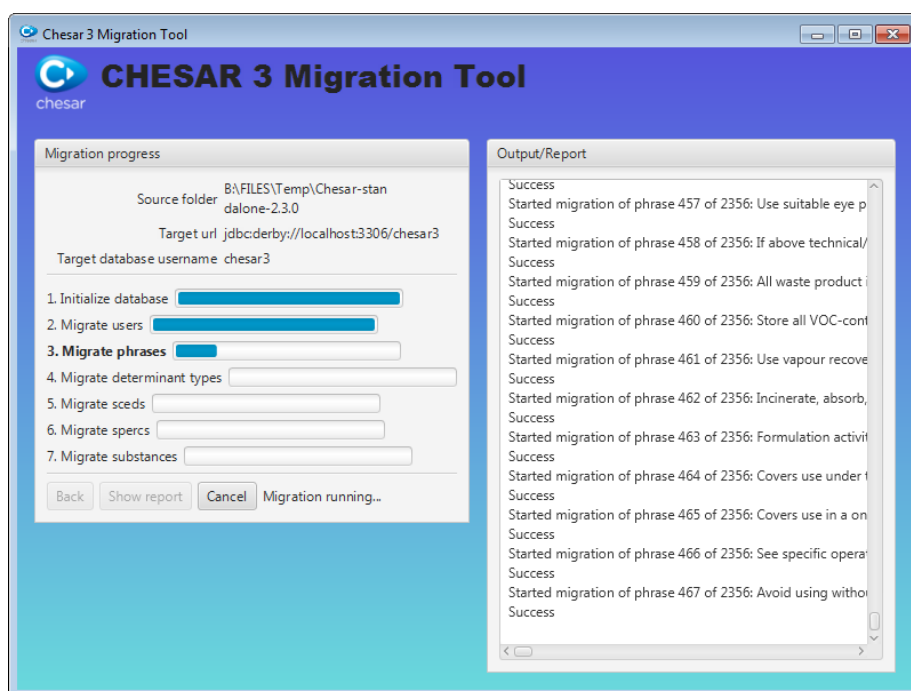
8. When the migration is finalised, a migration report pops up. In this report, you will find a summary of what has been migrated with and without errors and if the migration was failing in some part.

Migration report summary

Data type	Found	Successful	Successful (with errors)	Failed	Ignored
Users	1	1	0	0	0
Legal entities	1	1	0	0	0
Standard phrases	2356	2356	0	0	0
Determinant types	191	143	0	0	48
SCEDs	0	0	0	0	0
SpERCs	48	48	0	0	0
Substances	6	5	1	0	0

Back

Note: it is normal if 48 determinant types are not migrated (Ignored). They correspond to the built-in determinant types available by default in Chesar 2.3. Chesar 3 defines a new set of built-in condition of use templates.

If there were any "failed" or "successful with errors" items, please collect the logs and report an issue with ECHA (see section 7: Reporting issues).

5. Access Chesar 3

Go to your browser and enter in its URL bar the following:
http://<host>:<port>/
E.g.:
`http://myhost:8080/Chesar-Server-3.0.0`

Login: If you have migrated your data from Chesar 2.3 to Chesar 3, then the username / password for Chesar 3 will be the same as the one that you used for Chesar 2.3. If on the other hand you have not migrated data from Chesar 2.3 to Chesar 3, then please log in using the using the default username/password: **admin/admin**. After logging in with admin/admin you may at any point create additional users via Box 7.

6. Regular Backups

The Chesar data is precious! In the same way as any other application, it is prudent to take periodic backups of the data. Please store your backups in a safe location - without this backup you are at risk of losing data.

7. Reporting issues

In case you encounter problems or wish to give other feedback, please use the ECHA online contact form: https://echa.europa.eu/contact/helpdesk-contact-form.

If the issue you are reporting concerns a **problem with installing or running of Chesar**, please collect and send us:

- the Chesar log files which can be found at the location configured in *application.properties* file (see Deploy Chesar 3). E.g.: c:/logs/chesar3-logs
- the Application server log files
    - o Tomcat log files: can be found at ...\<Tomcat-install-folder>\logs
    - o Glassfish log files: can be found at ...\<Glassfish-install-folder>\glassfish\domains\domain1\logs

If the issue you are reporting concerns a **problem with migrating data**, please collect and send us the Migration log files which can be found at ...\chesar-migration-tool-1.0.0\chesar3-logs

8. Annexes

8.1. Annex: Install Derby Network Server

Download Derby Network Server:

http://db.apache.org/derby/derby_downloads.html

Version 10 should be used, i.e. 10.12.1.1:

 db-derby-10.12.1.1-bin.zip

The installation package contains a folder. Extract this folder to an appropriate location (i.e. c:\).

 db-derby-10.12.1.1-bin

Edit the *setNetworkServerCP.bat*

In the setNetworkServerCP.bat set the "DERBY_INSTALL" variable

```
set DERBY_INSTALL=C:\db-derby-10.12.1.1-bin

@if "%DERBY_HOME%"=="" set DERBY_HOME=%DERBY_INSTALL%
@if "%DERBY_HOME%"=="" goto noderbyhome

@FOR %%X in ("%DERBY_HOME%") DO SET DERBY_INSTALL=%%~sX

set CLASSPATH=%DERBY_HOME%\lib\derbynet.jar;%DERBY_HOME%\lib\derbytools.jar;%DERBY_HOME%/lib/derbyoptionaltools.jar;%CLASSPATH%
@goto end

:noderbyhome
@echo DERBY_HOME or DERBY_INSTALL not set. Set one of these variables
@echo to the location of your Derby installation.

:end
```

Open command prompt, cd to %DERBY_HOME%\bin and run the following command there:

`setNetworkServerCP.bat`

8.2. Annex: Install Tomcat

Download Tomcat 8:

http://tomcat.apache.org/

The Windows installer is available:

8.0.32

Please see the README file for packaging information. It explains what every

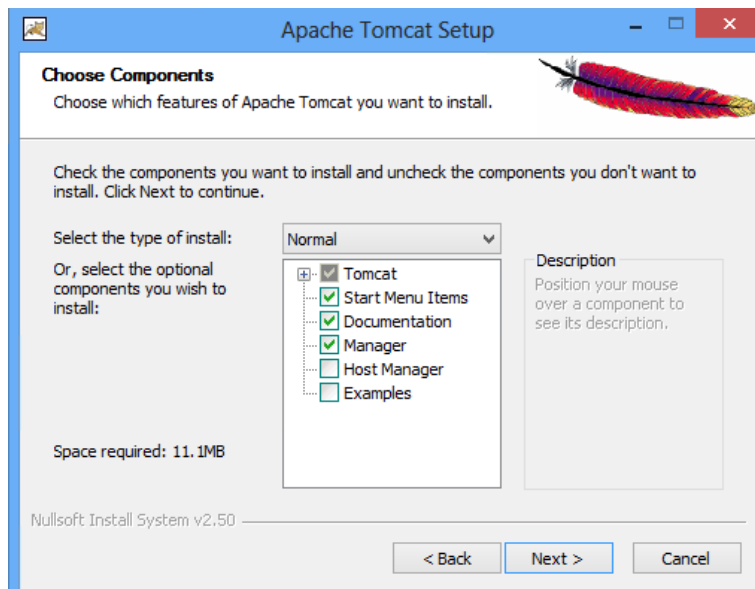**Binary Distributions**

- Core:
  - zip (pgp, md5, sha1)
  - tar.gz (pgp, md5, sha1)
  - 32-bit Windows zip (pgp, md5, sha1)
  - 64-bit Windows zip (pgp, md5, sha1)
  - 64-bit Itanium Windows zip (pgp, md5, sha1)
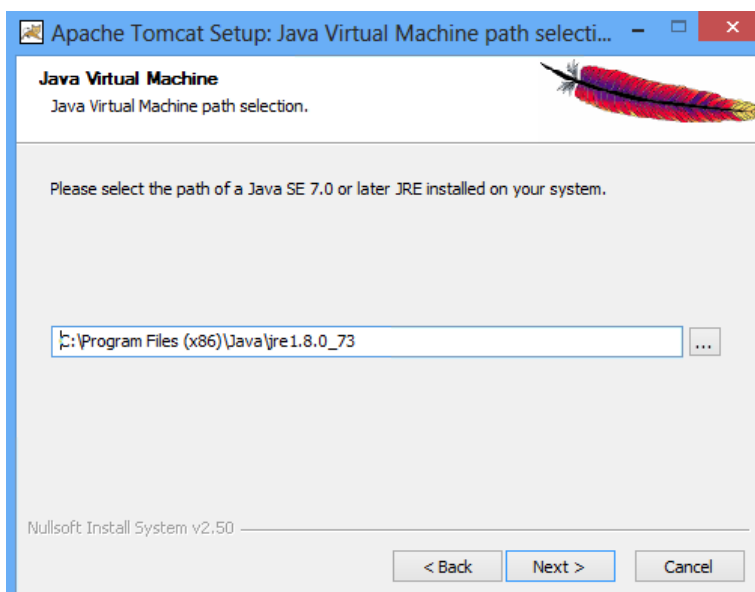 - 32-bit/64-bit Windows Service Installer (pgp, md5, sha1)
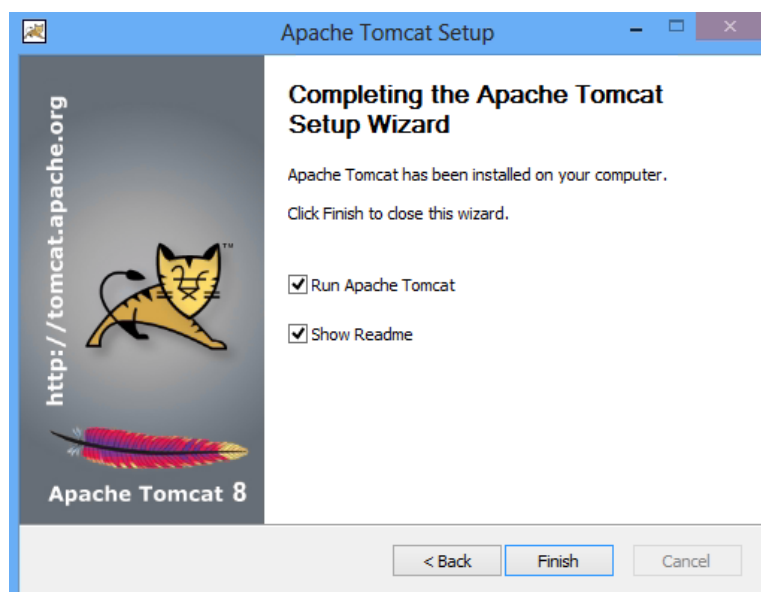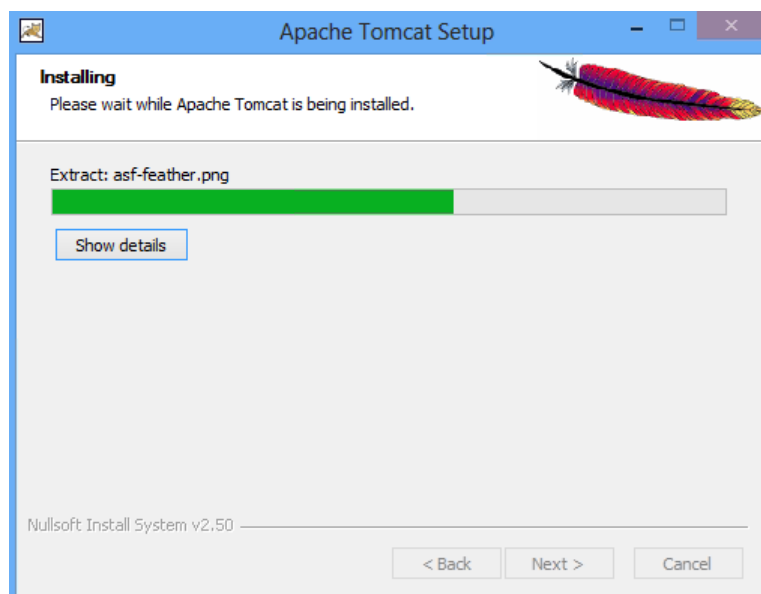
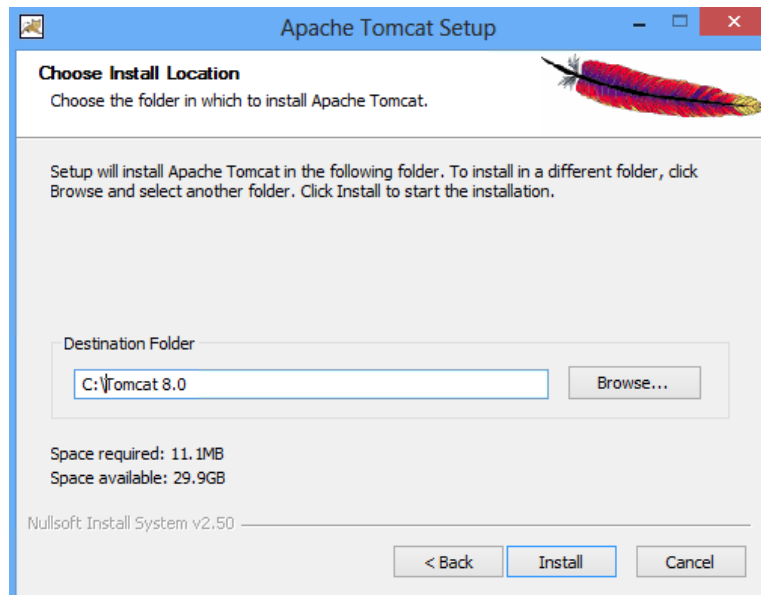Double click the installer to start installation.
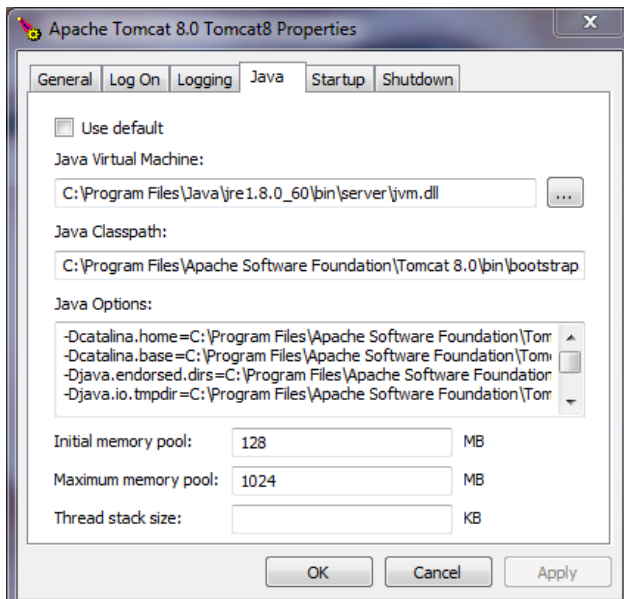
apache-tomcat-8.0.32.exe
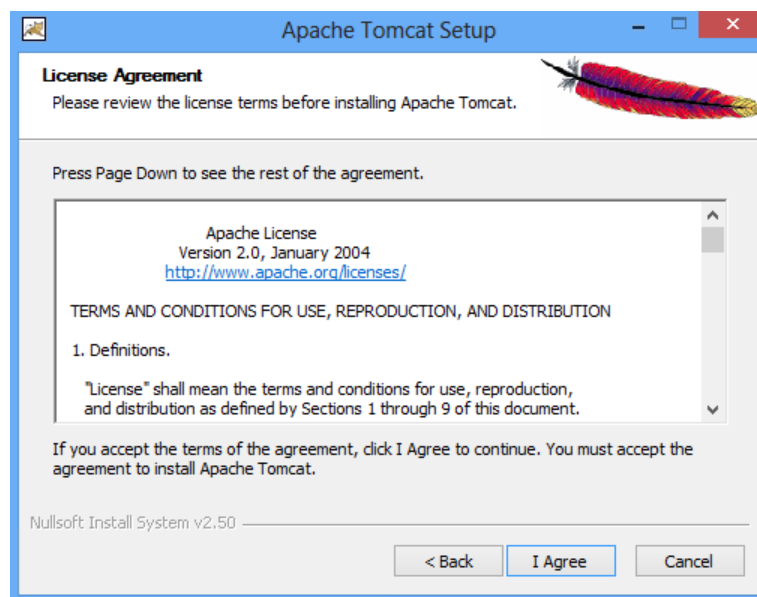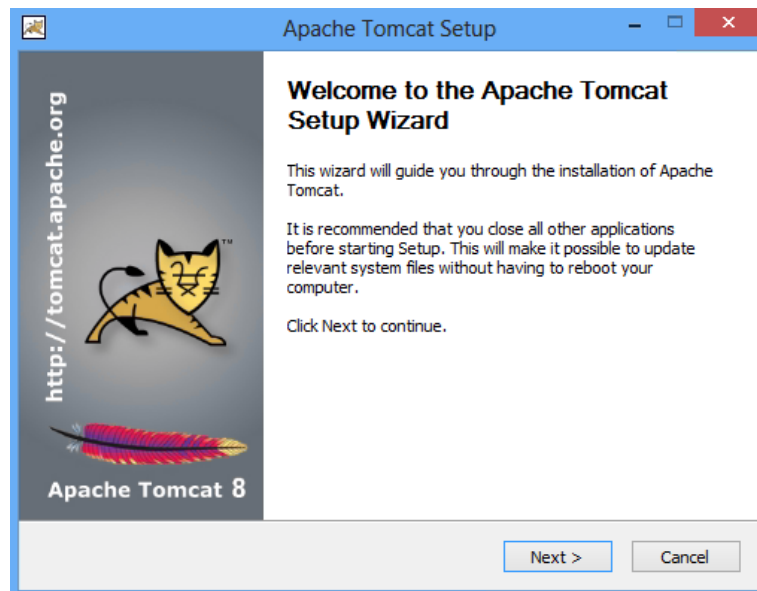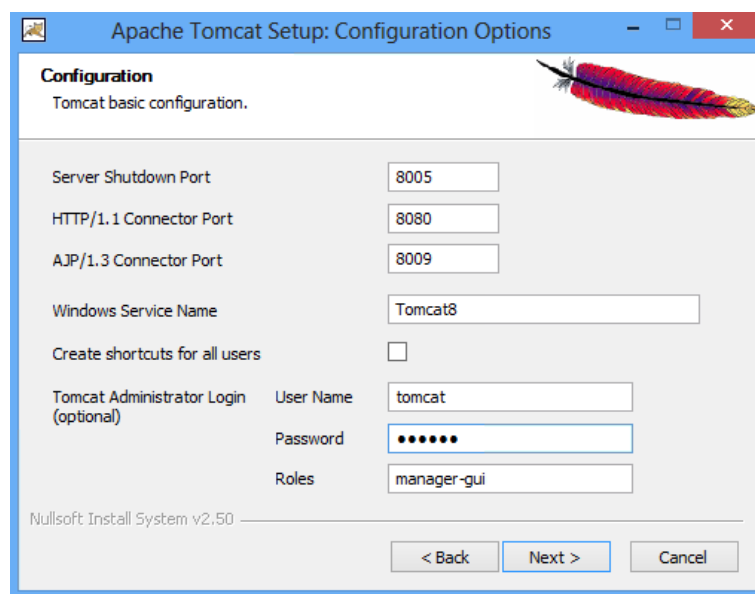
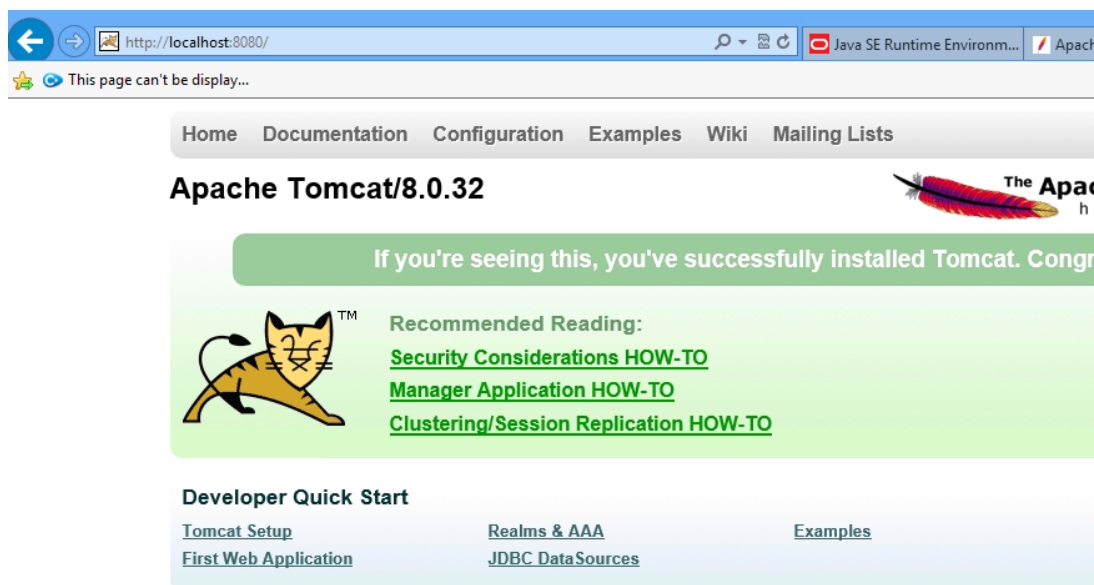**Warning**: if some other application is using the port 8080 (i.e. IUCLID 6) then the port will have to be changed.

This should start Tomcat.

Set the maximum memory pool used by Tomcat:

Check whether Tomcat is running:

http://localhost:8080

chesar