Installation Manual

Version 6.0

allegra

Steinbeis-Transferzentrum
Task Management Solutions

Installation Manual

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allegra

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If you have any comments or suggestions regarding this document, please send them by e-mail to support@trackplus.com.

Contents

Welcome to this Guide

Welcome to Allegra , one of the most powerful and pleasant to use web based task management systems for the enterprise. Allegra serves as an issue tracking and project management application that supports tracking and managing all critical activities throughout a projects lifecycle.

How This Guide is Organized

The Allegra Installation Guide describes the system requirements and installation process for Allegra . It contains the following chapters:

Chapter 1: Installing Allegra with Windows Installer
Describes how to install Allegra with Tomcat and a Firebird database using a Windows Installer.

Chapter 2: Installing Allegra on Windows with MS SQL Server
Describes how to install Allegra on a MS Windows server or PC using an MS SQL Server database system.

Chapter 3: Installing Allegra on a Linux Debian System
Describes how to install Allegra on a Linux Debian system.

Chapter 4: Installing Allegra with Docker
Describes how to install Allegra using a Docker container on a Linux Debian system.

Chapter 5: Configuring Allegra
Describes how to configure Allegra e-mail access, directories for attachments, indexing, how to start and stop the server, and how to set up the first project.

Chapter 6: Database Systems
Describes how to install Allegra manually with different database servers.

Chapter 7: Servlet Containers
Describes how to install Allegra manually with different servlet containers.

Chapter 8: Integrating Allegra with other Applications
Describes how to integrate Allegra with Subversion and Git repository browsers, Jenkins, and Sonar.

Chapter 9: Upgrading Allegra
Describes how to upgrade an existing Allegra to a newer version.

Chapter 10: Trouble Shooting Allegra
Describes how to trouble shoot common installation problems.

Chapter 11: Uninstalling Allegra
Describes how to uninstall Allegra from your server.

Documentation Library

The documentation library consists of the following documents:

Allegra Installation Guide

This document, describes the Allegra installation process.

Allegra User's Guide

Describes how to use Allegra for regular users, administrators, project managers, and process managers.

Release Notes

Describes the history of changes for the latest Allegra release. This should help to decide if its worthwhile to upgrade from a previous release.

The most up to date versions of the documentation library can be accessed at https://www.trackplus.com.

Additional Online Resources

You can find additional online resources at our homepage at https://www.trackplus .com. In particular, there are

- White papers
- Forums at https://forum.trackplus.com. The forums provide patches and answers to frequently asked questions.
- Demo installations at https://www.trackplus.com/track-demo.

Documentation Updates

We are continuously updating its product documentation with new information. You can download the latest version of this document from the Steinbeis web site (https://www. trackplus.com).

1 Windows Installer

This chapter provides a step by step description of the installation process on MS Windows based systems like Windows 10, Windows Server 2012 or Windows Server 2016 with the default Firebird database system using the Windows installer.

In particular it describes

- How to obtain the Allegra package
- How to verify your system configuration
- How to install the Java SDK or Java SRE
- How to install using the Windows installer

If you want to use an MS SQL Server database please follow the instructions in Chapter 2 on 6.

Obtaining the Allegra Package

Download the required files of the Allegra package from the Steinbeis Allegra download area and save it under e.g. `C:\tracktmp` or any other place. At the end of the installation procedure you may remove these files and directories.

Step 1: Verifying System Configuration

System Requirements

Before you start make sure that your system meets Allegra requirements. Be aware that the Allegra installer installs a Tomcat application server on the default Windows drive where your „Program Files“ directory is located. Make sure there is at least 800 Mbyte of disk space there. Make sure that you have sufficient disk space for the system itself, the database, the indexes, and the attachments.

Object	Requirement
Computer	Virtual or real workstation
Processor class	i7 quadcore or equivalent
Main memory	min. 8 GByte
Disc space	min. 20 GByte available
Java Virtual Machine	Java SDK or JRE version 1.8.x

Table 1.1: Hardware and software required by Allegra

Access to SMTP Server

You should have access to an SMTP server before setting up Allegra . For test purposes you could use your own e-mail account, but this is not recommended if your SMTP server requires authentication. It is definitely best to get a dedicated e-mail account for your Allegra installation.

Step 2: Installing the Java SDK

Many systems already come with a Java runtime environment (JRE) installed. Make sure that you have an up-to-date version (version 1.8). When you have a 64-bit Windows system (e.g., Windows 10 or Windows Server 2016) install the 64-bit Java version. You can get it from http://www.java.com/download.

Step 3: Optional: Creating an Empty Database

Unless you want to use the default Firebird database coming with the installer you need to create an empty database before you run the installer. For example in MySQL you would enter:

```
mysql> create database track default character set utf8;
mysql> commit;
```

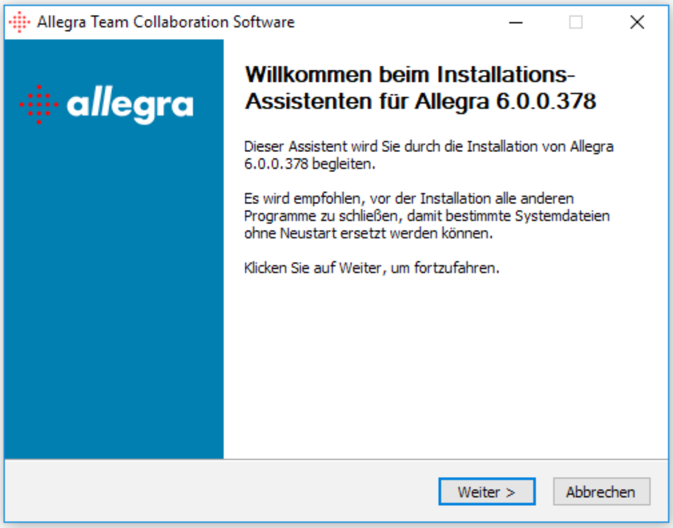
For the following database system you must download the JDBC driver yourself and install it in the Apache Tomcat `lib` directory:

- Oracle database
- IBM DB2 database

Step 4: Running the Installer

The installer installs the application in about five minutes with basically no user interaction. It comes with a servlet container (Tomcat), a complete SQL database system suitable even for medium size installations of up to 50 users (Firebird), and the Allegra application itself.

You must make sure that you run the installer with administrator privileges. This you can do either by running it from the context menu "Run as administrator" or by logging in as user "Administrator". It does not suffice if you execute the installer as a user with system administration privileges.



Willkommen beim Installations-Assistenten für Allegra 6.0.0.378

Dieser Assistent wird Sie durch die Installation von Allegra 6.0.0.378 begleiten.

Es wird empfohlen, vor der Installation alle anderen Programme zu schließen, damit bestimmte Systemdateien ohne Neustart ersetzt werden können.

Klicken Sie auf Weiter, um fortzufahren.

Figure 1.1: Running the Allegra Windows Installer

2 Windows with MS SQL Server

This chapter provides a step by step description of the installation process for Allegra on a Windows server with a MS SQL Server database.

Obtaining the Allegra Software

Download the Windows installer for Allegra from the Steinbeis Allegro download area.

Permissions

You must have the following permissions on your server:

- You must be allowed to install software
- You must have permission to install services
- You must be allowed to create a database

Step 1: Preparing for Installation

System Requirements

Make sure your server meets the requirements in Table 2.1.

Object	Requirement
Computer	Virtual or real workstation
Processor class	i7 quadcore or equivalent
Main memory	min. 8 GByte
Disc space	min. 20 GByte available
Java Virtual Machine	Java SDK or JRE version 1.8.x

Table 2.1: Hardware and software required by Allegra

There should be no other software running that offers services on port 80, like IIS, Skype, or another webserver. There should be no ther Tomcat running on the server. If there was, you needed to install Allegra manually.

Be aware that the Allegra installer installs a Tomcat application server on the default Windows drive where your „Program Files" directory is located. Make sure there is at least 800 Mbyte of disk space there, or install Tomcat manually before running the installer.

Install Java JDK

Make sure you have Java JDK 1.8 installed and activated on your system. You can download an installer freely from the internet.

Step 2: Creating the Allegra Database

Create an empty MS SQL Server database with the proper character encoding. The database server can be the same as the Allegra server, or you can run it on a different machine.

It is beyond the scope of this manual to explain this step further, as there are many options and when you choose this type of installation you typically know how to proceed.

You have to provide a database user with permissions to create tables and indices. This user will be used by the Allegra software to connect to the database.

Step 3: Running the Windows Installer

Execute the Installer

Execute the Allegra Windows installer as administrator ("'Run as administrator"'). You must do this even if you have administrator permissions on your account, no kidding!

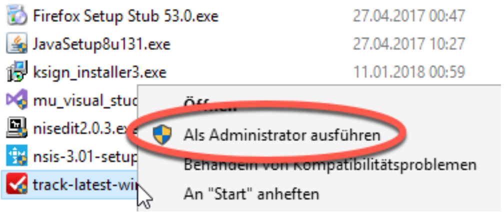


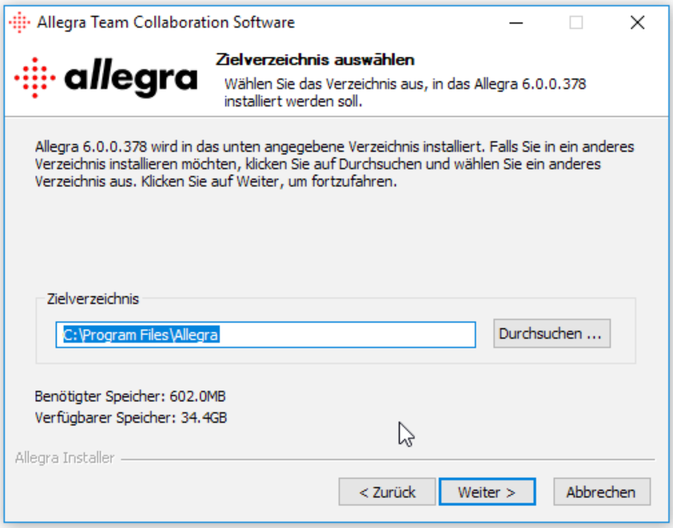
Figure 2.1: Running the Allegra Windows Installer as administrator

Choose TRACKPLUS_HOME Directory

Choose the directory where you want to keep the Allegra configuration files, all attachments, and full text search index files (see Fig. 2.2).

Disable Firebird Installation

Disable installation of the Firebird database system, which is the default for smaller installations (see Fig. 2.3).



Allegra Team Collaboration Software

Zielverzeichnis auswählen

Wählen Sie das Verzeichnis aus, in das Allegra 6.0.0.378 installiert werden soll.

Allegra 6.0.0.378 wird in das unten angegebene Verzeichnis installiert. Falls Sie in ein anderes Verzeichnis installieren möchten, klicken Sie auf Durchsuchen und wählen Sie ein anderes Verzeichnis aus. Klicken Sie auf Weiter, um fortzufahren.

Zielverzeichnis: C:\Program Files\Allegra

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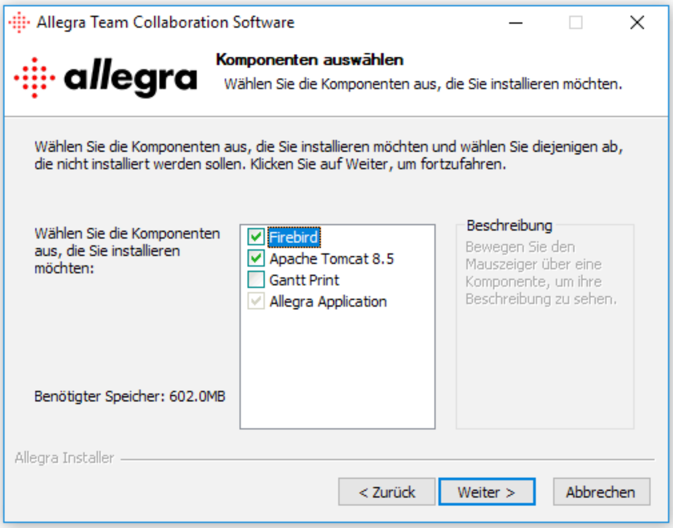
Verfügbarer Speicher: 34.4GB

Figure 2.2: Choosing the Allegra TRACKPLUS_HOME directory



Allegra Team Collaboration Software

Komponenten auswählen

Wählen Sie die Komponenten aus, die Sie installieren möchten.

Wählen Sie die Komponenten aus, die Sie installieren möchten und wählen Sie diejenigen ab, die nicht installiert werden sollen. Klicken Sie auf Weiter, um fortzufahren.

Wählen Sie die Komponenten aus, die Sie installieren möchten:

- ☑ Firebird
- ☑ Apache Tomcat 8.5
- □ Gantt Print
- ☑ Allegra Application

Beschreibung: Bewegen Sie den Mauszeiger über eine Komponente, um ihre Beschreibung zu sehen.

Benötigter Speicher: 602.0MB

Figure 2.3: Disabling installation of Firebird RDBMS

Select MS SQL Server

Select MS SQL Server as RDBMS (see Fig. 2.4).

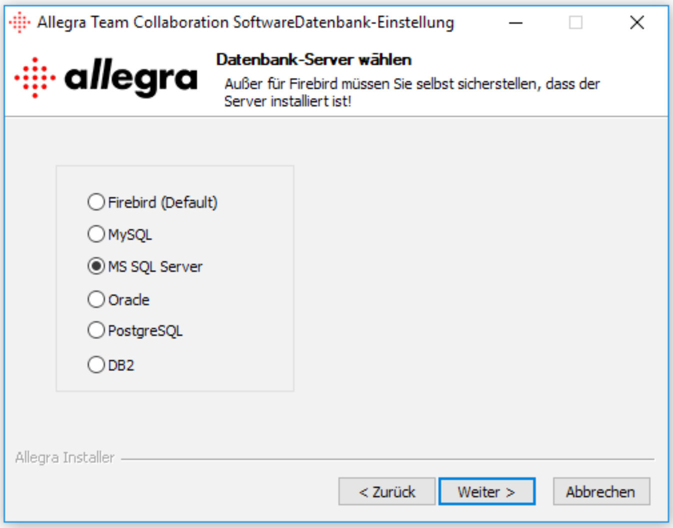
Configure Database Connection

Configure the connection to the database system (see Fig. 2.5).

The URL format for jTDS is:

jdbc:jtds:sqlserver://<server>[:<port>][/<database>][;<property>=<value>[;...]]

where <port> is the port the database server is listening to (default is 1433) and <database> is the database name.



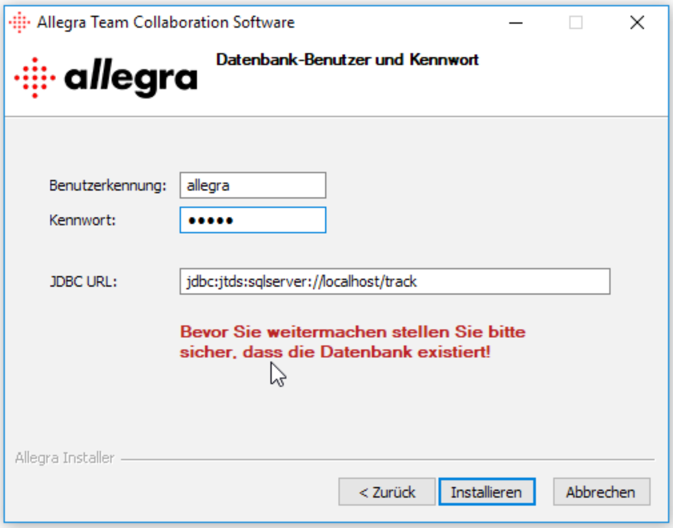
Allegra Team Collaboration SoftwareDatenbank-Einstellung

Datenbank-Server wählen

Außer für Firebird müssen Sie selbst sicherstellen, dass der Server installiert ist!

○ Firebird (Default)
○ MySQL
● MS SQL Server
○ Oracle
○ PostgreSQL
○ DB2

Figure 2.4: Select MS SQL Server as RDBMS



Allegra Team Collaboration Software

Datenbank-Benutzer und Kennwort

Benutzerkennung: allegra

Kennwort: •••••

JDBC URL: jdbc:jtds:sqlserver://localhost/track

Bevor Sie weitermachen stellen Sie bitte sicher, dass die Datenbank existiert!

Figure 2.5: Configuring the database connection

The complete set of properties is documented at http://jtds.sourceforge.net/faq.html.

Some relevant properties are

charset (default - the character set the server was installed with) Very important setting, determines the byte value to character mapping for CHAR/VARCHAR/TEXT values. Applies for characters from the extended set (codes 128-255). For NCHAR/NVARCHAR/NTEXT values doesn't have any effect since these are stored using Unicode.

domain Specifies the Windows domain to authenticate in. If present and the user name and password are provided, jTDS uses Windows (NTLM) authentication instead of the usual SQL Server authentication (i.e. the user and password provided are the domain user and password). This allows non-Windows clients to log in to servers which are only configured to accept Windows authentication.

If the domain parameter is present but no user name and password are provided, jTDS uses its native Single-Sign-On library and logs in with the logged Windows user's credentials (for this to work one would obviously need to be on Windows, logged into a domain, and also have the SSO library installed).

instance Named instance to connect to. SQL Server can run multiple so-called ”named instances” (i.e. different server instances, running on different TCP ports) on the same machine. When using Microsoft tools, selecting one of these instances is made by using ”$< host\_name > \backslash < instance\_name >$” instead of the usual ”$< host\_name >$”. With jTDS you will have to split the two and use the instance name as a property.

sendStringParametersAsUnicode (default - true) Determines whether string parameters are sent to the SQL Server database in Unicode or in the default character encoding of the database. This seriously affects SQL Server 2000 performance since it does not automatically cast the types (as 7.0 does), meaning that if a index column is Unicode and the string is submitted using the default character encoding (or the other way around) SQLServer will perform an index scan instead of an index seek. For Sybase, determines if strings that cannot be encoded in the server's charset are sent as unicode strings. There is a performance hit for the encoding logic so set this option to false if unitext or univarchar data types are not in use or if charset is utf-8.

Step 4: Basic Configuration

Before you can work with Allegra you should go through some basic configuration. See Chapter 5 on page 20 for initial instructions or consult the User Manual.

Installing Components for PDF Document Generation

Installing LaTeX

To generate beautiful PDF documents from the Wiki you need to install a LaTeX distribution on your computer or server.

For Windows systems we recommend the MikTeX distribution.

Installing ImageMagick and Phantomjs

To be able to create nice PDF Gantt charts you need to install ImageMagick and Phantomjs.

You can download these packages from the Allegra download area or use the Allegra installer.

If you have trouble printing large Gantt diagrams (500+ items over a larger time period) you may have to adapt some time-outs in your web server and/or application server. For an Apache web server you can add or change the following in your server configuration file:

```
...
<IfModule mod_reqtimeout.c>
RequestReadTimeout head=20-30,body=30,MinRate=1000
</IfModule>
...
```

For a Tomcat server you would have to add time-out and upload size parameters in file `...tomcat8/conf/server.xml` like this:

```
...
<Connector port="80" protocol="HTTP/1.1"
connectionTimeout="30000" asyncTimeout="20000" maxPostSize="40000000"
...
<Connector port="8009" protocol="AJP/1.3" redirectPort="8443"
asyncTimeout="20000" maxPostSize="40000000"/>

...
```

3 Debian/Ubuntu with MySQL

This chapter provides a step by step description of the manual installation process for Allegra on a Debian/Ubuntu server with a MySQL database.

This chapter describes

- How to obtain the Allegra package
- How to verify your system configuration
- How to install the Java SDK or Java SRE
- How to install the Allegra database
- How to set up the Tomcat 8 application server
- How to configure the database connection
- How to install additional components for PDF document generation from Wiki documents and Gantt charts

Obtaining the Allegra Package

Download the required files of the Allegra package from the Steinbeis Allegra download area and save it. At the end of the installation procedure you may remove these files and directories.

You need the following file (where "v" stands for the version):

- `track-v.war`

Step 1: Preparing for Installation

System Requirements

Make sure your system meets the requirements in Table 1.1 on page 3).

Install Java JDK

Make sure you have Java JDK 1.8 installed and activated on your system:

sudo add-apt-repository ppa:webupd8team/java sudo apt-get update sudo apt-get install oracle-java8-installer sudo apt-get install oracle-java8-set-default java –version

Create Allegra Working Directory

We create a user for this and place the working directory at `/home/trackplus`:

```
sudo adduser trackplus
sudo chgrp -R tomcat8 /home/trackplus
sudo chmod -R 770 /home/trackplus
```

Access to SMTP Server

You should have access to an SMTP server before setting up Allegra . For test purposes you can use your own e-mail account or some free service account you set up for this purpose.

For a production environment you should obtain a dedicated e-mail account for your Allegra installation.

Step 2: Creating the Allegra Database

Using the `mysql>` command line client, create a database. Use InnoDB as the database engine and configure UTF-8 as standard encoding.

```
mysql --user=root -p<YourMySQLRootPassword>
mysql> create database track default character set utf8;
mysql> GRANT ALL PRIVILEGES ON track.* to trackp@"%"
IDENTIFIED by '<trackplus_admin_password>'
WITH GRANT OPTION;
mysql> GRANT ALL PRIVILEGES ON track.* TO trackp@localhost
IDENTIFIED by '<trackplus_admin_password>'
WITH GRANT OPTION;
mysql> FLUSH PRIVILEGES;
mysql> quit;
```

To get good performance you should have the following statements in your MySQL configuration file at `/etc/mysql/my.cnf`:

```
key_buffer              = 16M
max_allowed_packet      = 16M
thread_stack            = 192K
thread_cache_size       = 8
query_cache_limit       = 1M
query_cache_size        = 16M

sql-mode=''NO_BACKSLASH_ESCAPES''

innodb_buffer_pool_size=256M
innodb_buffer_pool_instances=8
innodb_log_buffer_size=8MB
innodb_flush_log_at_trx_commit=2
innodb_thread_concurrency=8
log_bin=OFF
sync_binlog=25
```

If there already is a mode entry add the mode mentioned to the existing mode(s), separated by a comma.

Restart the MySQL server to make the changes effective:

```
sudo /etc/init.d/mysql restart
```

Step 3: Installing Tomcat 8

On Ubuntu and Debian systems install Apache Tomcat 8 or later like this:

```
sudo apt-get install tomcat8
```

The Tomcat startup script is located at `/etc/init.d/tomcat8`. Rather than changing it we modify the defaults in `/etc/default/tomcat8`:

```
sudo vi /etc/default/tomcat8
```

We set JDK_DIRS to the proper Java installation:

```
JDK_DIRS="/usr/lib/jvm/java-8-oracle"
```

And we make sure, Tomcat starts with enough memory for code and data and knows about some important directories:

```
JAVA_OPTS="-Djava.awt.headless=true -XX:MaxRAM=2048m
-DTRACKPLUS_BOOT=/home/trackplus
-DJENKINS_HOME=/home/jenkins
-DLATEX_HOME=/usr/bin"
```

The entries for Jenkins and LaTeXare optional and required only when you use these tools. Save the modified script and start Tomcat:

```
sudo /etc/init.d/tomcat8 restart
```

Check, if you get the Tomcat default start page under http://<yourcomputer>:8080 or http://<yourcomputer.com>. Thereafter, shut down the server again:

```
sudo /etc/init.d/tomcat8 stop
```

Step 4: Installing Allegra

`/var/lib/tomcat8`.

To install the Allegra application change to the `webapps` directory:

```
cd /var/lib/tomcat8/webapps
```

Copy the `track-v.war` file of the Allegra distribution into the `/var/lib/tomcat8/webapps` directory and rename it to `track.war`.

Start the Tomcat servlet container:

```
sudo /etc/init.d/tomcat8 start
```

Tomcat now unpacks the `track.war` file into a directory `$TOMCAT_HOME/webapps/track`. Allegra will not run yet since we still have to configure the database connection. So it is best to stop Tomcat again before we proceed with

```
sudo /etc/init.d/tomcat8 stop
```

Step 5: Configuring the Database Connection

You have to connect the database you created in section 3.3 with the Allegra application. This is done via entries in file `$TRACKPLUS_BOOT/Torque.properties`. The following is an excerpt and the respective areas are shown.

```
...
   torque.dsfactory.track.connection.user = trackp
torque.dsfactory.track.connection.password = <trackplus_admin_password>

# 3) MySQL
torque.database.track.adapter=mysql
torque.dsfactory.track.connection.driver = org.gjt.mm.mysql.Driver
torque.dsfactory.track.connection.url = jdbc:mysql://localhost:3306/track?
   useUnicode=true&characterEncoding=UTF-8
   &zeroDateTimeBehavior=convertToNull
...
```

The user name and password must match the respective entries you used for the database. The JDBC driver and connection URL also depend on your database name and type. There is an example in the default `Torque.properties` file for each supported database type, most of which are commented out. Enable the lines pertaining to your database type, and comment out the others.

After changing any of the settings in `Torque.properties` the servlet container Tomcat or your application server has to be restarted for the changes to take effect.

Installing Components for PDF Document Generation

Installing LaTeX

To generate beautiful PDF documents from the Wiki you need to install a LaTeX distribution on your computer or server.

For Debian and Ubuntu you can use the `texlive-full` package using the standard apt-get installer

```
sudo apt-get install texlive-full
```

or the following script:

```
#!/bin/bash
wget http://ftp.rrze.uni-erlangen.de/ctan/systems/texlive/tlnet/install-tl-unx.tar.gz
gunzip install-tl-unx.tar.gz
tar -xf install-tl-unx.tar.gz
```

```
SDIR=`ls -1 | grep install-tl-2`
cd $SDIR
sudo ./install-tl
```

Installing ImageMagick and Phantomjs

To be able to create nice PDF Gantt charts you need to install ImageMagick and Phantomjs.

For Linux systems use the **`imagemagick`** package and **`phantomjs`** package:

```
sudo apt-get install imagemagick phantomjs
```

If you have trouble printing large Gantt diagrams (500+ items over a larger time period) you may have to adapt some time-outs in your web server and/or application server. For an Apache web server you can add or change the following in your server configuration file:

```
...
<IfModule mod_reqtimeout.c>
RequestReadTimeout head=20-30,body=30,MinRate=1000
</IfModule>
...
```

For a Tomcat server you would have to add time-out and upload size parameters in file `/var/lib/tomcat8/conf/server.xml` like this:

```
...
<Connector port="80" protocol="HTTP/1.1"
connectionTimeout="30000" asyncTimeout="20000" maxPostSize="40000000"
...
<Connector port="8009" protocol="AJP/1.3" redirectPort="8443"
asyncTimeout="20000" maxPostSize="40000000"/>

...
```

Step 6: Placing Tomcat behind Apache

Install Apache 2.4:

```
sudo apt-get install apache2 apache2-utils
```

Enable modules **proxy** and **proxy_ajp**:

```
cd /etc/apache2/mod-enabled
sudo ln -s ../mod-available/proxy.conf proxy.conf
sudo ln -s ../mod-available/proxy.load proxy.load
sudo ln -s ../mod-available/proxy_ajp.conf proxy_ajp.conf
```

Add the following statements to your Apache server configuration at `/etc/apache2/sites-available/default`:

```
ProxyPass /track ajp://127.0.0.1:8009/track
ProxyPassReverse /track/ https://<yourserver.com>/track/
```

In the Tomcat configuration file at `/var/lib/tomcat8/conf/server.xml` remove the comment signs to enable the ajp connector:

```
  <!-- Define an AJP 1.3 Connector on port 8009 -->
  <Connector port="8009" protocol="AJP/1.3" redirectPort="8443" />
```

Then restart Apache and Tomcat:

```
sudo /etc/init.d/apache2 restart
sudo /etc/init.d/tomcat8 restart
```

4 Docker Container

This chapter provides a step by step description of the manual installation process for Allegra in a Docker container with a MySQL database.

This chapter describes

- How to obtain the Allegra Docker package
- How to install and run Allegra in a Docker container

Obtaining the Allegra Docker Package

Download the required files of the Allegra Docker package from the Steinbeis Trackplus download area. Save it to an empty directory and unpack it there. You should see now at least:

- a command file `adocker`
- a number of configuration files like `track.cfg`
- a number of Docker files like `trackplus-latest-dist.dockerfile`

We call this directory `WORKDIR` from now on.

Step 1: Preparing for Installation

System Requirements

Make sure your system meets the requirements in Table 1.1 on page 3).

Create TRACKPLUS_HOME Directory

Create a directory which will contain configuration data, indexes, and attachments for your Allegra instance. In the following we will call this `$TRACKPLUS_HOME`.

Have Docker installed and running

Make sure Docker is installed on your server and the Docker daemon is up and running. You can download Docker from https://www.docker.com/get-docker .

Access to SMTP Server

You should have access to an SMTP server before setting up Allegra . For test purposes you can use your own e-mail account or some free service account you set up for this purpose.

For a production environment you should obtain a dedicated e-mail account for your Allegra installation.

Step 2: Creating the Allegra Docker Configuration

The `adocker` command file reads all required configuration information from a configuration file. For each Allegra instance you want to run you have to provide a configuration in a file named like `<context>.cfg`. For example, if you later want to access your Allegra at `http://someServer.com/allegra` you would have to provide a configuration file named `allegra.cfg`.

The configuration file looks like this:

```
#!/bin/bash
DBPASSWD=yourpwd  # anything will do
DBUSER=trackp  # anything will do
HTTP_PORT=8080  # the port under which the system will appear outsidde the container
AJP_PORT=7009     # the AJP port to connect to a front end Apache server
VERSION=latest-dist  # the version to use, refers to the Dockerfile
THOME=/home/track  # Should be the directory TRACKPLUS_HOME
JOPTS="-Djava.awt.headless=true -XX:MaxRAM=2048m"
```

The `VERSION` parameter refers to the Dockerfile named `trackplus-VERSION.dockerfile` which must be present in `WORKDIR`.

Step 3: Installing and running Allegra

We assume you want to install to a context named `track` and `WORKDIR` is `/opt/trackwd`.

To install and run Allegra on the command line type:

```
cd /opt/trackwd
./adocker install track
```

After a little time your system should be accessible. Try

```
./adocker log track
```

to see the log output. Try

```
./adocker
```

to get a list of options.

5 Configuring Allegra

This chapter describes the minimum configuration steps you need to do after a first installation, and before you can use your Allegra system productively. In particular, the following topics are considered:

- First login and access to server configuration
- Setting up E-mail

If you have installed Allegra manually, you may have to configure the following topics are to be considered as well:

- Setting up full text search
- Setting up attachment handling
- Configuring for operation in proxied environments (optional)
- Configuring session time out

First Login and Access to Server Configuration

To carry out the configuration steps in this chapter you have to login as system administrator. The system administrator account is created during database installation, using a predefined, default password. To login as the system administrator use:

user name:admin
password: tissi

There is a second account created during initial setup, the „guest" account. To login as a regular guest user with but a few access rights:

user name: guest
password: trackplus

You should change the administrator password before you expose your server to the public. How this is done is described in the Allegra User's Manual.

The admin user has access to all project administration access management pages. It should be her privilege to add new projects. Each project itself may have several project specific administrators out of the regular user base. These project specific administrators have the same rights as the admin user, except that these rights are limited to specific projects.

You can configure later on any user to have system administrator privileges. All server configuration steps described below will be managed via menu entry Administration→Manage server→Server configuration....

Entering License Key Information

Cut and paste the license key from the key file you received into the text area and save. You should see the number of active users covered and the expiration date of the license.

Setting up E-mail

Basic E-mail Setup

Allegra will send notification messages to involved users for example if certain state changes occur, new issues are created, or responsible persons are being modified. Allegra also sends initial passwords after registration or lost passwords via e-mail.

For this feature to work, Allegra has to be able to connect to an SMTP server. You have to configure your SMTP server name on the server configuration page as shown in Fig. 3-3. There are several other options when configuring your e-mail notification service.

Allegra system e-mail:

here you should define an e-mail account which is being inserted as "sent from" by Allegra in any e-mail the systems sends out. You can further down select however if the „sent from" address of outgoing e-mails is the one of the user initiating the causing action.

Use Allegra „from" address in e-mails:

This switch determines if e-mails coming from the Allegra system carry as their „sent from" address the value given in the previous field „Allegra system email", or if it carries the address of the person causing the email.

For example, if an issue was changed, the issues manager will be informed of the change by e-mail (Automail). If the check box mentioned above is checked, the e-mail will have as its „sent from" address „trackplus.@trackplus.com", and the „sent from" name will be „Trackplus".

If the check box was not checked, the sent from address will appear as „Smith, Diana [Allegra]". Some SMTP servers do not like to sent messages with a „from" address different than the account which has been used to gaining access. In the example above, the SMTP server might not like to use an account „trackplus@trackplus.com" while sending messages from „diana.smith@fake.com".

Mail encoding:

You need to define an e-mail encoding that is being used by Allegra when sending out e-mails. UTF-8 should work in most cases. For Western languages, "ISO-8859-1" usually works fine.

SMTP server name:

For Allegra to be able to send notifications you need to give it the name of your SMTP server. Some company internal installations do not require authentication before using the server, some do. If authentication is being used, it can be either SMTP authentication or POP before SMTP. In the first case you also have to set the SMTP user name and SMTP password described below. In the second case you have to configure the POP parameters.

SMTP Port:

Default is 25. Usually, you don't have to change this.

SMTP user name:

In case your SMTP server requires SMTP authentication, supply the user name here.

SMTP authentication mode:

Company internal SMTP servers sometimes do not require special authentication. If your SMTP server does, you need to click the check box and select an authentication mode. You can use either use a special user/-password for the SMTP server, or use the same user/password as for the incoming mail, or use the POP3 before SMTP authentication mode, where you will first be logged in into the POP3 incoming mail server, and this will authenticate you for the outgoing SMTP mail server.

SMTP password:

In case your SMTP server requires SMTP authentication, supply the password here.

Mailserver protocol:

Allegra supports two incoming mail protocols: POP3 and IMAP. Here you can choose which one your server uses.

Mailserver name:

In case of POP before SMTP authentication, supply your POP server here. You will also have to configure this if you want to be able to submit issues by e-mail to either a POP3 mailbox or an IMAP mailbox.

Mailserver port:

Default is 110 for POP3 and 143 for IMAP. You usually do not have to change this.

Mailbox user:

In case of POP before SMTP authentication, supply your POP user account here. Also supply this if you want to access incoming e-mails by an IMAP inbox.

Mailbox password:

In case of POP before SMTP authentication, supply your POP password here. Alsosupply this if you want to access incoming e-mails by an IMAP inbox.

Keep messages on server:

If this is checked, reading the e-mails does not delete the messages on the server. This can be helpful if you also want to manually scan the Allegra mailbox.

Authorizing E-mail Domains:

To prevent users from unverified domains (e.g. hotmail.com, gmx.com) to register, a Perl5 regular expression can be defined so that only e-mail domains matching that expression are allowed to register. The default pattern is to allow all domains to register.

Allegra can be configured such that users may register themselves. However, you can restrict registration to specific domains and even user email accounts, for example such that only your customers are allowed to register with the system. The pattern that is allowed to register is a Perl pattern.

Here are some example pattern:

```
[^@ \t]@bosch\.com
```

This example permits just users from domain „bosch.com" to register. Some more examples:

```
[^@ \t]@t-online\.de|[\^@ \t]@computer\.org
```

matches all users from domains t-online.de and computer.org. The pattern

```
\w[-.\w]+\@[-.\w]+\.\w{2,3}
```

matches all e-mail domains with no restrictions. This is the default pattern.

Setting up Full Text Search

Allegra uses the Lucene indexing system to search for issues based on keywords. The index system c an be configured using several parameters.

Enable full text search: Here you can enable TQLplus. If this is not set, TQLplus syntax is not recognized. You can disable this if you have only little disk space left.

Index attachments:
This enables indexing of attachments. Since attachments can be quite large, setting this option will increase disk usage by Allegra considerably.

Reindex on startup:
If you want to start a complete reindex after server startup set this switch. This ensures that your index is complete. It also purges index entries that may not be needed any more. Take into consideration that it may take some time until the index is complete again.

Lucene analyzer:
Choose the preferred analyzer for your index. A good analyzer gets rid of small words of little importance like "a" or "the" and so on. This is of course language dependent, so if you have an analyzer that matches the primary language of the installation enter it here. New analyzers can be added if you pack them into a file "lucene-analyzers.jar" and drop this file into the lib directory of the Allegra application. The safe bet is to use the Standard Analyzer.

Lucene index root directory:
This is where Allegra will place the index file. Depending on the size of your documents disk space requirements can become quite large. Make sure there is enough space at this location.

Setting up Attachment Handling

Setting up the Attachment Root Directory

Attachments are stored on the file system and not in the database. You should configure a directory on a volume with sufficient space for your attachments. If you do not configure this parameter, attachments will be stored inside the application directory. This could result in complete loss of all attachment data on some application servers!

Configuring the Attachment Size Limit

It is possible to limit the size of attachments to prevent people from loading Gigabytes on the Allegra server. The limit can be set to any amount of MBytes. The default size limit is 4.0 MByte.

Configuring for Proxied Environment

Allegra has been designed to operate in a proxy environment. Usually, Allegra can extract the URLs that are included in notification e-mails automatically. This automatic detection works fine if there are no proxy servers between the application server and the user clients.

If there is a proxy server hiding the application server, the correct server URL has to be configured via parameter Allegra Server URL on the site configuration page, for example: http://gandalf In non-proxied environments, you can leave this field empty, which will enable the automatic detection feature for the server URL.

Configuring Session Time Out

In file `web.xml` a cookie time out can be set, to allow a user to directly access an issue without having to log on. Usually you would not change the default value.

In the same file you can define the session time out. If there are no requests sent during this time from a client to the server, the server terminates that session and the user would have to log in again to access the system.

The session time out can furthermore be set by an system administrator for each user on the user's profile page.

6 Database System

This chapter describes how to setup an empty database for Allegra for the database systems officially supported.

Supported Database Systems

Allegra has been tested with the following database systems:

- MySQL: 5.7.14
- Firebird: 2.2.2.1
- PostgreSQL: 10.3
- Microsoft SQL server: 14.0.1000.169
- Oracle: 12c Standard Edition Release 12.2.0.1.0 - 64bit
- DB2 v11.1.3.3

MySQL and MariaDB

Using the `mysql` command line client, create a database. Use InnoDB as the database engine and configure UTF-8 as standard encoding.

```
mysql --user=root -p<YourMySQLRootPassword>
mysql> CREATE DATABASE track DEFAULT CHARACTER SET utf8;
mysql> GRANT ALL PRIVILEGES ON track.* to trackp@"%"
    IDENTIFIED by '<trackplus_admin_password>'
    WITH GRANT OPTION;
mysql> GRANT ALL PRIVILEGES ON track.* TO trackp@localhost
   IDENTIFIED by '<trackplus_admin_password>'
   WITH GRANT OPTION;
mysql> FLUSH PRIVILEGES;
mysql> quit;
```

The database should now be up and running.

If you want to use the built-in backup function of Allegra you have to configure your MySQL instance to not use backslash escapes. In file `my.ini` (on Windows) or `my.cnf` (on Unix), or whatever configuration file you are using add the following entry: :

```
sql-mode=''NO_BACKSLASH_ESCAPES''
```

If there already is a mode entry add the mode mentioned to the existing mode(s), separated by a comma.

Firebird

The software can be obtained via http://www.firebirdsql.org/en/downloads. Select the required server binary for your operating system (Super Server architecture). The instructions for Unix below assume you are using the Linux rpm.

You can find some helpful tools at www.ibphoenix.com. A nice tool for administering the database you can find at www.flamerobin.org.

Check if the database server is listening:

```
netstat -an | grep 3050
```

should result in a line including LISTEN in it. Go and change the default SYSDBA password from MASTERKEY to your own. Don't forget this password!

```
/opt/interbase/bin/gsec -modify sysdba -user sysdba
-password MASTERKEY -pw <new_SYSDBA_password>
```

Add a new user with name "trackp" and some password:

```
/opt/interbase/bin/gsec -add trackp -user sysdba
-password <new_SYSDBA_password>
-pw <trackplus_admin_password>
```

The database is created from scratch using the isql command line utility (don't type the isql prompts) from where you extracted your Allegra database package:

```
/opt/interbase/bin/isql -u trackp -p tissi
isql> create database "/opt/interbase/db/track.gdb";
isql> quit;
```

Make sure the owner and permissions are set right:

```
chown -R firebird /opt/interbase/db
chmod 700 /opt/interbase/db
```

To access the database via FlameRobin, you have to register it in this tool. The file path that needs to be entered is as seen from the server (e.g. `/opt/interbase/db /track.gdb`). The alias is of no importance.

MS SQL Server

Allegra works well with MS SQL Server Version 2000 , 2005, and 2008. Allegra uses the jTDS JDBC driver to connect to the database server. The most important point to consider is the correct setting of the character set and collation, so that non-ANSI characters are properly stored and retrieved. This setting should be explicitly set when creating the database.

It is not recommended to use the standard settings of the database server. Create the database with the Enterprise Manager tool. Make sure you are using the right collation set when creating the database (see Table 6.1). It might be best to add a new user which will be used as owner of the database.

The database should now be up and running. The MS SQL Server JDBC driver needs to be enabled in the `Torque.properties` file located in the `webapps` directory of your servlet container or application server as described below. You need to choose the right character set.

Example configuration for a standard German MS SQLServer installation:

```
# 4) Microsoft SQLServer
torque.database.track.adapter=mssql
torque.dsfactory.track.connection.driver = net.sourceforge.jtds.jdbc.Driver
torque.dsfactory.track.connection.url = jdbc:jtds:sqlserver://localhost/track;charset=CP1252
```

Region	Collation	jTDS Charset
Chinese traditional (Taiwan)	Chinese_Taiwan_Stroke	CP950
Chinese simplified (PRC)	Chinese_PRC CP936	
Danish	Danish_Norwegian	CP1252
English	Latin1_General	CP1252
Farsi Arabian		CP1256
Finnish	Finnish_Swedish	CP1252
French	French	CP1252
German	Latin1_General	CP1252
Hebrew	Hebrew	CP1255
Italian	Italian	CP1252
Japanese	Japanese	CP932
Netherland	Latin1_General	CP1252
Norwegian	Danish_Norwegian	CP1252
Russian	Cyrillic_General	CP1251
Spanish	Modern_Spanish	CP1252
Swedish	Finnish_Swedish	CP1252
	UTF-8	UTF8
	UTF-16	UNICODE

Table 6.1: Some code page settings for the jTDS JDBC driver

Example configuration for a standard UTF-8 MS SQLServer installation with instance like `sqlserver INSTANCEX`:

```
# 4) Microsoft SQLServer
torque.database.track.adapter=mssql
torque.dsfactory.track.connection.driver = net.sourceforge.jtds.jdbc.Driver
torque.dsfactory.track.connection.url =
         jdbc:jtds:sqlserver://sqlserver/track;charset=UTF8;instance=INSTANCEX
```

Oracle

Allegra has been tested to run with Oracle 12 databases. This document will not cover how to set up a database in Oracle. Once your database administrator has set up a database he must grant you all privileges to create and modify objects in your schema.

You have to download a suitable JDBC driver for your Oracle server from the official Oracle download site and install it in your application servers classpath. For example, when you use Tomcat 8 on Debian/Ubuntu, you could place the JDBC driver jar file into `/var/lib/tomcat8/lib`.

The default maximum CLOB size is 4000 characters. If you don't change this your long text fields in Allegra will be limited to this size.

IBM DB2

Allegra supports IBMs DB2 database version 11. Here are some hints how to proceed.

Install DB2 and create a new database (for example named TRACK). The schema name should be the same as the database user name you will be using later on to connect the Allegra software with the database. You should have enough table spaces. The default is 4k, and you should choose 32K. If the table space is not sufficient the scripts will not run.

You have to change the date strings in file `.../dbase/populate.sql` to have the right format, which is YYYY-MM-DD hh:mm:ss.nnnnn, and set the dates in the two INSERT INTO TPERSON statements to the time pattern above. Alternatively, delete the two date fields (TOKENEXPDATE and EMAILLASTREMINDED) from these insert statements.

Obtain a suitable JDBC driver for DB2 from the IBM download area (for example `db2java.jar`). Place it into your Tomcat lib directory.

Change the Torque.properties to map to db2. Comment out all other similar entries and enable the following entries:

```
torque.dsfactory.track.connection.user=yourDB2Username
torque.dsfactory.track.connection.password=yourDB2Password

#DB2
torque.database.track.adapter=db2app
torque.dsfactory.track.connection.driver=
       COM.ibm.db2.jdbc.app.DB2Driver
torque.dsfactory.track.connection.url=jdbc:db2:TRACK
```

PostgreSQL

Allegra supports PostgreSQL databases. Be aware that there have been reports of slow performance on PostgreSQL version 8.x. Here are some hints to get a Allegra database on a PostgreSQL server. The following assumes that you are currently on the Postgres directory of the database package, and that the PostgreSQL utilities are in your path.

```
$createuser --username=postgres --password -d -P -A
--sysid=501 trackp
>Enter password for new user: <trackplus_admin_password>
>Enter it again: <trackplus_admin_password>
>Password: <postgres user password>
>CREATE USER
$createdb --owner=trackp --username=trackp
--password track "\productName Database"
>Password:  <trackplus_admin_password>
>CREATE DATABASE
>Password:  <trackplus_admin_password>
...
```

Configuring the Database Connection

You have to connect the database you created with the Allegra application. This is done via entries in file `Torque.properties`.

This database connection file is being searched for in the following locations in this order:

1. In file `webapps/Torque.properties.<context name>` in your containers `webapps` directory. Example: `webapps/Torque.properties.track-demo`. This permits to run several Allegra instances in the same container.
2. In file `$TRACKPLUS_BOOT/Torque.properties` where `$TRACKPLUS_BOOT/Torque.properties` is an environment variable.
3. In file `$TRACKPLUS_BOOT/Torque.properties` where `$TRACKPLUS_BOOT/Torque.properties` is a Java system property (`JAVA_OPTS="-DTRACKPLUS_BOOT=..."`).
4. In file `webapps/<context name>/WEB-INF/Torque.properties`.

The following is an excerpt of a `Torque.properties` file.

```
...
# !!! THIS USER WITH THIS PASSWORD HAS TO BE KNOWN BY YOUR
#      DATABASE SYSTEM !!!

torque.dsfactory.track.connection.user = trackp
torque.dsfactory.track.connection.password = tissi
# 1) Firebird on Windows systems
torque.database.track.adapter=firebird
torque.dsfactory.track.connection.driver = org.firebirdsql.jdbc.FBDriver
torque.dsfactory.track.connection.url =
    jdbc:firebirdsql://localhost/D:/Data/trackdata/track.gdb
# 2) Firebird on Unix
...
```

The user name and password must match the respective entries you used for the database. The JDBC driver and connection URL also depend on your database name and type. There is an example in the default `Torque.properties` file for each supported database type, most of which are commented out. Enable the lines pertaining to your database type, and comment out the others.

After changing any of the settings in `Torque.properties` the servlet container Tomcat or your application server has to be restarted for the changes to take effect.

7 Servlet Container

This chapter describes how to setup an empty database for Allegra for the database systems officially supported. Furthermoree it explains how to install Allegra in various servlet or application containers.

Apache Tomcat on Ubuntu (Debian)

Please refer to Chapter 3 on page 12 for detailled instructions.

Apache Tomcat on Windows

Installation of the Windows version of Tomcat is straightforward and doesn't require any special skills as long as Tomcat is run stand alone. You may have to set the $JAVA_HOME environment variable to the location where you installed the Java SDK, either in the Tomcat startup scripts or in the Windows System Control panel.

On Windows, you also have to set the memory settings appropriately. If you are starting Tomcat as a service, there is a utility that comes with Tomcat accessible from your Windows Start menu as "Configure Tomcat". Go to the tab named "Java" and configure in the bottom part of the screen the

- Initial memory pool (to 512 MByte)
- Maximum memory pool (to 512 MByte or more)

In addition, you should set the PermSize, which you can do by entering the following two lines at the end of the "JavaOptions" text field in the Tomcat configuration screen:

```
-XX:MaRAM1024m
-DTRACKPLUS_BOOT=C:\Program Files\Trackplus"
-DJENKINS_HOME=C:\Jenkins''
```

Watch that you do enter these each on an extra line, and watch that you don't have extra white-space at the end or elsewhere.

Sometimes port 8080 is already used by some other server on your computer. Select a different port then for Tomcat, such as 80. You can configure this in the `server.xml` file in the Tomcat `conf` directory.

In the following it is assumed that Tomcat has been installed under $TOMCAT_HOME. For a Windows based system this is at `C:\Program Files\ Apache Software Foundation\Tomcat 8.0`.

To install the Allegra application change to the $TOMCAT_HOME\webapps directory:

```
cd $TOMCAT_HOME\webapps
```

Copy the `track-v.war` file of this distribution into the `$TOMCAT_HOME\webapps` directory and rename it to `track.war`.

Start the Tomcat servlet container using the Windows Tomcat startup batch file **$TOMCAT_HOME\bin\startup.bat** or the „Configure Tomcat" utility. Tomcat now unpacks the **track.war** file into a directory **$TOMCAT_HOME\webapps\track**. Allegra will not run yet since we still have to configure the database connection. So it is best to stop Tomcat again before we proceed, either using the "Configure Tomcat" utility or with

```
$TOMCAT_HOME\bin\shutdown.bat
```

Now proceed with section 6.8 on page 29 to configure the database connection.

Integrating Apache Tomcat with IIS

You can run Tomcat behind an Internet Information Server (IIS). Make sure you have

- a running instance of a Microsoft Windows 2008 R2 Server with IIS installed
- Java 2 Standard Edition Developer Kit JDK 1.7 or later
- Apache Tomcat 8.0 or later
- Apache Tomcat Web Server Connector JK2 for IIS (from the Apache download site).

Make sure you have the JDK and Tomcat installed before you proceed, using the installers provided.

Then follow the instructions at this place.

Oracle WebLogic

Oracle WebLogic is a commercial application server. You deploy and run Allegra well on Oracle WebLogic. You can deploy Allegra in either exploded or unexploded mode using the **track-v.ear** file.

You cannot easily use the **track.war** file directly due to classpath loader issues in WebLogic!

To install Allegra on Oracle WebLogic you have to first extract the **track.war** file contained in **track-v.ear**:

```
jar -xvf track-v.ear track.war
```

You now have a **track.war** file in the same directory as the **track.ear** file. Extract file **WEB-INF/Torque.properties** from the **track.ear** file:

```
jar -xvf track.war WEB-INF/Torque.properties
```

Change to directory **WEB-INF** and modify the **Torque.properties** file as described further down in section 6.8. Basically, this configures your database connection. Thereafter you jar everything back together:

```
jar -uvf track.war WEB-INF/Torque.properties
jar -uvf track-v.ear track.war
```

You can now deploy the application using the standard Oracle WebLogic deployment procedure. You have to set the attachment directory on the server configuration page (see section 5.5 on page 23) when using Oracle WebLogic. Otherwise attachments may not work properly or you will loose all attachments once the server is stopped.

IBM Websphere

IBM Websphere is a commercial application server. You deploy and run Allegra well on IBM Websphere. You can deploy Allegra in either exploded or unexploded mode using the `track-v.ear` file. Two things you need to be aware of:

- Make sure you have a JDK 1.7 or later installed. The default coming with the application server might be older.
- You need to enable the option `EnableChildFirstClassLoading` in file `WEB-INF/conf/axis2.xml`:

```
...
<parameter name="hotupdate">false</parameter>
<parameter name="enableMTOM">false</parameter>
<parameter name="enableSwA">false</parameter>
<!-- Remove comment from the following line only for IBM Websphere! -->
<parameter name="EnableChildFirstClassLoading">true</parameter>
...
```

Furthermore you need to make sure that Allegra classes are loaded first. You need to go to `Application Types` > `WebSphere enterprise applications` > `Select your app` > `Manage modules` > `select your app from Module column` > `Class loader order combo box` and there select: Classes loaded with local class loader first (parent last).

WildFly

WildFly (former JBoss) is a popular Java application server. You can obtain it from the JBoss download site.

Follow the instructions of installing JBoss. In particular, adapt the $JAVA_HOME variable in the JBoss startup scripts to the path where you had installed your Java SDK. Make sure that the ports you want to serve on aren't being used by another (web) server on your machine.

To install Allegra you have to unjar the `track-v.war` file and modify the `Torque. properties` configuration files as described further down in section 6.8. Thereafter you jar it again to a file `track.war` and copy it to the JBoss deployment directory. If you have properly installed your RDBMS Allegra should be ready to use.

Alternatively, you could use the `track-v.ear` file for deployment. Look at the description for the Oracle WebLogic server for instructions on how to do this.

You have to set the attachment directory on the server configuration page (see section 5.5) when using JBoss. Otherwise you will loose all attachments once your JBoss server is stopped.

File System Configuration in Clustered Environment

When working in a clustered environment in Solaris or Linux, you must mount the file system repository before you start the Allegra installation process. Note that the mount to the file system repository should not use any cache mechanisms.

To mount a file system repository in Linux with NFS mounts, modify the `/etc/fstab` file as follows:

```
<source> <target> nfs sync,noac 0 0
```

To mount a file system repository with SMBFS mounts from a Windows machine, modify the `/etc/fstab` file as follows:

```
<source> <target> smbfs
credentials=/root/.smbpasswd,rw,gid=<GID>,uid=<UID>,
fmask=0777,dmask=0777 0 0
```

For example:

```
//tpserver/TPrepository /mnt/TPrepository smbfs
credentials=/root/.smbpasswd,rw,gid=10,uid=tpadmin,
fmask=0777,dmask=0777 0 0
```

Where: `//tpserver/TPrepository` is the UNC of the source path `uid=tpadmin` is a domain user. Note that tpadmin must be a user on the Windows server and must belong to the Administrators group.
`/mnt/TPrepository` is the local folder.

The tpadmin in this example must be defined in the credential file (`/root/.smbpasswd`) as follows:

```
username = tpadmin
password = <tpadmin-password>
```

You must also edit the `/etc/samba/smb.conf` file and change the workgroup value to a domain name (for example: TRACKPLUS).

To mount a file system repository in Solaris with NFS mounts, modify the `/etc/ vfstab` file as follows:

```
<source> - <target> nfs - yes sync,noac
```

Deploying several Allegra Instances in one Tomcat

You can deploy more than one Track+ instance in the same servlet container. In this case it is not possible anymore to pass `TRACKPLUS_HOME` via the environment since it would be the same for all Allegra instances in that container and things would get mixed up badly.

To mitigate this problem you put a specific `Torque.properties.INST` file in the `webapps` directory. "`INST`" you need to replace with the base name of your WAR file. For example, if you want to run three instances `track-1`, `track-2`, and `track-3`, you also would have three files `Torque.properties.track-1`, `Torque.properties.track-2`, and `Torque.properties.track-3`. Each of these files has to point to the proper database and to the proper `TRACKPLUS_HOME` directory. The latter is defined via property

```
...
TRACKPLUS_HOME=absolute path to directory
...
```

8 Integrations

Overview

You can integrate other web based applications with Allegra such that you can switch between them via the Allegra menu bar. The following applications are currently supported directly:

- Jenkins continuous integration server (http://www.jenkins.org). Jenkins is very useful if you are developing any kind of software.
- SonarQube, a quality improvement tool for software development. Integrated bug finding and code coverage tools help you to prevent bugs early in the development cycle and generate code that is robust and easy to maintain (http://www.sonarqube.org).
- ViewVC, a browser for Subversion repositories. You can link Allegra items with Subversion repositories and directly move from an item to the corresponding revision or file. Allegra even puts some access control on top of ViewVC so that users can only see repositories they have a Allegra permission for (http://www.viewvc.org).
- WebSVN, another browser for Subversion repositories. Here too you can link Allegra items with Subversion repositories and directly move from an item to the corresponding revision or file. Allegra puts some access control on top of WebSVN so that users can only see repositories they have a Allegra permission for (http://www.websvn.info).

Furthermore, there is software Allegra can use or cooperate with for various tasks:

- LATEXfor creating beautiful reports (http://www.miktext.org).
- Eclipse Mylyn, to work with Allegra directly from within Eclipse
- JasperSoft Studio, to create report templates

Installing the Portal Plug-In

To integrate web based applications into Allegra download the `Portals` plug-in from our web site. The file is called `portals-x.y.z.tpx`. Then proceed as follows:

1. Copy `portals-x.y.z.tpx` to `TRACKPLUS_HOME/plugins` and restart the server.
2. Under `TRACKPLUS_HOME/plugins/portals-x.y.z` there is a file called `trackplus-plugin.xml`. It looks like this:

```
<trackplus-plugin id="trackplus.plugin" name="PortalPlugin">
         <plugin-info>
                 <description>Portal plug-in</description>
                 <version>5.0</version>
                 <application-version min="5.0" max="10.0"/>
                 <vendor name="Steinbeis - Trackplus" url="https://www.trackplus.com"/>
        </plugin-info>

        <!--  ${SERVER} will be replaced by the Track+ server base URL  -->
        <!--  including the protocol. You can also use a fixed URL like -->
        <!--  https://www.yourdomain.com                                -->

        <module id="jenkins"
                name="Jenkins"
                iconCls="jenkinsApp"
                useHeader="true"
                description="Jenkins integration"
                url="${SERVER}/jenkins"/>

        <module id="websvn"
                name="Subversion"
                iconCls="websvnApp"
                useHeader="true"
                description="Subversion repository browser"
                url="${SERVER}/websvn"/>

        <module id="sonar"
                name="Sonar"
                iconCls="sonarApp"
                useHeader="true"
                description="SonarCube Quality Assurance"
                url="${SERVER}/sonar"/>
</trackplus-plugin>
```

Edit this file to match your installation. Make sure you use the same protocol (http or https) on all servers.

3. For some applications note the remarks in the specific sections below.

Jenkins

For Jenkins it is best to have the same user names and passwords on the Jenkins and on the Allegra server. This can be ensured by using LDAP authentication on both systems.

WebSVN

Allegra calls WebSVN to show linked revisions and files directly from the cockpit or single items. To enable this behaviour you need to patch WebSVN. In the `TRACKPLUS_HOME/plugins/portals-x.y.z` directory there is a file called `config.php`. On a Debian or Ubuntu Linux Server copy this file to `/etc/default/websvn`.

ViewVC (deprecated)

Allegra calls ViewVC to show linked revisions and files directly from the cockpit or single items. To enable this behaviour you need to patch ViewVC.

1. Remove all repository entries from `/etc/viewvc/viewvc.conf`.
2. Replace files `/usr/lib/viewvc/lib/config.py` and `/usr/lib/viewvc/lib/viewvc.py` with the versions from `TRACKPLUS_HOME/plugins/portals-x.y.z`. The location of the original files depend on your server configuration. You may have to search for these files using `find / -name viewvc.py`.
3. You can adapt the templates to improve the visual appearance.

SonarQube

For SonarQube it is best to have the same user names and passwords on the SonarQube and on the Allegra server. This can be ensured by using LDAP authentication on both systems.

Single Sign On with Allegra User Database

For smaller installations it can be convenient to use the Allegra user database as a source for single sign on (SSO) configurations rather than providing a central single sign on server. For example, you can use Allegra and Jenkins and you have to login just once.

The installer will configure everything in preparation for this use case. Manually you need to proceed as follows:

1. In `TOMCAT_DIRECTORY/conf/server.xml` please add the following code in the "Engine" section:

```
...
<Engine name="Catalina" defaultHost="localhost">
    ...
    <Realm className="com.aurel.track.realm.TrackJDBCRealm"
                 connectionURL="[JDBC_CONNECTION_URL]" driverName="[DB_DRIVER]"
                 userCredCol="passwd" userNameCol="loginname" userTable="TPERSON"/>
    ...
```

2. Right below this entry add or enable the single sign on valve:

```
...
    <Valve className="org.apache.catalina.authenticator.SingleSignOn"/>
...
```

where the JDBC connection parameters are those found in `TRACKPLUS_HOME/Torque.properties`. Here is an example for a MySQL database:

[JDBC_CONNECTION_URL]: `jdbc:mysql://localhost:3306/track?user=trackp&password=tissi&autoReconnect=true`

[DB_DRIVER]: `org.gjt.mm.mysql.Driver`

3. In TOMCAT_DIRECTORY/conf/web.xml add the following code below the other similar entries:

```
<servlet>
    <servlet-name>Login</servlet-name>
    <servlet-class>com.aurel.track.login.Login</servlet-class>
</servlet>
```

4. Also in TOMCAT_DIRECTORY/conf/web.xml add the following code at the end of the file:

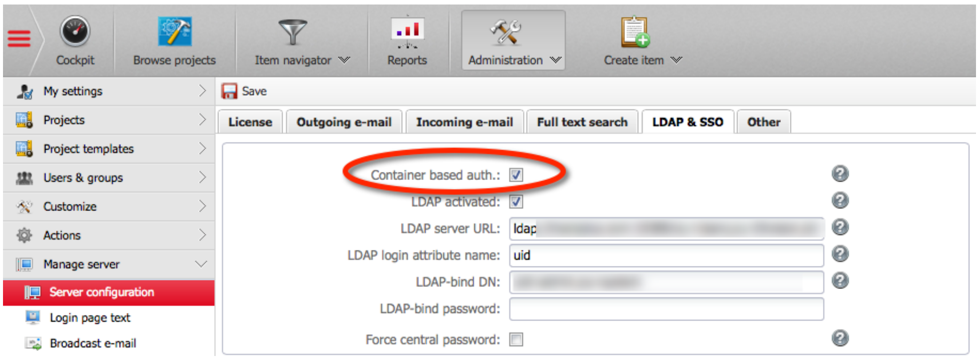
```
<servlet-mapping>
    <servlet-name>Login</servlet-name>
    <url-pattern>/sso/login</url-pattern>
</servlet-mapping>

<security-constraint>
    <web-resource-collection>
        <web-resource-name>all</web-resource-name>
        <url-pattern>/*</url-pattern>
        <http-method>GET</http-method>
        <http-method>POST</http-method>
    </web-resource-collection>
    <auth-constraint>
        <role-name>admin</role-name>
    </auth-constraint>
    <user-data-constraint>
        <transport-guarantee>NONE</transport-guarantee>
    </user-data-constraint>
</security-constraint>

<login-config>
    <auth-method>FORM</auth-method>
    <form-login-config>
        <form-login-page>/sso/login?success=true</form-login-page>
        <form-error-page>/sso/login?success=false</form-error-page>
    </form-login-config>
</login-config>
```

5. Copy the folder `trackSSOLogin` from `TRACKPLUS_HOME/sso` into `TOMCAT_DIRECTORY/conf/`. Do not rename or modify this folder in any way.
6. Copy file `TRACKPLUS_HOME/sso/com.trackplus.sso-x.y.z.jar` into `TOMCAT_DIRECTORY/lib` directory.
7. Only for Jenkins please open `TOMCAT_DIRECTORY/webapps/jenkins/WEB-INF/web.xml` and search for `<login-config>`. Remove this block or comment it out using the symbols: `<!-(start comment) -->(end comment)`
8. Restart your Tomcat.

Finally you need to enable container based authentication for Allegra and Jenkins (or any other application you like to integrate).



Container based auth.: ☑

LDAP activated: ☑

LDAP server URL: ldap [redacted]

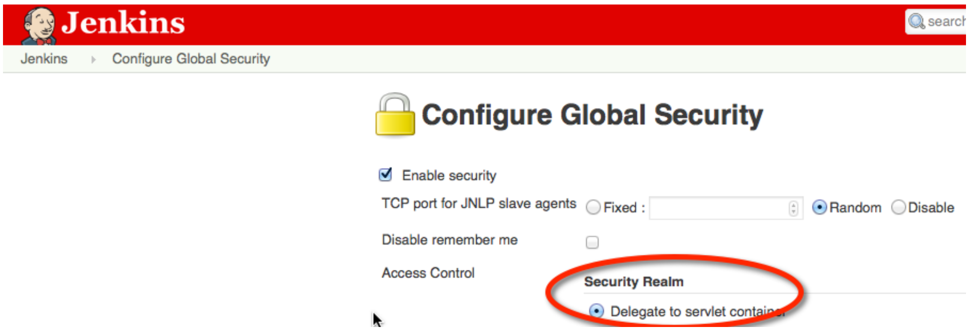
LDAP login attribute name: uid

LDAP-bind DN: [redacted]

LDAP-bind password:

Force central password: □

Figure 8.1: Configuring CBA in Allegra



Configure Global Security

☑ Enable security

TCP port for JNLP slave agents ○ Fixed : ● Random ○ Disable

Disable remember me □

Access Control

Security Realm

● Delegate to servlet contain

Figure 8.2: Configuring CBA in Jenkins

Integrating Apache Tomcat with IIS

Tomcat can run behind an MS Internet Information Server. To configure such a setup, make sure you have

- a running instance of a Microsoft Windows 2008 R2 Server or up with IIS installed
- Java 2 Standard Edition Developer Kit JDK 1.8.0 or later
- Jakarta Tomcat 8.5 or later
- Jakarta Tomcat Web Server Connector JK2 for IIS (from the Apache download site).

Make sure you have the JDK and Tomcat installed before you proceed, using the installers provided.

Then follow the instructions at this place.

9 Upgrading Allegra

This chapter describes how to upgrade an existing Allegra installation to a newer version. We consider two cases:

- Upgrading an installer based installation
- Upgrading a manual installation

Upgrading an Installer Based Installation

To upgrade an installer based installation just execute the new installer. The standard database types are supported:

- Firebird
- MySQL
- MS SQLServer
- Oracle
- DB2
- Postgres

Upgrading a Manual Installation

To upgrade a manual installation proceed as follows:

1. Note the directory where you store the attachments. We call this `TRACKPLUS_HOME`.
2. Stop the Tomcat server.
3. If there is no file `Torque.properties` in your `TRACKPLUS_HOME` directory, copy it there from `...webapps/track/WEB-INF/Torque.properties` to `TRACKPLUS_HOME`.
4. Remove directory `...webapps/track`.
5. Replace file `...webapps/track.war` by the new version.
6. Check that the Tomcat JVM parameters include an entry `-DTRACKPLUS_HOME=<dir from step 1>`
7. Start the Tomcat server.

Have a look at the Tomcat log files and make sure there were no errors.

10 Trouble Shooting

Possible Conflicts with Competing Web Servers

If on first startup you do not get the login screen, there may be another web server already running on port 80 and 8080 of your system.

Competing web servers could have been installed for example as part of Windows Server, Visual.NET, or some other development software. Also known to cause problems are servers that have Oracle installed on them. Oracle might install its own web server on port 80 and 8080. Skype can also block these ports.

To get Allegra running in such a case, you should either shut it down, or deploy Allegra with it. Alternatively you could change the default port in file server.xml of the Tomcat server (by default installed under `C:\Program Files\Apache Software Foundation\Tomcat 8.0\conf`) from 8080 to some other number. In this case you have to enter the port number as part of the URL where you access Allegra , like http://localhost:7080/track instead of http://localhost/track.

Potential Problem on Windows 2003 Server

The Allegra installer runs itself an installer for the Firebird database management system. There is a known problem with this installer on Windows 2003 Server Systems.

To solve this problem download the Firebird installer yourself and run it manually. Then have a look at the Allegra forum for an up to date work around to get the database server up an running.

Thereafter run the Allegra installer again.

Possible Problems on 64-Bit Windows Systems

On a 64-bit system, also make sure that you have a 64-bit Java installed, and that your JAVA_HOME variable points to the 64-bit version. If you have an older 32-bit version uninstall that first.

Installation Problem Debugging

The installer writes a log file in the same directory from which you executed the installer. This log file contains a lot of hints in case something should have gone wrong.

Runtime Troubleshooting

To effectively analyze runtime problems, it is helpful to increase the number of log messages being written to the application servers log and to the Allegra log window. You can set the logging level as administrator via “Administration > Logging configuration”. You can view the log messages via “Administration > Server status’ on the “Log” tab.

11 Uninstalling Allegra

Uninstalling Allegra from Windows (Installer)

When Allegra was installed using the Windows installer, several packages have been installed and need to be removed for a complete uninstall:

- Allegra itself
- Firebird database server
- Apache Tomcat servlet container
- Graphviz package

The following describes the procedure how to uninstall Allegra when it was installed using the Windows installer. Go to the Windows System Control page.

Select the „Software“ icon and select Allegra : „remove“.

The remove will not remove the data that you have accumulated with Track. If you want to remove all data, manually remove the Allegra installation directory, which is typically `C:`
`Program Files`
`Allegra` .

If you are not using the Firebird database server for anything else, remove it using the „Software“ icon as described above for Allegra .

If you are not using Apache Tomcat for anything else, remove it using the „Software“ icon as described above for Allegra .

If you are not using the Graphviz package for anything else, remove it using the „Software“ icon as described above for Allegra .

This will remove all registration entries and files that have been placed on your computer by Allegra .

Uninstalling Allegra from Windows

If you have not used the installer for a Allegra installation on Windows, the procedure to remove Allegra depends on the type of application server and database server you have been using. The following items have to be removed, unless you are using them for anything else as well:

- Allegra itself
- Database server
- Servlet container or application server
- Graphviz

Allegra itself consists of

- the applications WAR or EAR file in the **`webapps`** directory of your servlet container
- the expanded directory for Allegra in the **`webapps`** directory of your servlet container
- the attachment and indexing files

The attachment and indexing files can reside anywhere on the disk, you would have to check on the Administration-Server Admin. dialog for the paths of these directories.

Uninstalling Allegra from Unix

The uninstall procedure for Allegra from a Unix system depends the database server and servlet container you have been using for Allegra . The following items have to be removed, unless you are still using them for something else:

- Allegra itself
- Database server
- Servlet container or application server
- Graphviz

Allegra itself consists of

- the applications WAR or EAR file in the **`webapps`** directory of your servlet container
- the expanded directory for Allegra in the **`webapps`** directory of your servlet container
- the attachment and indexing files

The attachment and indexing files can reside anywhere on the disk, you would have to check inside Allegra under menu entry the Administration→Server Admin. for the paths of these directories.

allegra

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