



# Argus installation and administration



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# 1. Introduction

## 1.1 Purpose of the document

This document describes how to install, manage and maintain the Argus IT solution for public health surveillance. It is intended for non-technical people.

Some important steps related to network configuration are just mentioned and not covered in detail, they need to be performed by technical people with appropriate qualifications.

A section intended to be used by more technical people such as developers explains how to customize the solution (e.g. new language, new logo).

A detailed technical description of the Argus components is available in the “Argus architecture” document.

## 1.2 Solution overview

### 1.2.1 Purpose of the tool

The World Health Organization has developed Argus, an open source IT tool to support public health surveillance for early detection and response. It uses Short Message Service (SMS) technology for the transmission of information between the local healthcare facilities and all levels of the public health surveillance system via a mobile application (Figure 1). A web platform complements the application for data management and analysis (Figure 2).

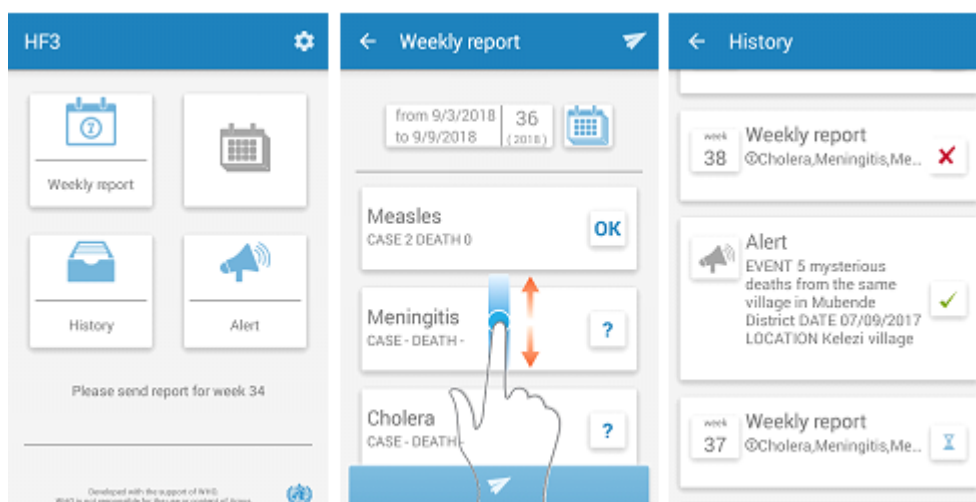
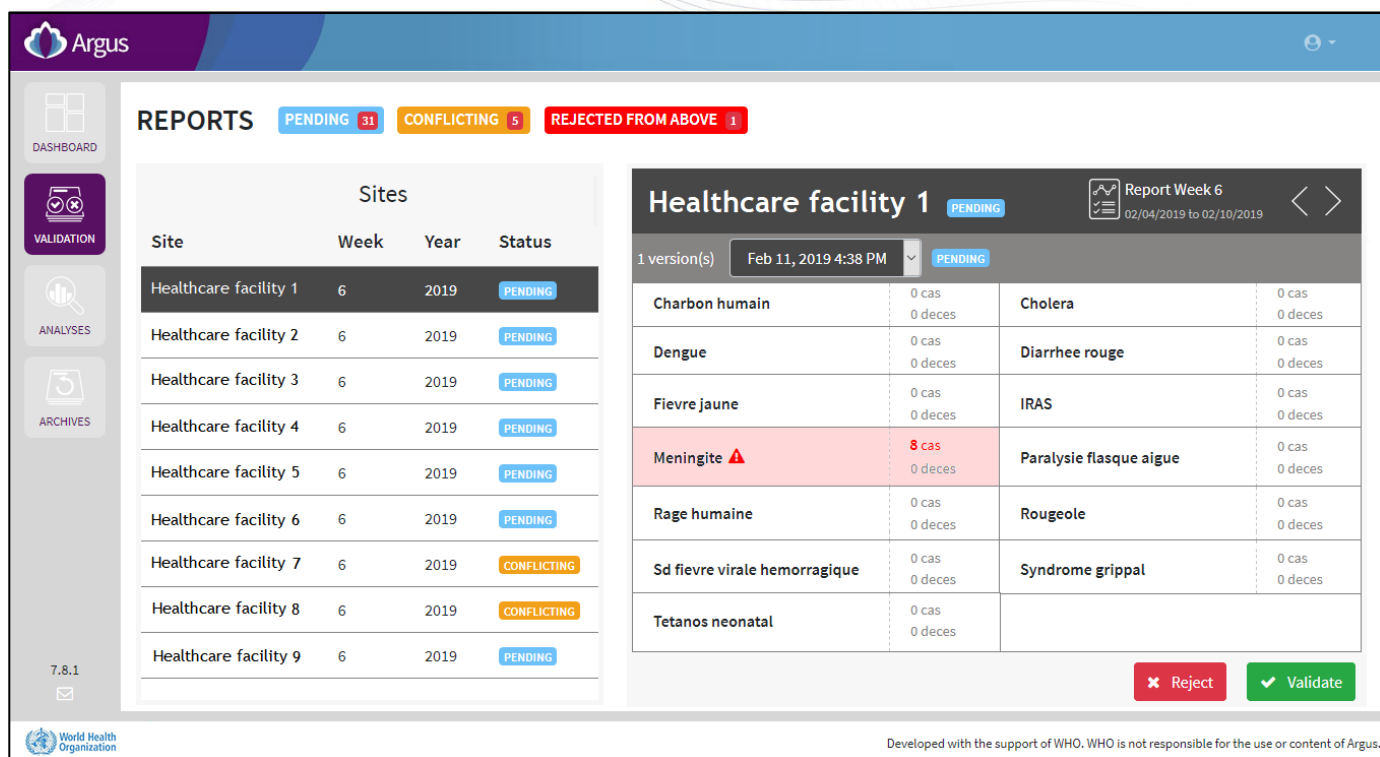


Figure 1. Argus Android Client for mobile phones





**Figure 2. Argus web platform**

Argus improves routine reporting quality and speed by reducing dependency on paper forms. It allows administrators to easily set up the public health events to be under surveillance, the variables to be collected, and the different levels of the public health surveillance system in charge of data validation and data analysis.

Argus is mainly designed to manage aggregated weekly reports of priority public health events. It also manages aggregated monthly reports of public health events, and alerts of unexpected public health events.

In practice, a central server located in the country collects the data sent by the healthcare facilities through SMS. The central server returns SMS to the healthcare facilities to acknowledge the reception of the data and posts the information on the internet through the Argus web platform for data management and analysis. When an alert of an unexpected public health event is received, this alert is forwarded to the personal mobile phone of a pre-specified list of contacts.

## 1.2.2 Technical components

At a technical level, Argus is composed of several components:

- ▶ A custom **Argus Android Client application** to be installed on Android mobile phones to be used by healthcare facilities to send alerts and reports to the system through SMS.
- ▶ An **Argus Android Gateway application** to receive the alerts and reports through SMS and share them with the Argus server.



► A server Argus composed of several components:

- An Argus Server web application in charge of managing all incoming and outgoing SMS. It provides a **monitoring web interface**: <http://localhost/ses>.
- An Argus Dashboard web application in charge of the system configuration and data management, it provides an **administrative web interface** on <http://localhost/sesDashboard/web>, and put online the **Argus Web Platform**: [http://ip\\_address/argus](http://ip_address/argus) available for the user to visualize, manage and analyse the data sent by the healthcare facilities.
- An instance of the R statistical software produces on a regular basis one administrative and one epidemiological dashboard to monitor the performance of the public health surveillance system and the epidemiological situation.
- An Argus Monitoring application in charge of the system monitoring and of the synchronization between Argus Server web application and Argus Dashboard web application.

Argus is released with a GNU-AGPL3 license, it uses other components released with a compatible license.

Detailed description of the technical components is available in the “Argus architecture” document.

## 2. Installation of Argus server

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### 2.1 Prerequisites

Argus has been tested on the following operating systems: Windows 7, Windows 8.1, Windows 10, Windows server 2012 R2.

Minimum hardware requirements needed for the ARGUS server Windows computer:

- Dual Core Processor - 1 GHZ.
- 8 GB RAM.
- Hard Drive - 500 GB.

**Uninstall the following applications** if they have been previously installed: **ARGUS**, **XAMPP**, **Python**. You can use the Windows Control Panel, then choose “Programs and Features” and “uninstall a program”.

**Make sure you don't have another version of XAMPP already installed.**





Check if the path “C:\xampp” exists. If it exists, uninstall XAMPP and make sure the path “C:\xampp” is fully deleted.

## 2.2 Installation

### 2.2.1 Run Argus Installer

Launch the ARGUS Installer executable and follow the steps. Screenshots of the detailed installation process are available in Annexe 1.

- ▶ Execute the ARGUS & Third Party app installer: choose the components to be installed (we recommend installing **all components** even if a component is already installed, just make sure any previous version of XAMPP, Python and Argus have been uninstalled).

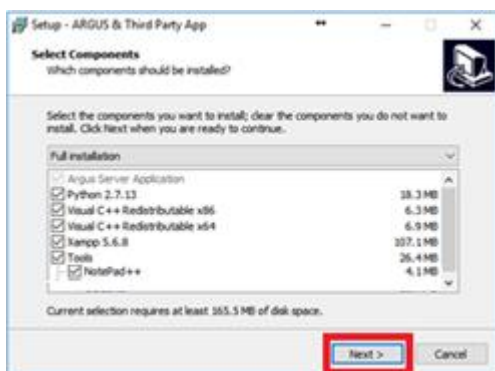


Figure 3. Select components screen Argus installer.

- ▶ XAMPP installation
  - You may see warning messages related to antivirus interference or User Account Control, click “Yes” or “OK” (details in Annexe 1).
  - Make sure to select all components of the XAMPP installation (Figure 4).

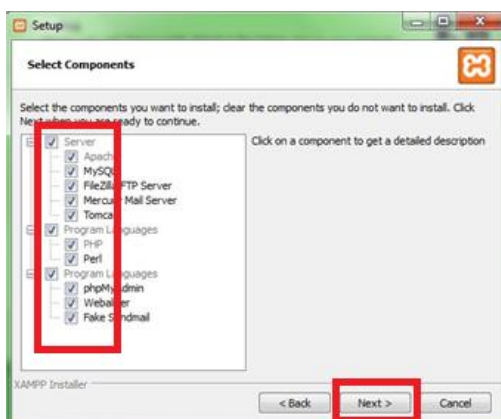


Figure 4. Select components screen of the XAMPP installation.





- Make sure the folder “C:\xampp” is selected as the installation folder (Figure 5).

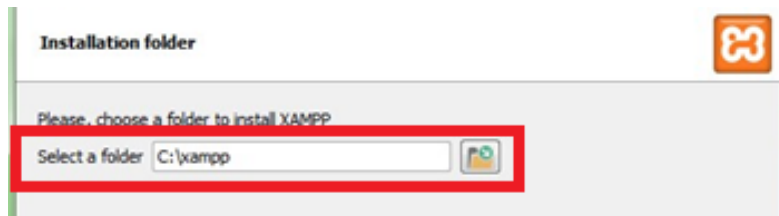


Figure 5. XAMPP installation folder.

- Untick the “Learn more about Bitnami for XAMPP” and “Do you want to start the Control Panel now ?” boxes (details in Annexe 1).
- Python 2.7.13 installation
- Tick “Install for all users”.
  - Select “C:\Python27\” as the installation directory.
- Microsoft Visual C++ installation
- If the Microsoft Visual C++ 2013 was already installed, Click “Repair”.
  - If it is not yet installed, tick the box “I agree to the license terms and conditions” and click “Install”.
- R installation
- Select all components to be installed.
  - Use default startup options.
  - In the “Select Additional Tasks” screen, tick “Save version number in registry” and “Associate R with .RData files” (Figure 6).

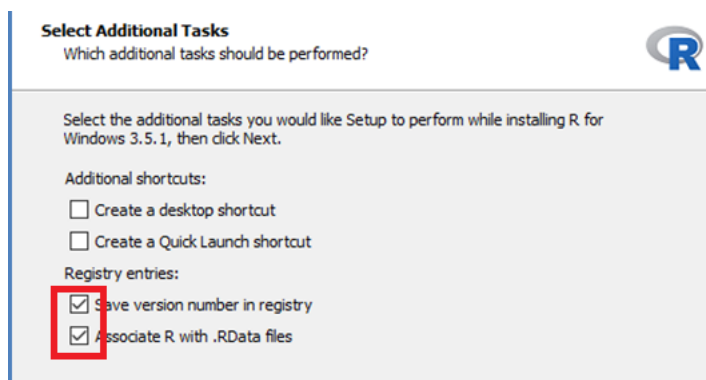


Figure 6. R installation screenshot.



► R tools installation

- Select “C:\Rtools\” as the installation folder location.
- In the “Select Components” screen, tick all components except the last one (“Extras to build R itself”) (Figure 7).
- On the “Select Additional Tasks” screen, tick “Save the version information to registry”.

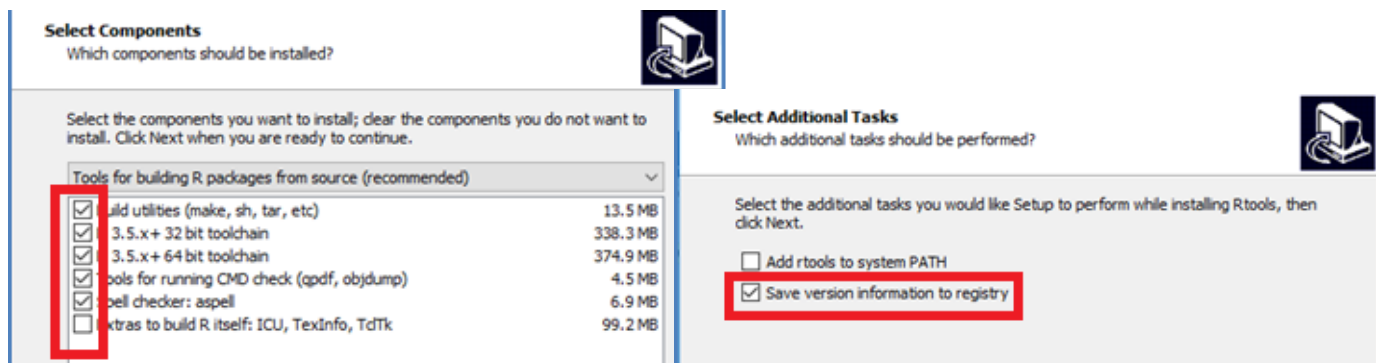


Figure 7. Rtools installation screenshots.

- Pandoc 2.4 installation
- Installation of extra tool (optional): this tool is not necessary to operate Argus but may be useful during the installation process ([Notepad++](#)).

Don't restart the computer if during the installation of the extra tool, you are asked to restart.

- If you install Notepad++, in the “Choose Components” screen, don't tick any box (details in Annexe 1).
- Argus server components installation
- Note that the installation language chosen is just the language used during the installation process, it is not the language that will be used by Argus (this will be set up in section 2.3.1).
  - **Make sure “C:\xampp\” is selected as the destination folder** (Figure 8).
  - The message “The folder C:\xampp already exists. Would you like to install to that folder anyway?” will appear, click Yes.



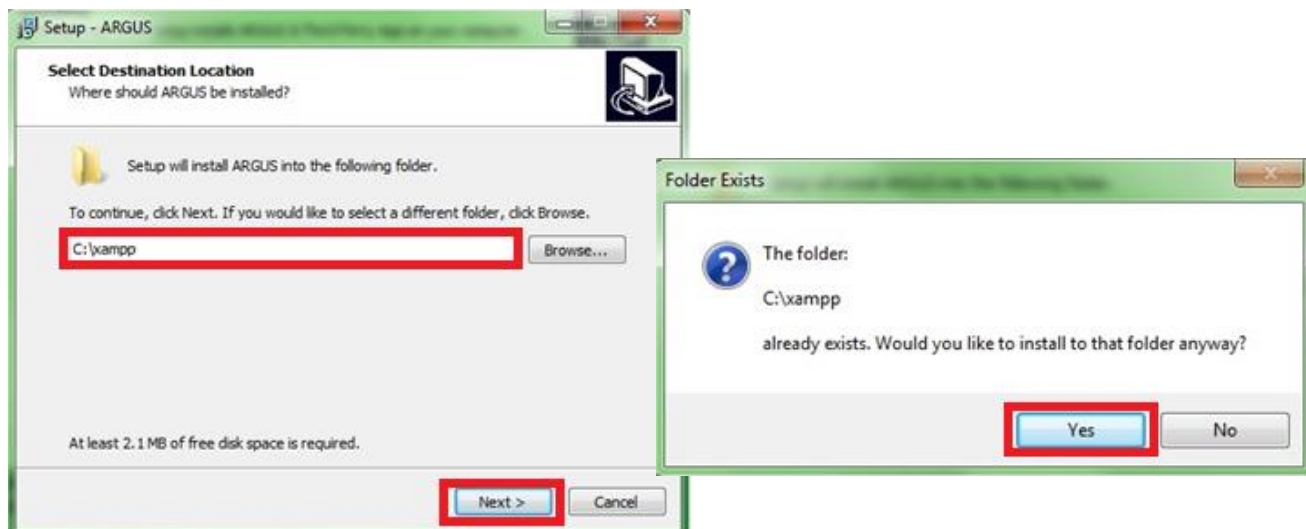


Figure 8. Argus installation folder.

- On the “Select Components” screen, tick all components to be installed (Figure 9).



Figure 9. Select components screen of the Argus installation.

- At the end of the installation tick “Yes, restart the computer now”.
- Restart the computer.
- Tick the box “Yes, restart the computer now” and click “Finish”.

All components have been installed, the server is going to restart.

If you experienced any problems while installing the different components, please restart the server and try to reinstall from scratch.



## 2.2.2 Set up XAMPP configuration

Run the program “XAMPP Control Panel” as administrator by right clicking on the shortcut and selecting “Run as administrator” .

On the XAMPP Control Panel screen (see screenshots of the detailed procedure in Annexe 2):

- ▶ Click on the Red cross behind “Apache” in order to install Apache as a service.
- ▶ Click on the Red cross behind “MySQL” in order to install MySQL as a service.
- ▶ Click on the Start button for starting Apache.
- ▶ Click on the Start button for starting MySQL.
- ▶ Click on the Quit button to close the XAMPP control panel screen (Figure 10).

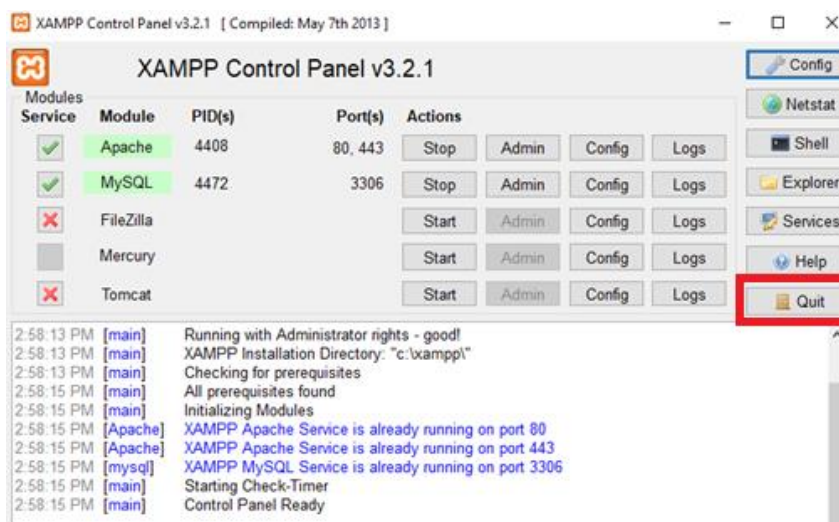


Figure 10. XAMPP control panel screen.

## 2.2.3 Integrate R with Argus

R is a statistical software that will produce on a routine manner two dashboards to be displayed on the Argus web platform: one administrative dashboard and one epidemiological dashboard. Upon installation, some configuration needs to be done to allow R to produce the required dashboards:

- ▶ Install required packages in R:
  - Open the R software.
  - Copy paste the following line into the R console and press enter, this may take up to 30minutes to proceed, be patient:

```
install.packages(list.files("C:/xampp/htdocs/ScriptsR/argus/packages/",  
full.names = T), repos=NULL, type="win.binary")
```

- ▶ Set required constants:



- Open the file « C:\xampp\htdocs\SriptsR\argus\dashboards\config.yaml » with “notepad++”.
- Modify the line below with the name of the country for R to produce the correct maps, write the name as in the file “C:\xampp\htdocs\SriptsR\argus\dashboards\countryNames.csv”.
  - *country: “Switzerland”*
- Only if you changed the database settings, update and save the file “C:\xampp\htdocs\SriptsR\argus\db\db\_config.yaml” with correct database name, host, port number, user name and password.
- Save the file.

## 2.2.4 Set up the scheduled tasks

Argus requires four scheduled tasks to run on a regular basis.

In the folder “C:\xampp\custom\Tasks\”, one installer is available to create each scheduled task. To install the tasks:

- Double click on each installer:
  - ArgusImporter\_Task.exe (task to import the received data into Argus Dashboard web application).
  - ArgusMonitoring\_Task.exe (task to launch Argus monitoring).
  - ArgusScriptR\_Task.exe (task to launch R scripts producing the administrative and epidemiological dashboards).
- For each installation:
  - This will open a command prompt.
  - If you see the message “Do you want to allow this app to make changes to your device?” during the installation process: click “Yes”.
  - Once “Done” is displayed in the command prompt, you can close the command prompt.

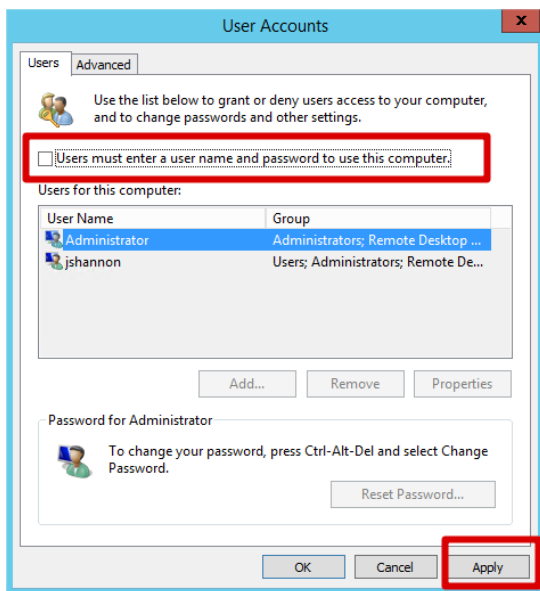
## 2.2.5 Activate autologon

Scheduled tasks need an opened session to run correctly. You can start a session through manual login, or use the autologon functionality to automatically open the session when the computer starts.

To activate autologon (<https://www.networkcomputing.com/networking/how-enable-windows-10-auto-login>):



- ▶ Start the computer and log in to the user session using the correct user name and password.
- ▶ Open the “Run” dialog box:
  - Open the Windows menu and type “Run” on the keyboard to launch the “Run” dialog box.
  - Or just press Windows key + R at the same time.
- ▶ In the “Run” dialog box, enter “netplwiz.exe” then click “Ok”.
- ▶ The “User Accounts” window opens (Figure 13):
  - Select the current user.
  - Un-tick the box “Users must enter a user name and password to use this computer”.
  - Click “Apply”.
  - A window opens and ask you to enter the administrator password to confirm the action.
  - Enter the password, then click “OK”.
- ▶ Close the “User Accounts” window by clicking “OK”.



**Figure 11. User accounts window to activate autologon.**

From now on, the session will be automatically opened when the server restarts.

If the computer uses a user domain password, autologon can't be used. In this case, someone has to manually log in onto the server each time it restarts so that the scheduled tasks, including Argus Monitoring tool, run correctly.





## 2.3 Configuration

### 2.3.1 Set up the language

The default language is English, French is also supported by default.

To add a new language, follow the instructions in section 7.1 before setting up the language.

- ▶ Argus Server web application (**monitoring web interface**: <http://localhost/ses>):

- Open the file « C:\xampp\htdocs\sos\config\globals.php » with “notepad++”
- Modify the following line, replacing “xx” by “en” for English or “fr” for French:
  - `$config[“language”] = “xx”`
- Save the file.

Please note that the language of the system where ARGUS Server web application is installed has to be the same as the language defined in this setting file.

- ▶ Argus Dashboard web application (**administrative web interface**: <http://localhost/sesDashboard/web>, Argus Web Platform: [http://ip\\_address/argus](http://ip_address/argus)):

- Open file « C:\xampp\htdocs\sosDashboard\app\config\parameters.yml » with “notepad++”
- Modify the following line, replacing “xx” by “gb” for English or “fr” for French (be careful to let the space between the semi-colon and the letters):
  - `locale: xx`
- Save the file.
- Open a web browser and go to the administrative web interface: <http://localhost/sesDashboard/web>
  - Log in with the admin credentials:
    - Username: ArgusAdmin
    - Password: !Argus@dmin
  - **Change immediately the admin password afterwards** (see section 5.7.3).





- Once logged in, click on “Configuration” in the “Admin” menu (Figure 14), then on the box “Report Translation” to apply the selected language.

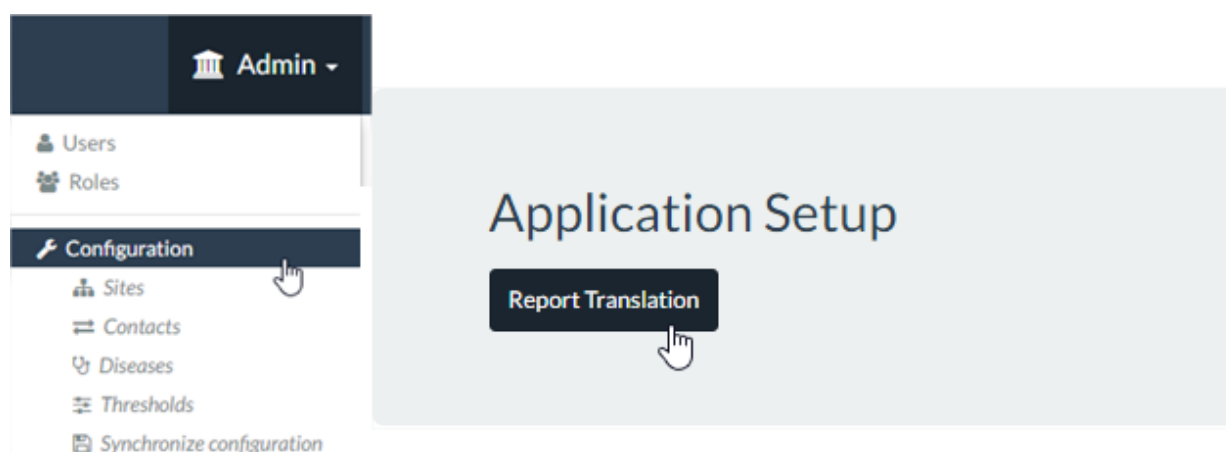


Figure 12. Configuration entry in the Admin menu of Argus Dashboards webpage and Application setup screen.

- Administrative and epidemiological dashboards produced by R:
  - Open the file « C:\xampp\htdocs\SriptsR\argus\dashboards\config.yaml » with “notepad++”
  - Modify the following line:
    - *language: “xx”*
    - Replace xx by **en** for English or **fr** for French (if additional languages, use the same abbreviation as in « C:\xampp\htdocs\SriptsR\argus\dashboards\translations\translations.csv », see section 7.1.3).

### 2.3.2 Set up the time zone

You can modify the time zone of Argus based on the localization of the server.

- Open the file “C:\xampp\htdocs\ses\ressources\config\_mysql.txt” with “notepad++”
- Modify the following line:
  - *default-time-zone = “Europe/Berlin” ;*
  - Replace “Europe/Berlin” by your time zone name.
  - You can find your time zone name on the following website: <http://php.net/manual/en/timezones.php>.
  - Save the file.



### 2.3.3 Set up the first day of the epidemiological week

By default, the first day of the epidemiological week is Monday, to change it replace the figure in the following lines with the correct day: 1=Monday and 7=Sunday:

- ▶ Open the file “C:\xampp\htdocs\sas\config\globals.php” with “notepad++”, and modify the following line:
  - `$config["epi_first_day"] = 1;`
- ▶ Open the file “C:\xampp\htdocs\sasDashboard\app\config\parameters.yml” with “notepad++”, and modify the following line:
  - `epi_first_day: 1`
  - If the value is different from 1 (Monday), you need to perform these additional steps:
    - Open a command prompt.
    - Write “cd c:\xampp\htdocs\sasDashboard” on the command prompt and press enter.
    - Write “php app/console dimdate:generate” on the command prompt and press enter.
- ▶ Open the file « C:\xampp\htdocs\ScriptsR\argus\dashboards\config.yaml » with “notepad++”
  - `weekFirstDay: 1`

### 2.3.4 Configure Argus Server web application

The file « C:\xampp\htdocs\sas\config\globals.php » contains all the configuration parameters of the Argus Server web application.

**If the installation was done following the recommendations of this document, you do not need to modify any setting in this configuration file apart the database configuration entries.**

The monitoring web interface: <http://localhost/sas/> allows the administrator to customize several aspects of the interaction between the Argus Server web application and the Argus Android Client applications (e.g. choose if the system will respond to an unknown user, or modify some acknowledgement messages sent from the server). To modify these settings:

- ▶ Open a web browser and go to the monitoring web interface: <http://localhost/sas/>
- ▶ Click on the “Change settings” link on the left blue banner menu to access the “Application global parameters” page (Figure 15).



- The description of all parameters is provided in Table 1.

This page should rarely be used as the configuration is set up once and for all during initial deployment.

- If changes are applied, click on the box “Save the values” to save the modifications.
- The values of some parameters need to be synchronized with the Argus Android Client applications (see list of these parameters in Table 1 and see section 4.4). If any of these parameters is changed (e.g. maximum length of a SMS), the Argus Android Client applications need to be synchronized again with Argus Server web application so that the changes are taken into account (see section 4.4).

#### Application global parameters

**Warning!** Incorrect configuration can prevent the application from working correctly  
Multiple global keywords can be specified using comma “,”

Parameter	Integer value	String value
Enable Test Mode : Incoming test data are not saved	1: Yes Default=1	No string value for this parameter
Enable Forward Data : Alerts are forwarded to the recipient list	1: Yes Default=1	No string value for this parameter
Respond to an unknown contact	1: Yes Default=1	No string value for this parameter
Respond if the message is malformed	1: Yes Default=1	No string value for this parameter
Enable receiving alerts	1: Yes Default=1	No string value for this parameter
Enable receiving reports	1: Yes Default=1	No string value for this parameter
Enable sending acknowledgement when a report or alert is received	1: Yes Default=1	No string value for this parameter
CSV list of phone numbers connected to the server (international format)	No integer value for this parameter	+XXXXX Default=+XXXXX
Maximum length of the SMS messages sent	155 Default=155	No string value for this parameter
Android App: Delay in minutes and message if the alert confirmation is not received	60 Default=60	The alert was not received. Contact your supervisor Default=The alert was not received. Contact your supervisor
Android App: Delay in minutes and message if the week report confirmation is not received	120 Default=120	The weekly report was not received. Send it back from history Default=The weekly report was not received. Send it back from history
Android App: Delay in minutes and message if the month report confirmation is not received	480 Default=480	The monthly report was not received. Send it back from history Default=The monthly report was not received. Send it back from history
Server: Acknowledge message when alert is received but not forwarded to others contacts	No integer value for this parameter	The alert was not forwarded to your supervisor. Default=The alert was not forwarded to your supervisor, contact her or him
Server: Acknowledge message when alert is received and forwarded to others contacts ** (%1\$d) = Number of contact reached	No integer value for this parameter	Alert was received and forwarded to %1\$d contacts Default=Alert was received and forwarded to %1\$d contacts
Server: Acknowledge message when disease is received ** (%1\$s) = Period ** (%2\$s) = Disease ** (%3\$s) = Start Date	No integer value for this parameter	%1\$s Report for disease %2\$s starting on %3\$s Default=%1\$s Report for disease %2\$s starting on %3\$s was received
Server: Message when alert is forwarded ** (%1\$s) = Site ** (%2\$s) = Contact Phone Number	No integer value for this parameter	Call site %1\$s (%2\$s): Default=Call site %1\$s (%2\$s):
Server: Message when threshold is reached ** (%1\$d) = Threshold max value ** (%2\$s) = Disease ** (%3\$d) = Threshold value reached ** (%4\$s) = Period ** (%5\$s) = Start Date	No integer value for this parameter	Warning! The alert threshold has been reached Default=Warning! The alert threshold has been reached with %3\$d cases of %2\$s the week of %5\$s

Save the values

Figure 13. Monitoring web interface, application global parameters page.

Table 1. Description of the global parameters on the monitoring web interface

Parameter	Description
Enable Test Mode: Incoming test data are not saved	When enabled, incoming data from an Argus Android client where Test data is enabled are ignored and not saved in the database.
Enable Forward Data: Alerts & reports are forwarded to the recipient list	When enabled, alerts are forwarded to the configured contacts assigned to the recipient list.



Parameter	Description
Respond to an unknown contact	Enable the server to reply to an unknown contact.
Respond if the message is malformed	Enable the server to reply to a contact when the incoming SMS is not recognized as an Argus well-formed SMS.
Enable receiving alerts	Enable the reception of Argus SMS alerts.
Enable receiving reports	Enable the reception of Argus SMS reports.
Enable sending acknowledgement when a report or alert is received	Enable the server to send an SMS confirming reception to a contact having sent a report or an alert.
CSV list of phone numbers connected to the server (international format)	CSV list (coma separated) of the modems phone numbers connected to FrontlineSMS (not used, legacy).
Maximum length of the SMS messages sent	Maximum number of characters authorized in a single SMS. SMS could be split into several SMS if more characters need to be sent. <i>Value is synchronized with the Argus Android Client application.</i>
Android App: Delay in minutes and message if the alert confirmation is not received	Delay in minutes and text displayed on Argus Android Client application if an acknowledgement SMS is not received for an alert. <i>Value is synchronized with the Argus Android Client application.</i>
Android App: Delay in minutes and message if the week report confirmation is not received	Delay in minutes and text displayed on the Argus Android Client application if an acknowledgement SMS is not received for a weekly report. <i>Value is synchronized with the Argus Android Client application.</i>
Android App: Delay in minutes and message if the month report confirmation is not received	Delay in minutes and text displayed on the Argus Android Client application if an acknowledgement SMS is not received for a monthly report. <i>Value is synchronized with the Argus Android Client application.</i>
Server: Acknowledge message when alert is received but not forwarded to others contacts	Text of the acknowledgement SMS sent to the Argus Android Client application when an alert has been received but not forwarded to other contacts.
Server: Acknowledge message when alert is received and forwarded to others contacts ** (%1\$d) = Number of contact reached	Text of the acknowledgement SMS sent to the Argus Android Client application when an alert has been received and has been forwarded to other contacts.
Server: Acknowledge message when disease is received ** (%1\$s) = Period ** (%2\$s) = Disease ** (%3\$s) = Start Date	Text of the acknowledgement SMS sent to the Argus Android Client application when a monthly or weekly report has been received.
Server: Message when alert is forwarded ** (%1\$s) = Site	Text of the SMS message forwarded to registered contacts when an alert has been received.



Parameter	Description
** (%2\$s) = Contact Phone Number	
Server: Message when threshold is reached ** (%1\$d) = Threshold max value ** (%2\$s) = Disease ** (%3\$d) = Threshold value reached ** (%4\$s) = Period ** (%5\$s) = Start Date	SMS message sent to the Argus Android Client application when a threshold has been reached. In this case, this SMS replaces the acknowledgment SMS to avoid sending two SMS.

### 2.3.5 Initialize the database

Go to the monitoring web interface:

- Open a web browser (e.g. Mozilla Firefox).
- Go to the monitoring interface: <http://localhost/ses/>
- In the left blue menu, click on the “Setup and Backup” link, the page presented in Figure 11 will appear.
- The message displaying “Fatal error from the application” is normal at this step as the database is still missing.

**Application setup and maintenance**

**Warning!** Some maintenance operations can delete all the data stored!

**Maintenance operations**

Fatal error from the application (ARGUS v7.5.0 - 14/08/2018)  
Function : getDatabaseUpdateFolders  
Line : 212  
File : C:\xampp\htdocs\sas\tools\initialization\_functions.php  
Message : ERROR MySQL: Can't connect to database (Error\_BDD\_open : mysqli\_real\_connect error 1049 (Unknown database 'argus'))

Description	Action
Make a local backup of the MySQL database	<input type="button" value="Backup"/>
Delete all received dashboard data <b>ALL THE DATA WILL BE DELETED!</b>	<input type="button" value="Clean"/>
Delete all Argus Gateway devices	<input type="button" value="Clean Argus Gateway devices"/>
Application initialization: <b>ALL THE DATA WILL BE DELETED!</b>	<input type="button" value="Initialize"/>

**Figure 14. Setup and backup page on the monitoring web interface.**

It is possible to create an empty database or to restore a backup of an old database.

- Create an empty database:
  - On the “Application setup and maintenance page” (Figure 11) click on “Initialize” next to “Application initialization” and confirm your choice.
  - This will create and initialize a database for Argus.



It can take from **few minutes to one hour** to create the database, so please wait until the page reloads and displays results of Argus initialization.

- The message “Fatal error from the application” (Figure 11) must have disappeared.

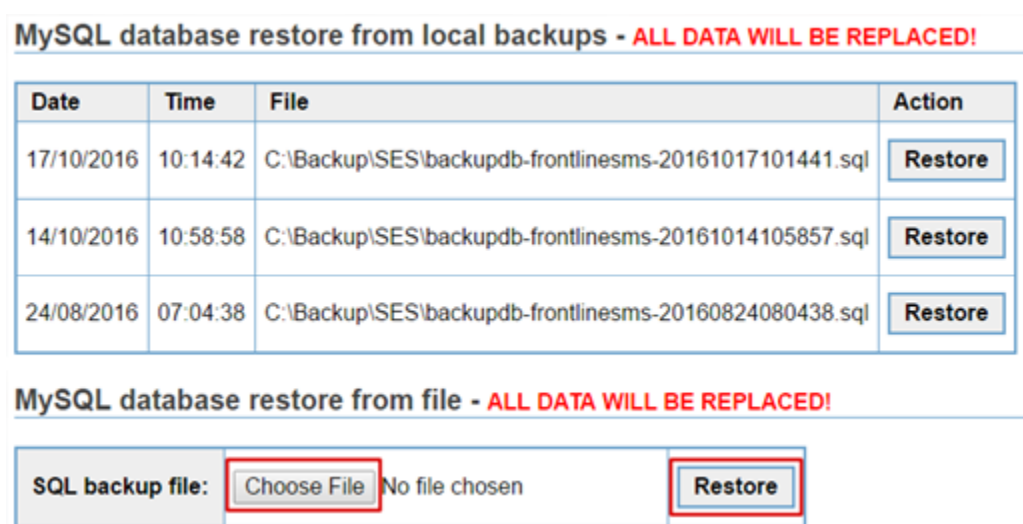
Once you have created the database, restart the computer.

► Restore an existing database

- To restore from the backup folder, click on the “Restore” button below the “MySQL database restore from local backup” section on the same page (Figure 12).
- To restore a backup from another location, choose the file by clicking on “Choose File”, then click on “Restore” below the “MySQL database restore from file” section (Figure 12).

Be careful that the existing database is compatible with the Argus version installed (information on the version installed appears on the top of the blue banner in the administrative web interface).

- Once the backup is restored, click on the “Update” button under the “Maintenance operations” section (last item), and confirm. A message at the top of the page should state that the current version of the database schema is the same as the application version, with no update needed.



**MySQL database restore from local backups - ALL DATA WILL BE REPLACED!**

Date	Time	File	Action
17/10/2016	10:14:42	C:\Backup\SES\backupdb-frontlinesms-20161017101441.sql	<button>Restore</button>
14/10/2016	10:58:58	C:\Backup\SES\backupdb-frontlinesms-20161014105857.sql	<button>Restore</button>
24/08/2016	07:04:38	C:\Backup\SES\backupdb-frontlinesms-20160824080438.sql	<button>Restore</button>

**MySQL database restore from file - ALL DATA WILL BE REPLACED!**

SQL backup file:  No file chosen

Figure 15. Restore an existing database on the monitoring web interface.

### 2.3.6 Configure Argus Dashboard web application

You need to set up the list of: sites, contacts, diseases to be reported, thresholds for specific diseases and variables, users, roles and permissions.



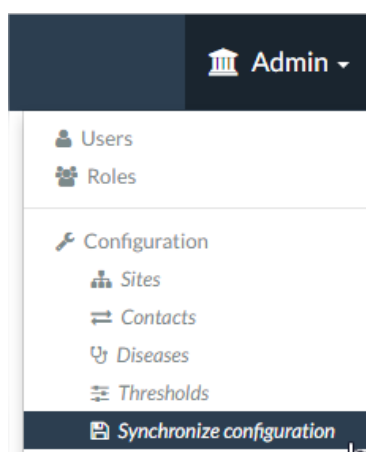


All this configuration can be done on the Argus Dashboard webpage through the upload of XML configuration files or manually through the user interface:

- ▶ Open a web browser and go to the administrative interface: <http://localhost/sesDashboard/web> .
- ▶ **Log in with the administrator account** (see section 2.3.1).
- ▶ Through the admin menu (Figure 16), you can configure the sites, contacts, diseases, thresholds, users and their roles:
  - The folder “C:\xampp\custom\ArgusConfiguration” contain all XML configuration files that can be uploaded to set up a demo configuration.
  - Refer to section 5 for detailed instructions on how to set up the sites, contacts, diseases and variables, thresholds and users manually using the user interface.

When importing XML configuration files, if an error page appears with “Error 500”, delete the folder: “C:\xampp\htdocs\seseDashboard\app\cache” and restart the computer.

- ▶ Once you made your modifications to the configurations, go to the “Synchronize configuration” menu and click on the “Save” button (Figure 17). Don’t change the path: “C:\xampp\htdocs\argus-r\sese\data\input”.
- ▶ After a few minutes, check if the synchronization has been a success (see section 6.1.4).

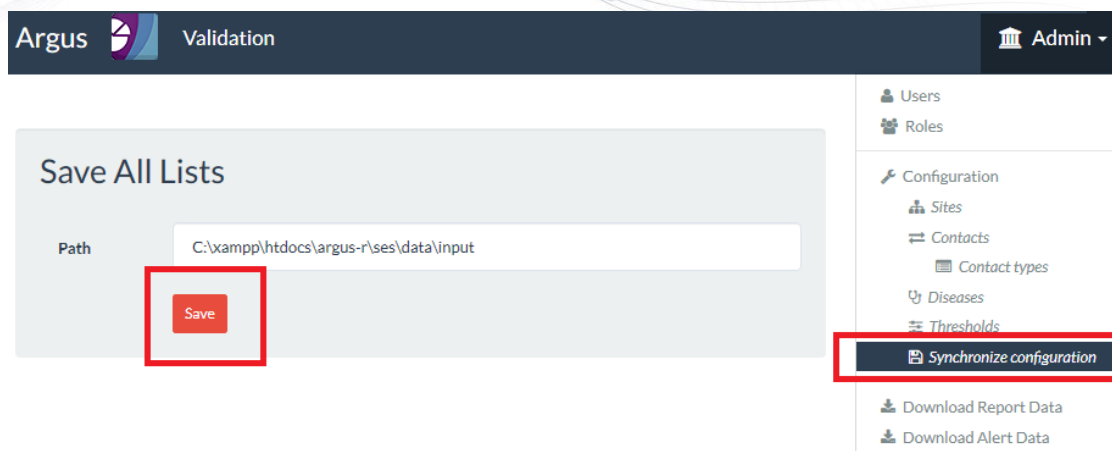


**Figure 16.** Admin menu to configure the Argus Dashboard web application.

Make sure to **synchronize the configuration** each time you make any change on the configuration as in Figure 17.







**Figure 17. Synchronize the configuration with Argus Server web application**

The file « C:\xampp\htdocs\sesDashboard\app\config\parameters.yml » contains all the configuration parameters of the Argus Dashboard web application.

**If the installation was done following the recommendations of this document, you do not need to modify any setting in this configuration file apart the database configuration entries and the language (see section 2.3.1).**

### 2.3.7 Network configuration

Some important steps related to network configuration are just mentioned and not covered in detail.

**Network configuration and securitization needs to be performed by technical people with appropriate qualifications.**

The server computer needs to be assigned a static internal and external IP addresses (<https://www.nch.com.au/kb/networking-ipaddress.html>):

- ▶ A static private (internal) IP address to be accessible by the Argus Android Gateway applications (<http://www.howtogeek.com/howto/19249/how-to-assign-a-static-ip-address-in-xp-vista-or-windows-7/>).
- ▶ A static public (external) IP address to be accessible by the end users.

Securing the web server (including but not limited to access control, server monitoring, communications encryption (<https://letsencrypt.org/getting-started/>)) need to be taken into consideration and performed by appropriate technical people. Additional information is available on the following link [https://httpd.apache.org/docs/2.4/en/misc/security\\_tips.html](https://httpd.apache.org/docs/2.4/en/misc/security_tips.html).

## 2.4 Restart the server

After installation setup and configuration is done, please restart the server.



# 3. Installation of Argus Android Gateway

---

## 3.1 Prerequisites

- ▶ Android phones with the following minimum hardware requirements:
  - Dual-Core CPU
  - 1 GB RAM minimum
  - Android < 5.0
  - Exclude Samsung phones
- ▶ A USB cable allowing data transmission.
- ▶ A computer.
- ▶ Argus Android Gateway application file and Argus Android Gateway Slaves application files:
  - Available in the folder: “C:\xampp\custom\Apks\”.
  - There is one file for the Argus Android Gateway application file (“C:\xampp\custom\Apks\org.argus.gateway-X.X.apk”) and one file for each Argus Android Gateway Slave application to be installed (“C:\xampp\custom\Apks\org.argus.gateway.slave0X-X.X.apk”).

Android limits the number of SMS that can be sent by a single application. Argus Android Gateway Slave is an extension to the Argus Android Gateway application that allows overcoming the limit to send SMS. Installing additional Argus Android Gateway Slave applications on the phone allows the main Argus Android Gateway application to delegate outgoing SMS to an Argus Android Gateway Slave and thus increase the overall capacity to send SMS. Each Argus Android Gateway Slave increases the outgoing SMS capacity by 100 SMS per hour or 30 SMS per 30 min depending on the SDK version.

## 3.2 Installation

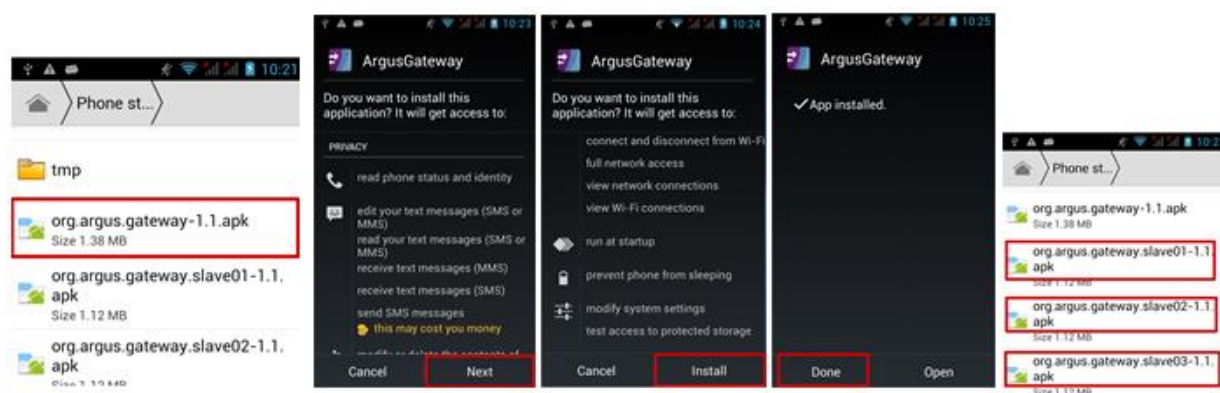
On the Android phone:

- ▶ Go to “Settings” / “Security”: uncheck “Verify Apps”, check “Allow Unknown sources”.
- ▶ Got to “Settings” / “Date & Time”: update the date and time of the phone.
- ▶ In the “Settings”, ensure the phone can never enter into “Sleep mode”.



You need to install the Argus Android Gateway application file and all Argus Android Gateway slaves applications on the designated phone.

- ▶ Plug the phone to the computer, you must be able to reach the phone as an USB key or an external disk drive.
- ▶ Copy all the .apk files (“C:\xampp\custom\Apks\org.argus.gateway-X.X.apk” and “C:\xampp\custom\Apks\org.argus.gateway.slave0X-X.X.apk”) and paste them to the phone.
- ▶ On the phone, open the “File Explorer” application and go to the folder were the files were copied.
  - Click on the “org.argus.gateway-X.X.apk” file to start its installation.
  - Process with its installation (Figure 18).
  - Click on each of the nine Argus Android Gateway slave files “org.argus.gateway.slave0X-X.X.apk” and process with their installation.



**Figure 18. Installation of Argus Android Gateway applications**

To ensure the best stable connection between the Argus Android Gateway applications and Argus Server on the local WIFI network, it is needed to set a static IP address on the phones that will use Argus Android Gateway (see <https://mashtips.com/manual-ip-settings-android/>):

- ▶ On the Android phone, go to “Settings”.
- ▶ Go to “WIFI settings”.
- ▶ Long press on the WIFI network to open the network settings.
- ▶ Tick the box “Show advanced options”.
- ▶ Under “IP settings” choose “Static”.
- ▶ In the “IP Address” field, set the chosen static IP.
- ▶ Long press on the WIFI network to open the network settings.
- ▶ Tick the checkbox “Show advanced options”.
- ▶ Under “IP settings”, choose the option “Static”.
- ▶ In the “IP address” field, set the chosen static IP for this device. You need to take an IP address on the same local network (e.g. from 192.168.1.10 to 192.168.1.80) avoiding the DHCP address range (see




<https://service.uoregon.edu/TDClient/KB/ArticleDet?ID=33742> and  
<https://www.control4.com/blog/61/dhcp-vs-static-ip-which-is-better>).

- ▶ Tap “Save”.

If you use several phones to serve as Argus Android Gateways, repeat the above procedure for each phone. **Each phone needs a specific static IP address (each IP address needs to be unique).**

### 3.3 Configuration

Once Argus Android Gateway application is installed on the phone, configuration is needed to “connect” it to the Argus Server web application through a local WIFI network.

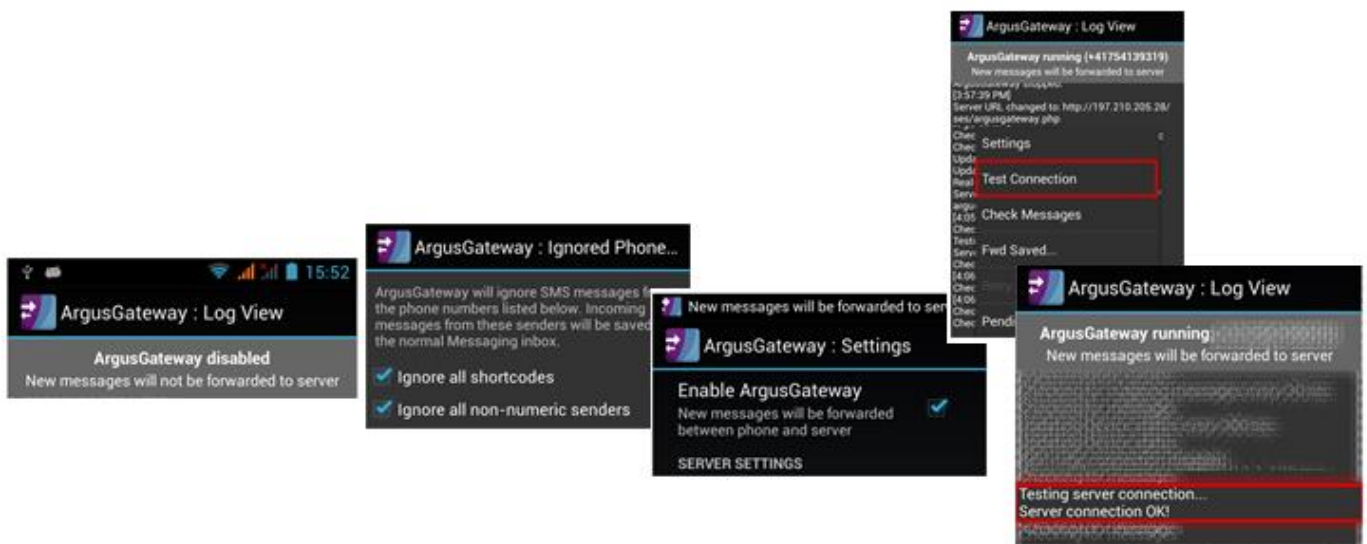
- ▶ Insert a SIM card into the phone and wait to receive the first operator SMS (e.g. Welcome, credit and others).
- ▶ Delete all SMS in the Inbox coming from the operator.
- 
- ▶ Open Argus Android Application tap on its icon
- ▶ If the message “Change SMS app? Use ArgusGateway instead of Messages as your SMS app?” appears, press “YES”.
- ▶ Tap on the grey banner on the top of the screen with the message “ArgusGateway disabled” (Figure 19).
- ▶ In the “ArgusGateway: Settings” screen
  - Tap on “Find Server URL”. It should automatically find the server URL. if “Server not found” message appears: tap on “Server URL” and enter the static private (internal) IP address of the Argus server (see section 2.3.5) such as <http://192.168.X.X/ses/argusGateway.php> (more information on how to find the IP address : <https://support.microsoft.com/en-us/help/165170/how-to-determine-the-tcp-ip-address> ).

The server URL is case sensitive, be careful when entering it.

- Tap on “Your phone number” and enter the phone number of the SIM card used in this phone (International number format, like +41 XXXXXXXX).
- Tap on “Password”, check “Show Password” and enter the password: 123456. Then click OK.
- Tap on “Poll interval” and select “30 sec”.
- Tap on “Ignored phones” and tick the two boxes: “Ignore all shortcodes” and “Ignore all non-numeric senders” (Figure 19).
- ▶ Tap back to return in “ArgusGateway: Settings” screen.
- ▶ At the top of the screen, check the box “Enable ArgusGateway” (Figure 19).



- ▶ Tap back to quit the “ArgusGateway: Settings” screen and return to the “ArgusGateway: Log View” screen.
  - ▶ Tap on the menu button on the top right edge of the screen and tap on “Test Connection” (Figure 19).
- The messages “Testing server connection...” then “Server connection OK!” should appear.
  - In case an error message appears instead of the message “Server connection OK!” refer to section 6.3.2 for troubleshooting.



**Figure 19. Configuration of Argus Android Gateway**

All the parameters in the “ArgusGateway: Settings” screen are presented below:

- ▶ Enable ArgusGateway: enable or disable the application.
- ▶ Server Settings section
  - Server URL: URL of the argusGateway.php script in the Argus server (<http://192.168.X.X/ses/argusGateway.php>).
  - Find Server URL: try to find automatically the server URL by broadcasting the WIFI network.
  - Your phone number: international format of the gateway phone number.
  - Password: defined server password, authorize the phone to communicate with Argus server.
  - Poll Interval: interval in seconds between poll requests to the server.



► Messaging Settings section

- SMS rate limit: limit the number of SMS that the gateway can send during a period of time. Installing Argus Android Gateway slaves on the phone increases the limit (see section 3.1).
- Ignored phones: ignore SMS received from short codes and/or from all non-numeric sender.
- Test Mode: to be checked to limit Argus Gateway to manage a specific list of phone numbers (not used, legacy).
- Sender phones: if test mode checked, list of phones that the Argus gateway will handle.

► Network Settings section

- WIFI sleep policy: policy when the phone's screen is turned off, "always stay connected" is the option to be used.
- Network failover: defines the behaviour when WIFI is off.

► Logs Settings section

- Number of characters in log view: defines the number of characters that will appear on the log screen.
- Log file size (Mo): maximum log file size in Mo stored on the phone.
- Android id field: string that log manager can interpret in the log view ("ANDROIDID").

**The phones used with Argus Android Gateway application need to be plugged to a power source and configured to never enter into their sleep mode.**





# 4. Installation of Argus Android Client

---

## 4.1 Prerequisites

- ▶ Android phones with the following minimum hardware requirements:
  - Dual-Core CPU
  - 1 GB RAM minimum
  - Android < 7.0
- ▶ A USB cable allowing data transmission.
- ▶ A computer.
- ▶ Argus Android Client application file available in: “C:\xampp\custom\Apks\org.argus.sms.app-X.X-Version.apk”.

## 4.2 Installation

On the Android phone:

- ▶ Go to “Settings” / “Security”: **uncheck “Verify Apps”, check “Allow Unknown sources”**.
- ▶ Got to “Settings” / “Date & Time”: **update the date and time of the phone**.


You need to install the Argus Android Client application file on the designated phone.

- ▶ Plug the phone to the computer, you must be able to reach the phone as an USB key or an external disk drive.
- ▶ Copy the .apk file (“C:\xampp\custom\Apks\org.argus.sms.app-X.X-Version.apk”) and paste it to the phone.
- ▶ On the phone, open the “File Explorer” application and go to the folder where the file was copied.
  - Click on the “org.argus.gateway-X.X.apk” file to start its installation.
  - Process with its installation (see example of an apk installation Figure 18).
  - Click on the “org.argus.sms.app-X.X-Version.apk” file and process with its installation.

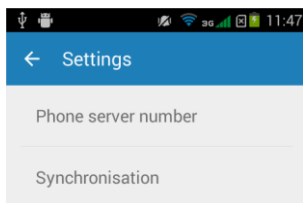




## 4.3 Configuration

The default password to access the Settings is: “argus”. You can modify it in the settings. From the application home screen, tap on the top right icon  to access the settings screen.

Each Argus Android Client application will exchange SMS with a predefined phone with Argus Android Gateway installed. At first, it is needed to enter in the settings the “Phone server number” (Figure 20), this is the number in international format (e.g. +4100000000) of the specific Argus Android Gateway that will exchange SMS with the Argus Android Client application.



**Figure 20.** Argus Android Client settings screen

**You need to make sure that the phone number of the Argus Android Client is registered as a contact in Argus server, see section 5.3.**

You can select the language to be used by Argus Android Client, note that it does not apply to the language of the diseases/conditions to be reported which are managed by Argus server (see section 5.5).

Other options in the settings should not be used as they are mainly experimental:

- ▶ Block SMS when no network (to impend sending a SMS if no network is available).
- ▶ Test mode: to impend data sent to be taken into consideration by Argus server.
- ▶ Enable configuration via SMS.

## 4.4 Synchronization

Once all components have been installed and configured (i.e. Argus Server, Argus Android Gateway applications, Argus Android Client applications) each Argus Android Client application needs to be synchronized with the Argus Server.

To do so, ensure first that the phone number of the Argus Android Client is correctly registered in the Argus server (see section 5.3) and that the phone number of the Argus Android Gateway used is correctly registered in the Argus Android Client settings (see section 4.3):



- ▶ In the Argus Android Client “Settings” screen, tap “Synchronization” (Figure 20).
- ▶ In the synchronization screen, tap the “Sync” button.
- ▶ The synchronization starts, it can take up to one hour depending on the network operator availability, the number of Argus Android Gateways installed on the Argus Server, and the number of Argus Android Clients being synchronized at the same time.
- ▶ Once synchronization is done, Argus Android Client will restart automatically and will be ready to send reports and alerts.

**If the elements to be reported are modified on the Argus Server (i.e. diseases or variables to be reported), you need to re-synchronize all the Argus Android Clients to apply the new configuration.**

If the synchronization has been started with an incorrect phone server number, the synchronization process cannot be achieved as the phone will not receive correct messages. In that case, update the phone server number in the settings Argus Android Client and restart a synchronization.

If the synchronization procedure is still in progress after one hour, the following actions should be done:

- ▶ Check the settings are correct: correct phone server number; phone server number in international format without spaces.
- ▶ Check Argus Android Client has sent a SMS to the server. If not, check the SIM card is activated and credits are available to allow sending SMS.



# 5. Administration

## 5.1 Login to the administration interface

- ▶ Open a web browser and go to the administrative interface: <http://localhost/sesDashboard/web> (or externally at the address [http://ip\\_address/sesdasboard](http://ip_address/sesdasboard)).
- ▶ Log in with the administrator account (see section 2.3.1).
- ▶ You will get access to the admin menu (Figure 21) with the following entries:
  - **Users:** manage users of the Argus Web platform (section 5.7).
  - **Roles:** manage roles and permissions of each user (section 5.7).
  - **Configuration:** apply a new language (section 2.3.1).
  - **Sites:** manage sites included in the system (section 5.3).
  - **Contacts:** manage all contacts in the system (section 5.4).
  - **Contact types** (not used, legacy).
  - **Diseases:** manage diseases and variables to be reported (section 5.5).
  - **Thresholds:** manage thresholds for the diseases and variables to be reported (section 5.6).
  - **Synchronize configuration:** synchronize configuration between the different components of the Argus Server. This is critical every time there is a change to sites, contacts, diseases and thresholds administration screens. Changes are not taken into account until the configuration is synchronized.
  - **Download Report Data:** export data in a csv file.
  - **Download Alert Data:** export alerts in a csv file.

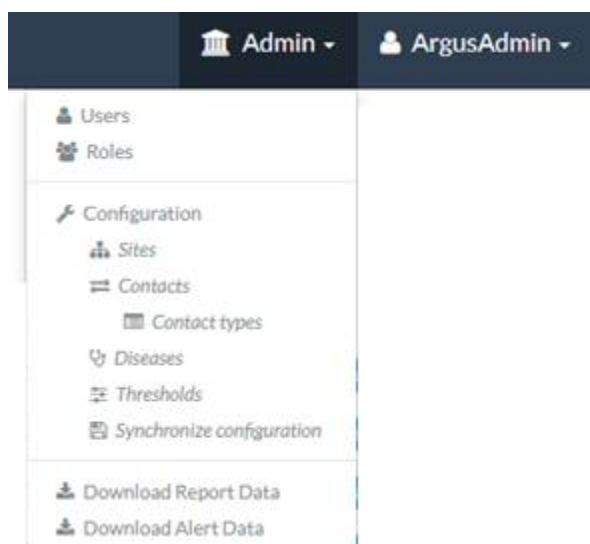


Figure 21. Admin menu on the administrative interface.



## 5.2 Synchronization after each modification

Any change to sites, contacts, diseases and thresholds configuration needs to be synchronized between all components of Argus Server. To do so:

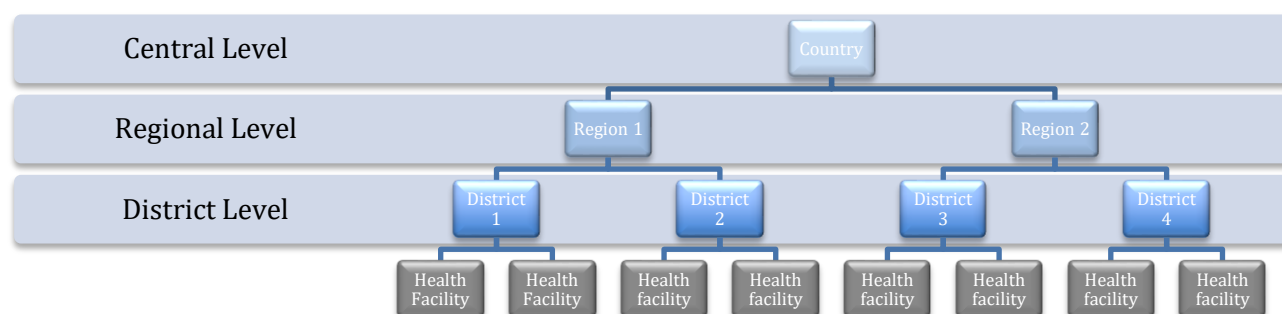
- ▶ In the admin menu click on “Synchronize configuration”.
- ▶ Keep the path as it appears (“C:\xampp\htdocs\argus-r\ses\data\input”) and click on the “Save” button (see section 2.3.4).

## 5.3 Sites

### 5.3.1 Overview

The main structure within the Argus system is based on a tree hierarchy of “sites”. This hierarchy typically represents the geographical and/or administrative subdivisions within the country (Figure 22):

- ▶ Report and alert data are sent from healthcare facilities at the bottom of the hierarchy (peripheral sites).
- ▶ Data then flow up through the upper level sites (e.g. first through the district, then the region, then it reaches the central level).
- ▶ At each level of the system, data from weekly or monthly reports are aggregated and validated, for example:
  - The district will validate or reject reports from its “child” healthcare facilities (i.e. healthcare facilities in its area of responsibility).
  - An aggregated report for the district is created and is to be validated or rejected by the parent region (i.e. the region in charge of the district).
  - An aggregated report for the region is created and is to be validated or rejected by the central level.



**Figure 22. Example of structure of the Argus system**

The number of levels in the system is not limited.



The peripheral sites (usually healthcare facilities) are in charge of sending alerts and weekly or monthly reports through SMS using the Argus Android Client application.

The sites at the levels above healthcare facilities are in charge of:

- ▶ validating or rejecting received reports from their child sites (for example in Figure 22 District 1 and District 2 are the child sites of Region 1);
- ▶ reviewing the data analyses for their area of responsibility to check if there is any epidemiological threat requiring a rapid response.

A default root site is preconfigured with the reference “SitesRoot”.

### 5.3.2 Manage sites

- ▶ Log in to the administrative web interface (see section 5.1).
- ▶ It is possible to upload the sites configuration by importing an XML file using the “Load from XML” button on the Sites screen (see section 2.3.4).
- ▶ Sites can also be managed manually using the “Add site” button on the Sites screen, the “New Site” screen presents the following parameters (Figure 23):
  - **Reference:** the reference of the site (e.g. name of the site without special characters).
  - **Name:** name of the site as displayed to the end user.
  - **Parent:** the parent site (see previous section). **Sites at highest level need to be registered first to be able to choose the parent of children sites** (e.g. order of site creation: central level, next regional level, next district level, then healthcare facility level). At the beginning, the first parent site that can be chosen is the SitesRoot.
  - **Time zone** (optional): the time zone of the site. Can be inherited from parent (i.e. if the time zone is set on the central level site, all children at all levels will inherit it).
  - **Language** (optional): language used by the site. (i.e. if the language is set on the central level site, all children at all levels will inherit it).
  - **Longitude** of the site (optional).
  - **Latitude** of the site (optional).
  - **Preferred Gateway** (optional): preferred Argus Android Gateway phone used by Argus Server to send SMS back to the site.
  - **Reports data source** (not used, legacy).
  - **Parent’s sites contacts are alert recipient** : automatically define all the parent hierarchy as site alerts recipients. If checked, it is not possible to customize anymore the alert recipients for this site.



- **Weekly report delay (minutes):**
  - Site at lowest level (healthcare facility): delay in minutes from midnight of the last day of the week to consider that a weekly report is overdue.
  - Site at other levels (e.g. district, region, central levels): delay in minutes from midnight of the last day of the week to consider that a weekly report is not processed on time (validated or rejected).
- **Monthly report delay (minutes):**
  - Site at lowest Level (peripheral): delay in minutes from midnight of the last day of the month to consider that a monthly report is overdue.
  - Site at other levels (intermediate/central level): delay in minutes from midnight of the last day of the week to consider that a monthly report is not processed on time (validated or rejected).

**New Site**

Id

Reference

Name

Parent

Time zone

Language

Longitude

Latitude

Preferred Gateway

Reports data source

☐ Parent's sites contacts are alert recipients

Weekly report delay (minutes)

Monthly report delay (minutes)

**Figure 23. Screen to add a site on the administrative web interface.**

It can be later modified using the “edit” button in the last column of the table of the “Site List” screen (Figure 24).

After any change, synchronize the configuration (see section 5.2).



## Site List

+ Add site load from XML Export XML Export CSV

Show 10 entries Search:

ID	Site name	Longitude	Latitude	Weekly report delay (Minutes)	Monthly report delay (Minutes)	Level	Ref.	Reports data source	Scopes	Alert preferred gateway	Alert recipients	Actions
1	SitesRoot			10080	70560	0	SitesRoot		1 / 0		<span>+ Add</span>	<span>+ Add</span> <span>🔍</span> <span>🔍</span> <span>🔍</span>
5	Country			2880	40320	1	Country		2 / 0		<span>+ Add</span>	<span>+ Add</span> <span>🔍</span> <span>🔍</span> <span>🔍</span>
12	Site 20			960	10080	4	Site20		0 / 0		<span>🔍 View</span> Alert recipients: 3	<span>+ Add</span> <span>🔍</span> <span>🔍</span> <span>🔍</span>
9	District 2			960	10080	3	District2		2 / 0		<span>🔍 View</span> Alert recipients: 1	<span>+ Add</span> <span>🔍</span> <span>🔍</span> <span>🔍</span>

Modify alert recipients Activate / deactivate Edit a site

Figure 24. Site list screen

### 5.3.3 Activate or deactivate sites

Once created, a site can't be deleted, but it can be deactivated using a specific button on the "Site List" screen (Figure 24):

- ▶ When a site is deactivated, it is not expected to send or receive reports or alerts and is not included anymore in the analyses.
- ▶ When a site is deactivated, the system considers that the week before deactivation date is the last week of activity for weekly reports (i.e. a weekly report for the previous week is expected)

When a site is activated (or created), the week before the activation or creation date is the first week of activity for weekly reports (i.e. the weekly report for the previous week is the first to be expected).

Regarding monthly reports, the current month of the site's activation/deactivation date defines the first or last month of activity.

After any change, synchronize the configuration (see section 5.2).





### 5.3.4 Define alert recipients

When an alert of an unexpected public health event is received, this alert is forwarded to the personal mobile phone of a pre-specified list of contacts. To do so, “Alert recipients” need to be added to the peripheral sites (i.e. healthcare facilities):

- ▶ Click on the “Add” button in the “Alert recipients” column of the “Sites List” screen (Figure 24).
- ▶ In the next screen, choose the “Alert Recipient” site that will receive a forward of the alerts and click on “Create”.
- ▶ Several “Alert Recipient” sites can be created for a single peripheral site.

When an alert is received by Argus server, **it will be forwarded to all contacts of the “Alert Recipient” sites.**

After any change, synchronize the configuration (see section 5.2).

## 5.4 Contacts

### 5.4.1 Overview

Contacts are the different phone numbers attached to each site. There are two different types of contacts:

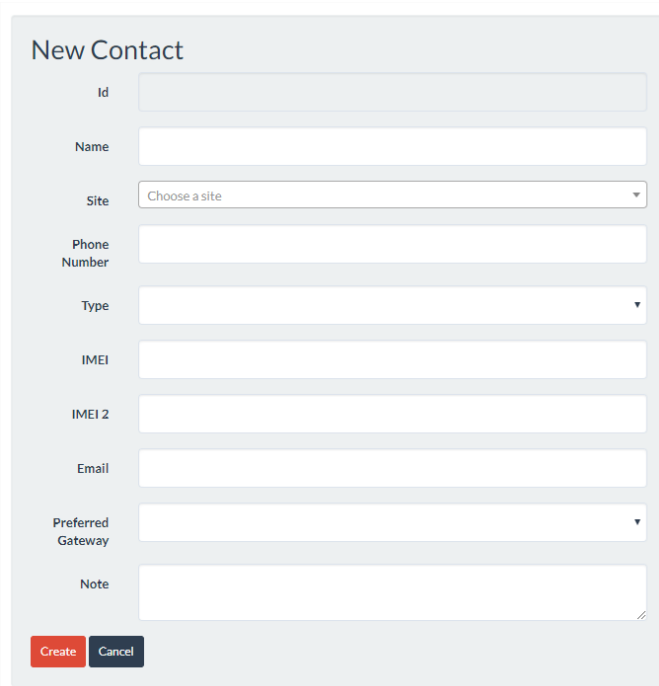
- ▶ One contact per peripheral site (i.e. healthcare facilities), it relates with the Argus Android Client phone used to report alerts and reports. A healthcare facility can report through Argus Android Client only if its contact is entered in the system (i.e. phone used to report).
- ▶ One or several contacts at the levels above peripheral sites (e.g. district, regional, central levels), they relate to the personal phone of supervisors that will receive a copy of the alerts sent by healthcare facilities (see section 5.3.4).

### 5.4.2 Manage contacts

- ▶ Log in to the administrative web interface (see section 5.1).
- ▶ It is possible to upload the contacts configuration by importing an XML file using the “Load from XML” button on the Contacts screen (see section 2.3.4).
- ▶ Contacts can also be managed manually using the “Add contact” button on the contact screen, the “New Contact” screen presents the following parameters (Figure 25):
  - **Name:** the name of the contact.



- **Site:** the site to which the contact is related. A contact can't be added before its site is configured in the system (see section 5.3).
- **Phone Number:** the international format phone number of the contact. (+country code number, e.g. +41 XXXX XXXX XX), **don't forget the "+" sign.**
- **Type** (not used, legacy).
- **IMEI** (optional): The IMEI of the contact<sup>1</sup>.
- **IMEI2** (optional): The second IMEI of the contact.
- **Email:** the email of the contact (mandatory).
- **Preferred Gateway** (optional): preferred Argus Android Gateway phone used by Argus Server to send SMS back to the contact. It will override the preferred gateway defined for the attached site (section 5.3.2).
- **Note** (optional): any detail about the contact.



The screenshot shows a 'New Contact' form with the following fields and controls:

- Id:** A text input field.
- Name:** A text input field.
- Site:** A dropdown menu with the placeholder text 'Choose a site'.
- Phone Number:** A text input field.
- Type:** A dropdown menu.
- IMEI:** A text input field.
- IMEI 2:** A text input field.
- Email:** A text input field.
- Preferred Gateway:** A dropdown menu.
- Note:** A text area with a small icon in the bottom right corner.
- Buttons:** 'Create' (red) and 'Cancel' (dark blue) buttons at the bottom left.

**Figure 25. Screen to add a contact on the administrative web interface.**

Once created, a contact is listed in the “Contact List” view. The last column of the table provides two buttons to:

- ▶ Edit a contact: modify its parameters or delete the contact.
- ▶ Enable or disable a contact: an enabled contact is taken into consideration by the system, while a disabled contact is not taken into consideration (i.e. it will not be able to send a report or alert, nor will it be forwarded a copy of an alert).

---

<sup>1</sup> The International Mobile Equipment Identity is a number to identify mobile phones.



After any change, synchronize the configuration (see section 5.2).

**Ensure that there is only one contact at peripheral sites (healthcare facilities) which is the phone used to report with Argus Android Client application.**

## 5.5 Diseases and variables

### 5.5.1 Overview

Peripheral sites (i.e. healthcare facilities) are expected to send reports on a weekly basis and send ad hoc alerts of unexpected events using Argus Android Client. Each report includes several diseases or conditions. Each disease and condition have one or several variables for which information needs to be reported. In the administrative interface:

- ▶ A “disease” is a disease or condition to be reported.
  - A weekly or monthly report is a report containing one or several “diseases” to be reported.
  - Each disease needs to be assigned a keyword that will be used during the data transmission (only the keyword appears in the SMS).
  - An alert is a specific report including only one “disease” with the keyword “ALERT”.
- ▶ A “value” is a variable to be reported.
  - There is at least one “value” per “disease” (e.g. “Number of cases” or “Number of deaths”).
  - Each value needs to be assigned a keyword that will be used during the data transmission (only the keyword appears in the SMS).

For each “disease”, “constraints” can be added between “values” (except for alerts): for example, you can oblige that a specific “value” is greater than another specific “value” for the same disease.

### 5.5.2 Manage diseases to be reported

- ▶ Log in to the administrative web interface (see section 5.1).
- ▶ It is possible to upload the “diseases” and “values” configuration by importing an XML file using the “Load from XML” button on the Disease screen (see section 2.3.4).
- ▶ Diseases can also be managed manually using the “Add disease” button on the contact screen, the “New Disease” screen presents the following parameters (Figure 26):



- **Reference:** the reference of the disease which has to be unique.
- **Name:** the name of the disease.
- **KeyWord:** the keyword of the disease which has to be unique. It is used by Argus Android client application to send data (only the keyword appears in the SMS).
- **Position** (optional) : position of the disease in the report. If empty, diseases are sorted based on the keyword.
- **Reports data source** (not used, legacy).

The screenshot shows a web form titled "New Disease". It contains the following fields: "Id" (text input), "Reference" (text input), "Name" (text input), "KeyWord" (text input), "Position" (text input), and "Reports data source" (dropdown menu). Below the fields are two buttons: "Create" (red) and "Cancel" (dark blue).

**Figure 26.** Screen to add a disease on the administrative web interface.

To complete the configuration of a “disease”, specific “values” have to be entered (see next section).

After any change, synchronize the configuration (see section 5.2).

### 5.5.3 Manage variables to be reported

Once a disease is created, to add specific “values” to be reported:

- ▶ Click on the “View” button in the “Values” column of the “Disease List” table (Figure 27).
- ▶ Click on “Add disease value” on the “Value list” screen.
- ▶ The “New Value” screen presents the following parameters (Figure 27):
  - **Value:** name of the variable to be reported.
  - **Period:** Weekly, Monthly or None. (‘None’ is only used for the “ALERT” disease)
  - **Position:** integer representing the position of the value in the Argus Android Client application data entry form (e.g. a disease with two values to be reported: “Number of cases” in first position, and “Number of deaths” in second position).



- Type: integer, string or date ('String' and 'Date' types are only used for the "ALERT" disease).
- Keyword: the keyword of the value.
- Mandatory: check the box to indicate that the field must be completed before an alert can be sent (only used for the "ALERT" disease, all values for other diseases are automatically mandatory).

After any change, synchronize the configuration (see section 5.2).

## Disease List

+ Add disease
load from XML
Export XML
Export CSV

Show  entries
Search:

ID	Disease Ref.	Disease Name	Keyword	Position	Values	Constraints	Actions
5	ALERT	ALERT	ALERT		<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
6	meningitis	Meningitis	11MEN	4	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
7	measles	Measles	10MEA	3	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
8	cholera	Cholera	12CHO	2	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
9	yellow fever	Yellow fever	13YEF	5	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
10	bloody diarrhea	Bloody diarrhea	15BOD	6	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>
11	AFP	Acute Flaccid Paralysis	1AFP	1	<a href="#">View</a>	<a href="#">+ Add</a>	<a href="#">✕</a> <a href="#">✎</a>

Figure 27. Disease List screen

### New Value for "AFP"

Id

Value

Period

Position

Type

Keyword

☒ Mandatory

Create
Cancel

Figure 28. Screen to add a value on the administrative web interface.

### 5.5.4 Manage constraints

To create a "constraint" between "values" of a "disease" (e.g. a specific "value" needs to be greater than another specific "value" for the same disease):

- Click on the "Add" button in the "Constraints" column of the "Disease List" table (Figure 27).



- ▶ The “New Constraint” screen presents the following parameters (Figure 29):
  - **Reference Value From:** name of the first value.
  - **Operator:** choice between “Greater”, “Greater or equal”, “Less”, “Less or equal”, “Not equal”.
  - **Reference Value To:** name of the second value.
  - **Period:** choice between “Weekly” or “Monthly”.

After any change, synchronize the configuration (see section 5.2).



Figure 29. Screen to add a constraint on the administrative web interface.

## 5.6 Thresholds

### 5.6.1 Overview

A threshold can be defined for a specific variable (i.e. “value”) of a specific reported disease or condition (“disease”). Its purpose is to notify users when the threshold of a reported variable has been reached for a specific disease, in a specific area, for a specific week or month. This can help in timely identifying a situation presenting a public health risk.

### 5.6.2 Manage thresholds

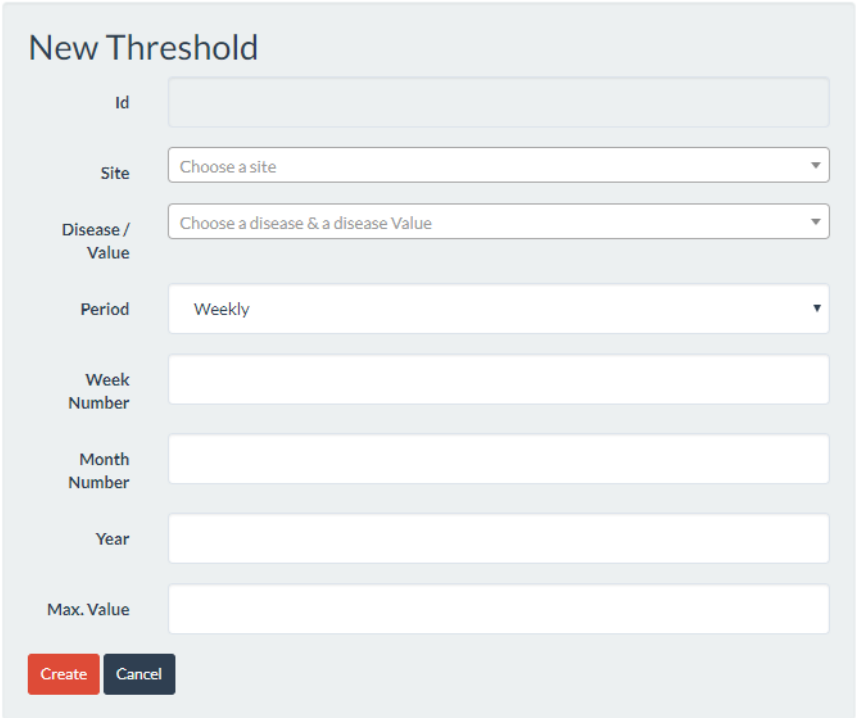
- ▶ Log in to the administrative web interface (see section 5.1).
- ▶ It is possible to upload the “thresholds” by importing an XML file using the “Load from XML” button on the Threshold List screen (see section 2.3.4).
- ▶ Thresholds can also be managed manually using the “Add threshold” button on the threshold screen, the “New Threshold” screen presents the following parameters (Figure 26):





- **Site:** the Site reference for the threshold. You can easily specify a threshold for the entire country by choosing the country site here. All sites below in the hierarchy will be included.
- **Disease / Value :** the variable for a specific disease on which the threshold applies (e.g. threshold for the number of cases of a specific disease reported weekly).
- **Period:** “Weekly” or “Monthly”.
- **Week Number:** If “Weekly” was chosen in the “Period” parameter, you can specify a specific week number (or let it empty if the threshold is for the whole year).
- **Month Number:** If “Monthly” was chosen in the field above, you can specify a specific month number (or let it empty if the threshold is for the whole year).
- **Year:** specify the year for which the threshold applies (mandatory). **New thresholds must be created every year.**
- **Max Value:** the threshold value. When the value reported by the user on the report reaches this Max Value, the threshold is considered to be reached.

After any change, synchronize the configuration (see section 5.2).



**New Threshold**

Id

Site

Disease / Value

Period

Week Number

Month Number

Year

Max. Value

**Figure 30.** Screen to add a threshold on the administrative web interface.



## 5.7 Users, roles and permissions

### 5.7.1 Overview

A “user” is someone connecting to the Argus web platform with a specific login and password.

The Argus web platform permits users to access and manage several types of resources: weekly reports, monthly reports, alerts of unexpected events, data analyses produced based on the received reports and alerts. Each resource is linked with a specific site in the hierarchy (e.g. weekly report of week 5 sent by a specific healthcare facility, aggregated weekly report of week 5 of a specific district).

A “permission” on Argus web platform allows or denies a user to perform:

- ▶ a specific action (e.g. visualization, validation, rejection, download);
- ▶ on all types of resources or on a specific type of resource (e.g. weekly report, monthly report, alert, data analysis);
- ▶ for a given state of the resource (e.g. pending weekly reports or validated weekly reports);
- ▶ for resources at a single level or at several levels (e.g. district level, central level, all levels);
- ▶ for resources of the user’s branch in the hierarchy (area of responsibility) or for all branches (all areas).

A “role” is a combination of one or several “permissions” on Argus web platform.

Each “user” has the following attributes:

- ▶ A “user” has a specific login and password to access the Argus web platform.
- ▶ A “user” is assigned to a specific “site” at a given level of the system.
- ▶ A “user” is assigned one or several roles on the Argus web platform, for example a role of district supervisor can allow to validate or reject weekly reports in his area of responsibility (same branch in the hierarchy), while the role of district assistant can only allow to view validated weekly reports in his area of responsibility.

During the Argus installation, an admin user (i.e. administrator) is automatically created and provided with a specific login and password (see section 2.3.1). Only the administrator can create other users and assign them roles and permissions.

### 5.7.2 Manage roles and permissions

Log in to the administrative web interface (see section 5.1).

It is possible to upload the “roles and permissions” by importing an XML file using the “Load from XML” button on the Roles screen (see section 2.3.4).



Roles and permissions can also be managed manually using the “Add a role” button on the Roles screen.

- ▶ The “Add a role” screen presents several parameters, only the “Name” parameter needs to be specified (e.g. district supervisor, central level assistant), other parameters are not used by Argus (not used, legacy).
- ▶ In the Roles screen, the name of a role can be modified clicking on the “Edit” button in the last column of the table (Figure 31).
- ▶ If a role is not used by any user, it is possible to delete it clicking on the “Delete” button of the Roles screen. A role used by any user can’t be deleted.

<a href="#">MANAGER DISTRICT</a>	10	9		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>
<a href="#">MANAGER REGION</a>	2	7		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>
<a href="#">MANAGER PAYS</a>	1	8		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>
<a href="#">VIEWER DISTRICT</a>	10	7		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>
<a href="#">VIEWER REGION</a>	2	5		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>
<a href="#">VIEWER PAYS</a>	1	6		No	0	<a href="#">Edit</a>	<a href="#">Manage permissions</a>

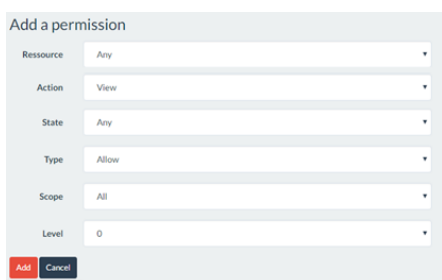
**Figure 31. Roles screen on the administrative web interface.**

Once a role is created, one or several permissions need to be attributed to it:

- ▶ Click on the “Manage permissions” button in the last column of the Roles screen (Figure 31).
- ▶ In the “Permissions” screen, click on the “Add a permission” button, the following parameters are available when creating a permission (Figure 32):
  - Resource:
    - Any.
    - Alerts.
    - Weekly Reports.
    - Monthly Reports.
    - Dashboard Reports (i.e. data analyses).
  - Action:
    - View.
    - Validation (only for weekly and monthly reports).
    - Rejection (only for weekly and monthly reports).
    - Download (only for Dashboard Reports).
    - Upload (not used, legacy).
  - State: the state of the resource:
    - Any.



- Pending (only for the weekly and monthly reports).
  - Validated (only for the weekly and monthly reports).
  - Rejected (only for the weekly and monthly reports).
- Type: actions are denied by default. The “Deny” type permission is mostly used to overrule an “Allow” type.
    - Allow.
    - Deny.
  - Scope: define if the permission applies to resources on the whole hierarchy: “All”; or just on the specific branch the user is attached to: “Single” (sites sharing a common path with the user’s site).
    - All.
    - Single.
  - Level: define the level of resources to which the permission applies:
    - If the type of the permission is “Allow” :
      - - X : applies on all X levels below the user’s level;
      - 0 : applies only to the user’s level (*this relates to the “Alerts”, “Weekly reports” and “Monthly reports” that can be validated or rejected by the user (i.e. the alerts and reports sent by the below level), or to the “Dashboard Reports” of the user (i.e. analyses for the user’s level)*);
      - + X : applies on all X levels above the user’s level.
    - If the type of the permission is “Deny” :
      - - X : applies only on the level - X below the user’s level;
      - 0 : applies only on the user’s level;
      - + X : applies exclusively on the level + X above the user’s level.
- To delete a permission for a specific role, click on the “Delete” button in the last column of the “Permissions” screen.
  - A permission cannot be modified, to modify a permission you need to delete it and recreate it.



**Figure 32.** Screen to add a permission to a specific role on the administrative web interface.



Figure 33 presents an example of a list of permissions for “Regional supervisor” role, with the following parameters:

- ▶ Any / Download / Any / -2 / Allow / Single: allow downloading data analyses (download only applies for the “Dashboard reports” resource) for all below levels (i.e. districts and healthcare facilities) of his area (same branch in the hierarchy).
- ▶ Any / Download / Any / 0 / Allow / Single: allow downloading data analyses for his level in his area.
- ▶ Any / Validation / Any / 0 / Allow / Single: allow validating aggregated weekly and monthly reports from the districts (below level) of his area.
- ▶ Any / Rejection / Any / 0 / Allow / Single: allow rejecting aggregated weekly and monthly reports from the districts of his area.
- ▶ Any / View / Any / 1 / Allow / All: allow viewing aggregated weekly reports and aggregated monthly reports from all the regions of the country and analyses from the central level.
- ▶ Any / View / Validated / -1 / Allow / All: allow viewing validated weekly reports and monthly reports from all healthcare facilities of the country.
- ▶ Any / View / Any / 0 / Allow / All: allow viewing all weekly reports and monthly reports from all districts of the country.








Ressource	Action	State	Level	Type	Scope	Actions
Any	Download	Any	-2	Allow	Single	
Any	Validation	Any	0	Allow	Single	
Any	Rejection	Any	0	Allow	Single	
Any	View	Any	1	Allow	All	
Any	View	Validated	-1	Allow	All	
Any	View	Any	0	Allow	All	
Any	Download	Any	0	Allow	Single	

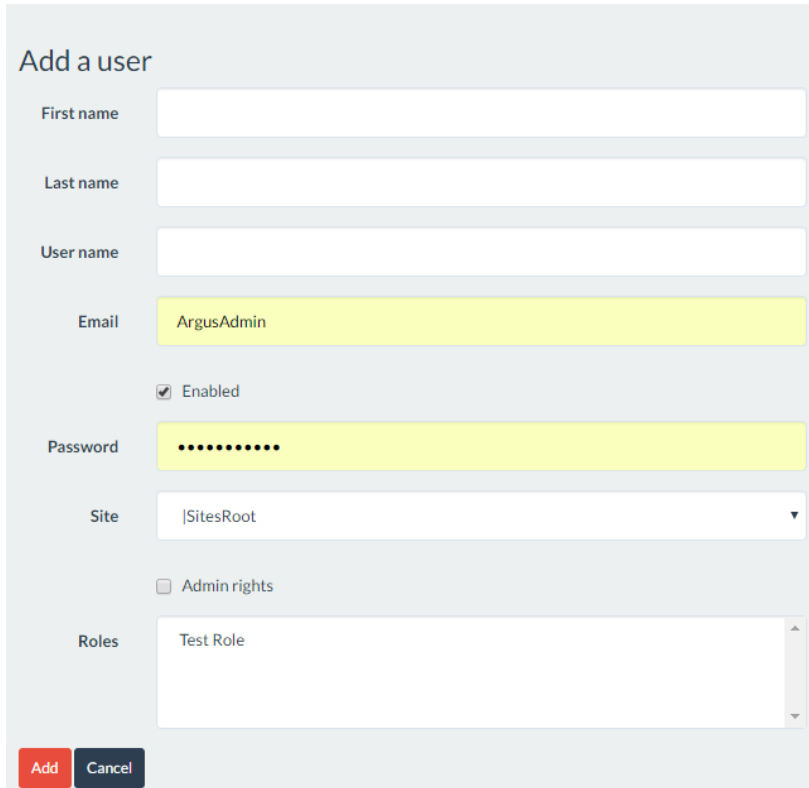
Figure 33. Example of a list of permissions for a specific role.

### 5.7.3 Manage users

- ▶ Log in to the administrative web interface (see section 5.1).
- ▶ It is possible to upload the “users” by importing an XML file using the “Load from XML” button on the “Users” screen (see section 2.3.4).
- ▶ Users can also be managed manually using the “Add a user” button on the users screen, the “Add a user” screen presents the following parameters (Figure 34):
  - **First Name:** first name of the user (mandatory).
  - **Last Name:** last name of the user (mandatory).
  - **User Name:** login of the user (must be unique, mandatory).
  - **Email:** email of the user (mandatory).



- **Enabled:** define if this account is enabled (user can access Argus web platform) or not.
- **Password:** password of the user (mandatory).
- **Site:** site to which the user is attached (mandatory).
- **Admin rights:** give the administrative rights to this user (give only the administrative rights to the administrator).
- **Roles:** select the different roles of the users (mandatory). You can select several roles pressing the ctrl key.



The screenshot shows a web form titled "Add a user". It contains several input fields: "First name", "Last name", "User name", and "Email". The "Email" field is highlighted in yellow and contains the text "ArgusAdmin". Below the "Email" field is a checkbox labeled "Enabled" which is checked. The "Password" field is also highlighted in yellow and contains a series of dots. Below the "Password" field is a dropdown menu for "Site" with the selected value "JSitesRoot". Below the "Site" dropdown is a checkbox labeled "Admin rights" which is unchecked. Below the "Admin rights" checkbox is a dropdown menu for "Roles" with the selected value "Test Role". At the bottom of the form are two buttons: "Add" (red) and "Cancel" (dark blue).

**Figure 34.** Screen to add a user on the administrative web interface

A user can be assigned several roles. This may produce conflicts between permissions. In that case, the most restrictive permission applies.

It is possible to modify the parameters of a user by clicking on the “Edit” button in the Users screen, and to delete a user by clicking on the “Delete” button in the Users screen.

When modifying the parameters of a user, if you don’t need to update the user’s password, let the **Password field empty**.





# 6. Maintenance

## 6.1 Argus Server web application

### 6.1.1 Detailed diagnoses

The Argus Monitoring application needs to be running at all time on the Argus Server. It permits to synchronize the configuration and data between the different components of Argus Server, and to monitor the well-functioning of Argus Server. If it detects a problem, the application displays an error message (Figure 35) and can send email notifications (see section 6.1.2).

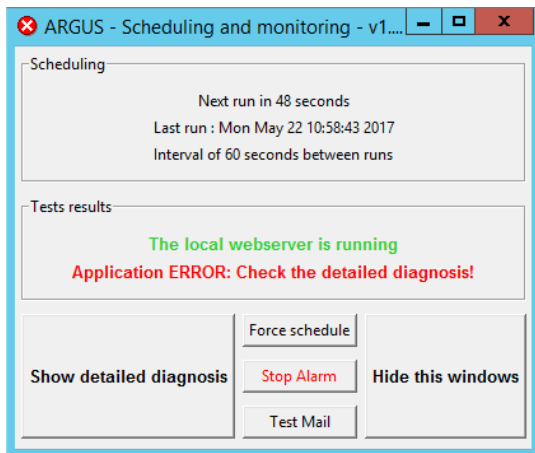


Figure 35. Argus Monitoring window.

The detailed diagnosis page is available on the monitoring web interface (Figure 36), to access it you can click on the “Show detailed diagnosis” of the Argus Monitoring window (Figure 35).

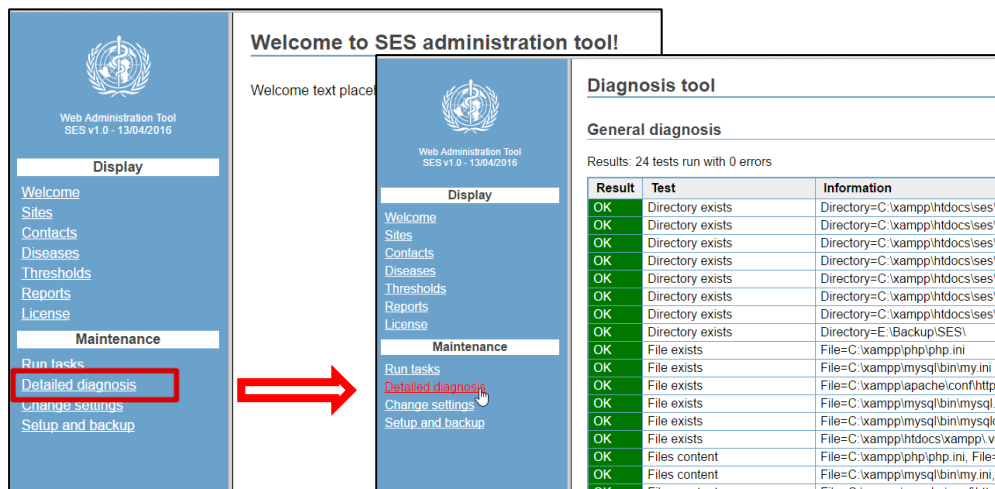


Figure 36. Monitoring web interface, detailed diagnosis page.



A list of tests is regularly performed by Argus Server web application, the result of each test can be “OK” or “Error”.

The diagnosis page is split in two parts:

- ▶ One part for general diagnoses.
- ▶ Another part to check the functioning of the Argus Android Gateway phones used to receive and send the SMS. There is no limit on the number of Argus Android Gateways that can be connected to Argus Server. Each row provides information on each Argus Android Gateway (Figure 37). In case of error, see section 6.2.2 for troubleshooting.

Result	Test	Information	Device Id	Operator	Manufacturer	Model	Version	Battery	Power	Last Update
OK	Is this gateway device alive	This device is working well	+41754139319	Swisscom	HUAWEI	HUAWEI Y320-U30	1.0	100 %	Battery	2016-05-10 10:18:40

**Figure 37. Diagnosis of an Argus Android Gateway**

## 6.1.2 Email notification of problems on Argus

The Argus Monitoring application regularly checks the well-functioning of Argus (see section 6.1.1). If an error is identified, Argus Monitoring can send an email to prespecified contacts to notify it. For that, a SMTP server is needed (e.g. [a dedicated Gmail account](#)).

To set up email notification by Argus Monitoring:

- ▶ open file "C:\xampp\htdocs\sos\ressources\ArgusSchedulerMonitoring\config.py" with notepad++.
- ▶ Complete the parameters below:
  - SMTP configuration section:
    - “*smtp\_Enabled*”: Enable / disable the SMTP functionality.
      - True: Enable the SMTP functionality.
      - False: Disable the SMTP functionality.
    - “*smtp\_TLS*”: Activate / deactivate the TLS encryption. Depends of the SMTP provider (e.g. [a dedicated Gmail account](#)). TLS encryption often uses port number 587.
      - 1: Enable TLS.
      - 0: Disabled TLS.
    - “*smtp\_SSL*”: Activate / deactivate the SSL encryption. Depends of the SMTP provider (e.g. [a dedicated Gmail account](#)). SSL encryption often uses port number 465.
      - 1: Enable SSL.
      - 0: Disabled SSL.
    - “*smtp\_host*”: SMTP host (e.g.: ‘smtp.gmail.com’).



- “smtp\_port”: SMTP port number (example: 465 for SSL encryption, or 587 for TLS encryption).
- “smtp\_login”: SMTP login (e.g. your Google username).
- “smtp\_password”: SMTP password (e.g. your Google password).
- Mail configuration (format of email notifications and recipients):
  - “mail\_subject”: content of the subject line for the email notification (Example: 'Diagnosis issue on server ARGUS'). **No special characters, nor accented characters are allowed.**
  - “mail\_from”: email address of the mail notification’s sender (e.g. email of the administrator: ‘[xxxx@yyy.com](#)’ ). Apostrophes are needed around the email.
  - “mail\_to”: list of emails of all recipients of the notification, start the list by an [ character, end it by a ] character, and separate each email by a comma (e.g.: [‘aa@xxx.com’, ‘bb@zzz.com’]). Apostrophes are needed around the email.
  - “mail\_body”: content of the notification (e.g. “There is a diagnostic issue on the server Argus, please check the diagnostic page on the server”). **No special characters nor accented characters are allowed.**
  - “mail\_interval”: minimum interval in minutes between two email notifications.
- Mail Test configuration: this part of the configuration is used to test the notification with the “Test Mail” button on the Argus Monitoring application (see Figure 35):
  - “mail\_test\_subject”: content of the subject line for the email notification (Example: 'Diagnosis issue on server ARGUS'). **No special characters nor accented characters are allowed.**
  - “mail\_test\_from”: email address of the mail notification’s sender (e.g. email of the administrator: ‘[xxxx@yyy.com](#)’).
  - “mail\_test\_to”: list of emails of all recipients of the notification, start the list by an [ character, end it by a ] character, and separate each email by a comma (e.g.: [‘aa@xxx.com’, ‘bb@zzz.com’]). Apostrophes are needed around the email.
  - “mail\_test\_body”: content of the test notification (e.g. “There is a diagnostic issue on the server Argus, please check the diagnostic page on the server”). **No special characters nor accented characters are allowed.**

To test the email notification of problems in Argus:

- ▶ Click on the “Test Mail” button of the Argus Monitoring window (Figure 35).



- ▶ Argus monitoring will try to send the email notification and will display one of the following messages as a result:
  - “SMTP configuration disabled: the SMTP functionality is disabled in the settings”: the setting “smtp\_Enabled” is set to “False” in the file “C:\xampp\htdocs\ses\ressources\ArgusSchedulerMonitoring\config.py”.
    - Open the file “C:\xampp\htdocs\ses\ressources\ArgusSchedulerMonitoring\config.py” and change the setting “smtp\_Enabled” to “True”.
    - Save the file and retry.
  - “Mail not sent, please verify the SMTP settings”. An error occurred when sending the test email:
    - Check the SMTP configuration section in the file: “C:\xampp\htdocs\ses\ressources\ArgusSchedulerMonitoring\config.py”
    - Correct any error and save the file.
    - Try to connect to the SMTP email address through a web browser on the server.
    - Retry.
  - “Mail successfully sent”. The email notification of problems in Argus is working.

### 6.1.3 Logs

The directory “C:\xampp\htdocs\ses\logs” contains log files generated by Argus Server. There are two main types of logs depending on the file title:

- ▶ “tasks-YYYY-MM-DD.txt”: this file contains all the logs generated by the importation of XML configuration files and by the registration of received data into the database.
- ▶ “+GatewayphoneNumber-YYYY-MM-DD.txt”: this file contains all the logs of interaction between Argus Server and the Argus Android Gateway using the phone number “+GatewayPhoneNumber”.

### 6.1.4 Synchronization

Any change to sites, contacts, diseases and thresholds configuration needs to be synchronized between all components of Argus Server. This is usually done manually by the user through the administrative web interface (see section 5.2).

Few minutes after a synchronization, you can check the configuration on the monitoring web interface <http://localhost/ses/> (Figure 38) clicking on the “Sites”, “Contacts”, “Diseases”, “Thresholds” entries on the left side of the screen. If there



is a problem (e.g. no sites, no contacts or no diseases are displayed in the monitoring web interface):

- ▶ You can check the folder “C:\xampp\htdocs\ses\data\processed” and see if it contains files with ERROR in their names as in Figure 39.
- ▶ Open the file and it will give you the error details.
- ▶ Fix the issue through the administrative web interface, then run a new synchronization.

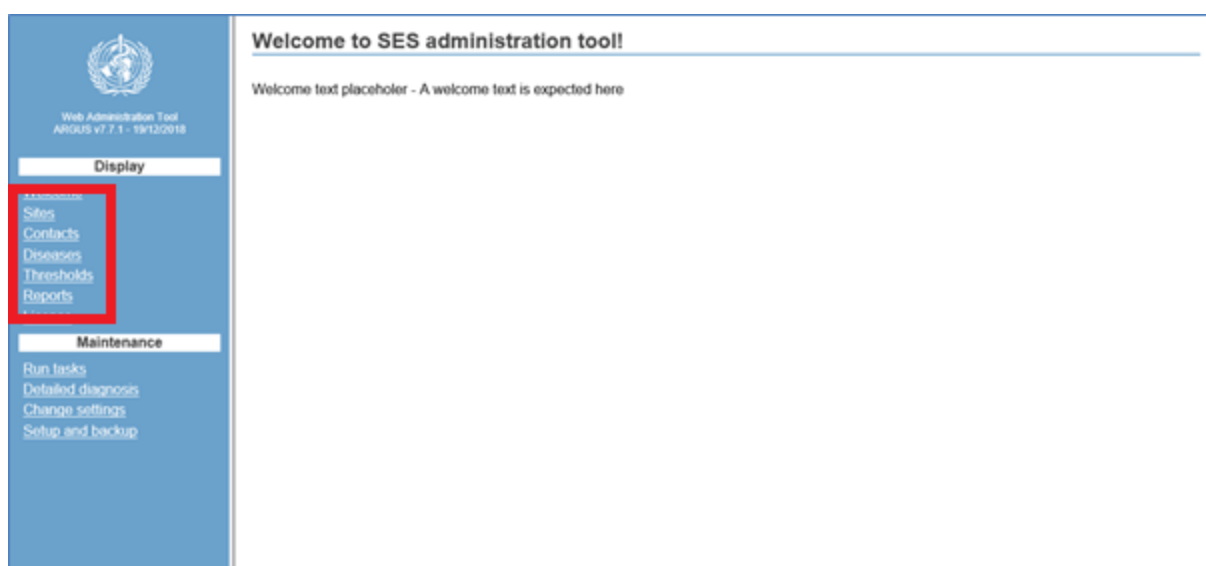


Figure 38. Argus monitoring web interface

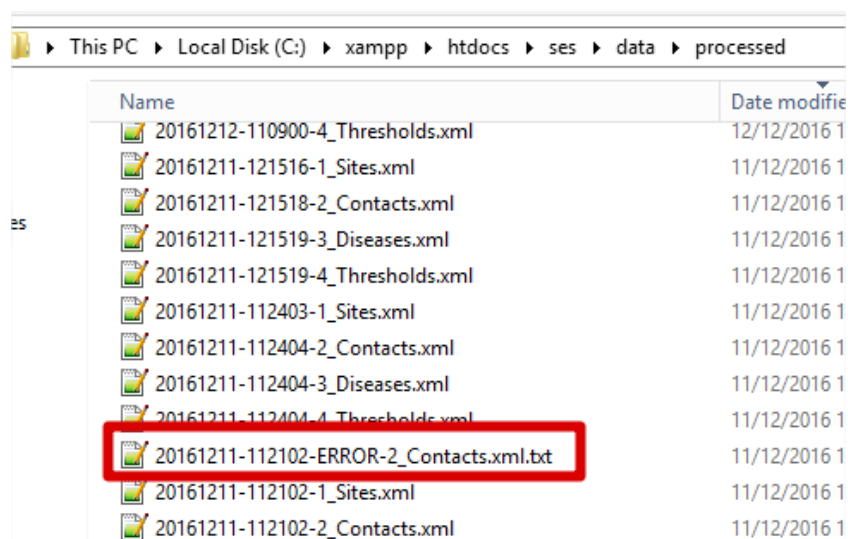


Figure 39. Synchronization file in error

### 6.1.5 Ad hoc backups

You can perform a backup of all data and configuration using the maintenance web interface: <http://localhost/ses/>, for example before making a configuration change:



- ▶ Click on “Setup and backup” on the left blue banner (Figure 40).
- ▶ Click on the “Backup” button (Figure 40).
- ▶ It will create a .sql backup under the folder “C:\Backup\SES”.

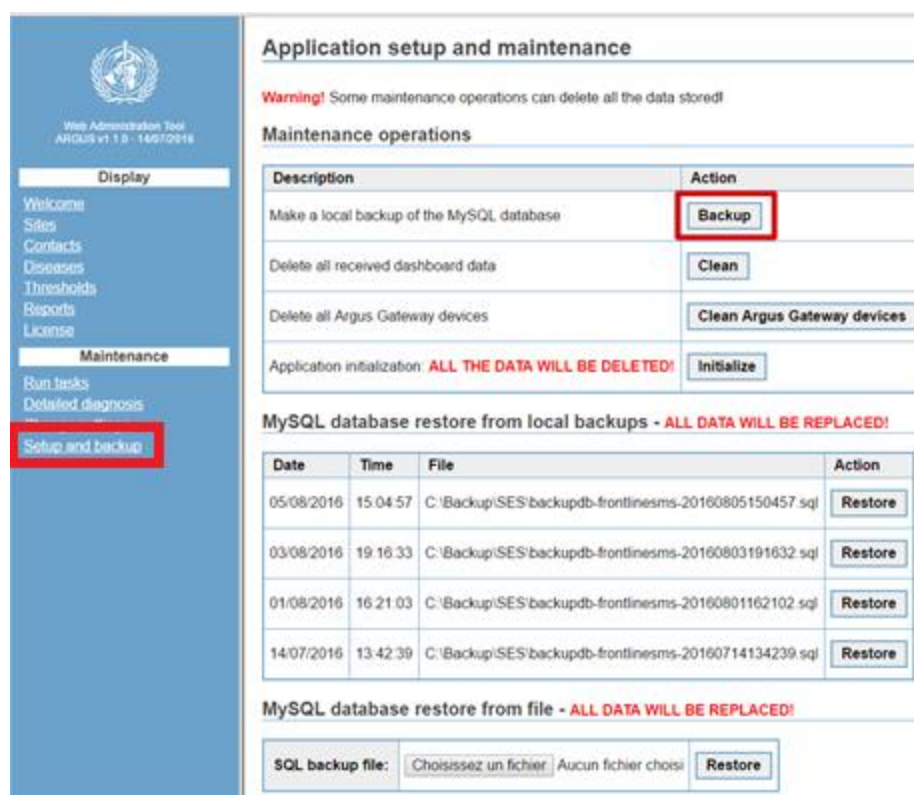


Figure 40. Perform ad hoc backup of the data and configuration on the maintenance web interface

Be careful with the application setup and maintenance page. Other operations delete all data from the database and should be used with caution.

### 6.1.6 Routine backups

You can automatize routine backups using a script PowerShell (see <https://docs.microsoft.com/en-us/powershell/scripting/components/ise/how-to-write-and-run-scripts-in-the-windows-powershell-ise?view=powershell-6>).

An example of such script is provided in Annexe 3.

## 6.2 Argus Android Gateway pending messages

If for some reason the recipient number is wrong, Argus Android Gateway will never succeed in delivering the pending messages. This section explains how to clean the pending message list. It can be done every month (Figure 41).





Before doing so, it is very important to check if the phone has enough credits to send SMS. If there is no credit, it can explain why messages are pending and not sent.

- ▶ Tap on the top right corner of the Argus Android Gateway application to access its menu.
- ▶ Tap on “Pending Messages” to display a list of pending messages.
- ▶ For each line starting with “SMS to”, check the number of times the application tried to send the SMS.
- ▶ If the number of tries is over 50, tap on the message and on delete.

**BE CAREFUL: DO NOT DELETE** messages starting with« SMS **from** XXXXXX... »

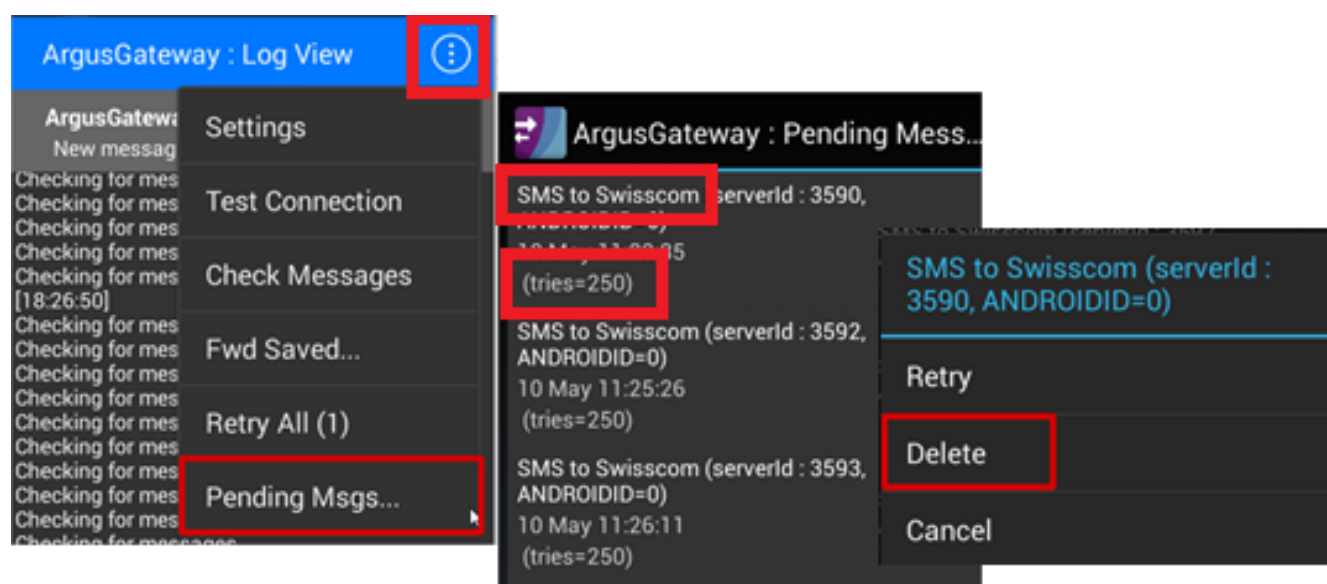


Figure 41. Clean pending messages on the Argus Android Gateway application

## 6.3 Troubleshooting

### 6.3.1 Argus Android Client phone not recognized

Sometimes, the Argus Android Client application receives some human readable messages. These messages can be found in the “History” view in the application. If the message “Your phone number isn’t declared in the system” appears:

- ▶ Argus Server doesn’t recognize the phone number used by the Argus Android Client.
- ▶ Check on Argus Server the phone number of the contact (see sections 5.4.2 and 6.1.4)
- ▶ If the phone number on the administrative web interface is incorrect, correct it (section 5.4.2) and then proceed to the synchronization (section 5.2).



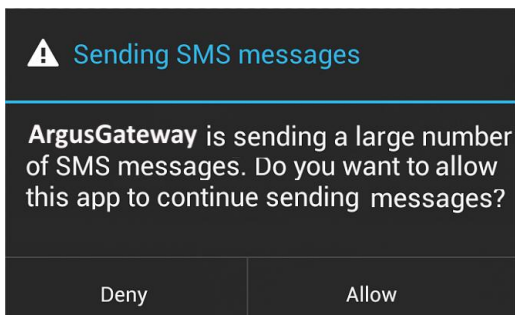
- ▶ If the phone number on the administrative web interface is correct, but the phone number is incorrect on the monitoring web interface (section 6.1.4) proceed to the configuration synchronization (section 5.2).

### 6.3.2 Argus Android Gateway not responding

On the monitoring web interface (section 6.1.1), the error “This device is not responding” appears when the Argus Android Gateway can’t communicate with Argus Server. The following steps may be used to troubleshoot it:

- ▶ Check the Argus Android Gateway phone is turned on.
- ▶ Restart the Argus Android Gateway phone.
- ▶ Check the WIFI connection on the Argus Android Gateway phone.
- ▶ Check the Argus Android Gateway is correctly configured (see section 3.3).
- ▶ In the settings of Argus Android Gateway, click on “Test Connection” (see section 3.3):
  - If the screen display “Testing server connection” then “Server connection OK!” the problem is solved.
  - If “Server connection OK!” doesn’t appear, try to reconfigure the Argus Android Gateway, with specific attention to provide the proper Server URL (see section 3.3).

### 6.3.3 Argus Android Gateway SMS quota exceeded



This warning appears when the quota to send SMS has been reached (see section 3.1). Tap on the “Allow” button.



# 7. Customization

This section may require specialized skills and is intended to be used by more technical people such as developers.

## 7.1 New language

### 7.1.1 Monitoring web interface

To add a new language to the monitoring web interface: <http://localhost/ses>, you need first to install a third-party application named poedit (<http://poedit.net/>).

To add the new language:

- ▶ Go to the folder “C:\xampp\htdocs\sos\locale\”.
- ▶ Copy the folder “C:\xampp\htdocs\sos\locale\fr” with all its content and paste it to “C:\xampp\htdocs\sos\locale\”.
- ▶ Rename the pasted folder with the language code (e.g. “es” for Spanish), see Figure 42.
- ▶ Run the application “poedit” and open the file “message.po” in the new pasted folder (see figure 42).
- ▶ The Poedit application displays 2 columns, source text on the left, new translated terms on the right. Modify the column on the right to add the translated terms (Figure 43).
- ▶ Once done, save the file and select “Compile to MO” in the File menu (Figure 43).
- ▶ In the “Compile to” window, select the existing “messages.mo” file in the new language folder to replace it with the new translations.

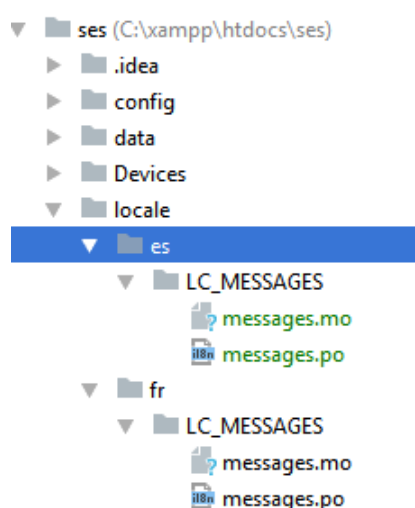


Figure 42. Folders to add a new language to the monitoring web interface.



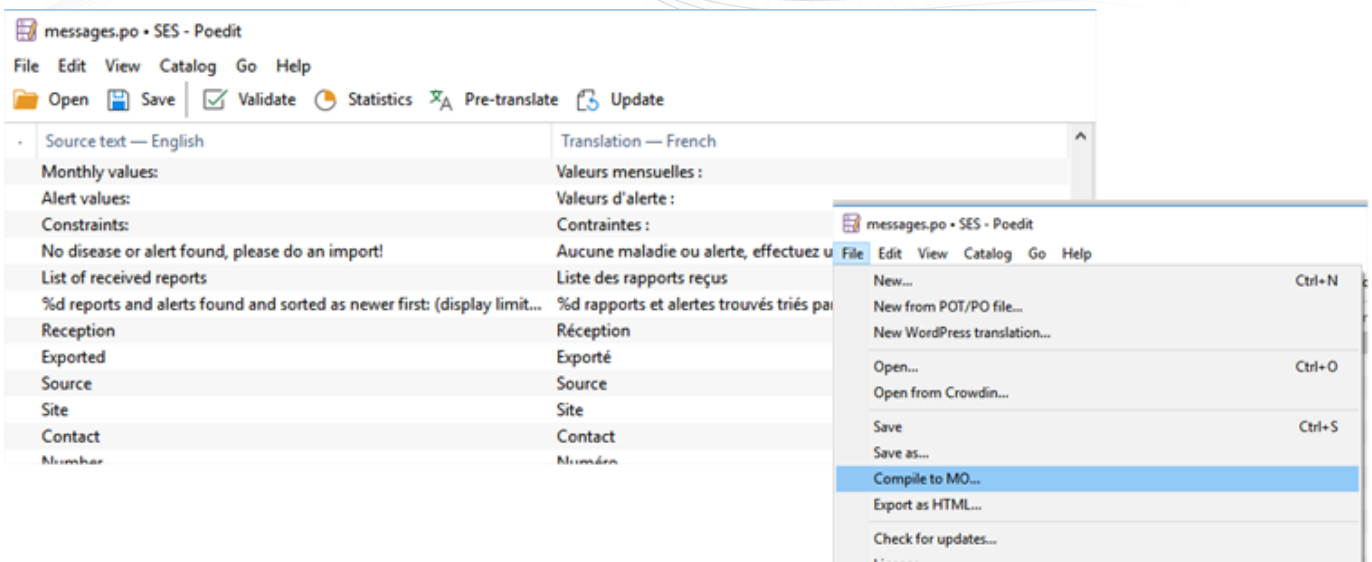


Figure 43. Use of Poedit to add a new language to the monitoring web interface.

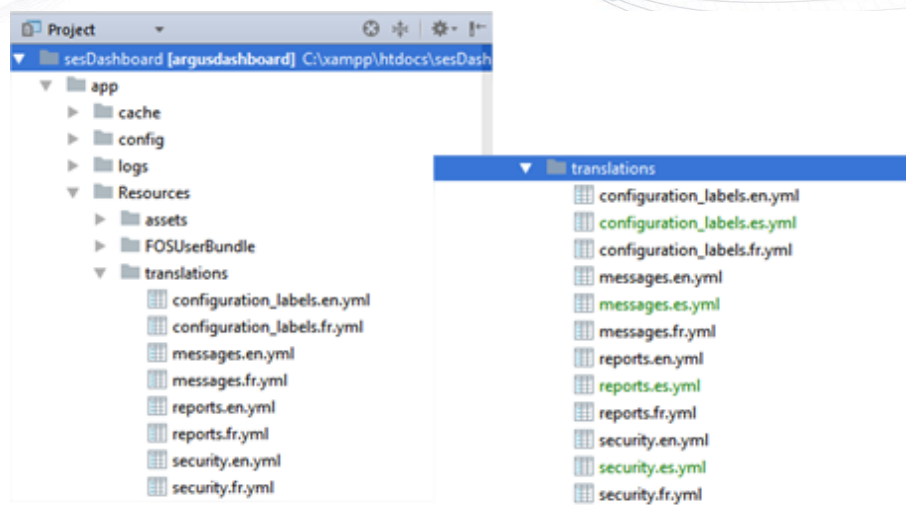
## 7.1.2 Administrative web interface and Argus web platform

To add a new language to the administrative web interface: <http://localhost/sesDashboard/web> and to the Argus web application: [http://ip\\_address/argus](http://ip_address/argus).

- ▶ Go to the folder “C:\xampp\htdocs\sasDashboard\app\Resources\translations” (Figure 44). Translation files for a specific language have their name ending with the language code (e.g. “.en” for English; “.fr” for French). They are YAML files (see <https://en.wikipedia.org/wiki/YAML> for more information).
- ▶ Copy all the files of a language (e.g. all the files ending with “.en.yml”) and paste them in the same folder modifying their name, replacing the language code with the code of the new language: e.g. replacing “.en.yml” by “.es.yml” for Spanish (Figure 44).
- ▶ Edit the newly pasted files to put the new translation on the right column, bet careful to let a space between the semi colon and the updated translation.

After the new language is added: **delete** any subfolder present in the “C:\xampp\htdocs\sasDashboard\app\cache” folder so that the updated translations are taken into account.





**Figure 44. Translation files for the administrative web interface and Argus web platform**

To modify the language of the login page, see section 7.2.2.

### 7.1.3 Administrative and epidemiological dashboards produced by R

To add a new language to the administrative and epidemiological dashboards produced by R:

- ▶ Open the file  
C:\xampp\htdocs\ScriptsR\argus\dashboards\translations\translations.csv”.
- ▶ Add a new column to the file with the translations for each term:
  - The first row of the column is the abbreviation of the new language.
  - To apply the translation, update the configuration file with this new abbreviation as described in section 2.3.1.

### 7.1.4 Argus Android Client

You will need to use Android Studio:

(<https://developer.android.com/studio/index.html>).

In the source code of Argus Android Client application:

- ▶ Open the file: “src/main/res/values/string.xml”.
- ▶ Add the new language to the entries “prefs\_languages\_labels\_array” and “prefs\_languages\_values\_array” (see Figure 45 example to add Spanish language).



- ▶ The same needs to be done to the existing string.xml files of existing translations, for example adding modifying the “src/main/res/values-fr/string.xml” (Figure 45).
- ▶ All translations are available in the string.xml file of a given language (Figure 46).
- ▶ Right click on the “src/main/res” folder and select the entry “new>Android Resource directory”.
- ▶ In the “New Resource Directory Window” (Figure 47), select “locale” in the “Available qualifiers” list, then choose the desired language and click OK, this will create a subfolder in “src/main/res/” for the new language.
- ▶ Copy the file “src/main/res/values/string.xml” and paste it in the newly created subfolder for the new language.
- ▶ Edit the pasted file and translate all the terms in the right column (Figure 46) to the new language.
- ▶ Save the file.
- ▶ Compile a new signed apk:
  - In the menu of Android Studio, select “Build”, select “Generated Signed APK...” (Figure 48).
  - You need to have a key to sign the apk. This key needs to be the same between the different versions of the application. You will find more explanations here <https://developer.android.com/studio/publish/app-signing.html>.
  - After having used your key to sign the apk, you will be able to select the flavour you would like to compile. Use the new flavour you have created. You will find documentation about android flavours here : <https://developer.android.com/studio/build/build-variants.html#product-flavors>.

<pre style="background-color: #2e3436; color: #eeeeec; padding: 10px; font-family: monospace;"> &lt;string-array name="prefs_languages_labels_array"&gt;   &lt;item name="english"&gt;English&lt;/item&gt;   &lt;item name="french"&gt;French&lt;/item&gt;   &lt;item name="spanish"&gt;Spanish&lt;/item&gt; &lt;/string-array&gt;  &lt;string-array name="prefs_languages_values_array" translatable="false"&gt;   &lt;item name="english"&gt;en_GB&lt;/item&gt;   &lt;item name="french"&gt;fr&lt;/item&gt;   &lt;item name="spanish"&gt;es&lt;/item&gt; &lt;/string-array&gt; </pre> <p style="text-align: center; margin-top: 0;">src/main/res/values/string.xml</p>	<pre style="background-color: #2e3436; color: #eeeeec; padding: 10px; font-family: monospace;"> &lt;string-array name="prefs_languages_labels_array"&gt;   &lt;item name="english"&gt;Anglais&lt;/item&gt;   &lt;item name="french"&gt;Français&lt;/item&gt;   &lt;item name="spanish"&gt;Espagnol&lt;/item&gt; &lt;/string-array&gt; </pre> <p style="text-align: center; margin-top: 0;">src/main/res/values-fr/string.xml</p>
--	--

**Figure 45.** Adding a new language entry in the Argus Android Client source code





```
<?xml version="1.0" encoding="utf-8"?>
<resources>
  <string name="pref_server_phone_number_title">Numéro du serveur téléphonique</string>
  <string name="pref_language_title">Langue</string>
  <string name="action_settings">Réglages</string>
  <string name="report_weekly">Rapport Hebdomadaire</string>
  <string name="report_weekly_short">Rapport Hebdo</string>
  <string name="report_monthly">Rapport Mensuel</string>
</resources>
```

Figure 46. Excerpt of “src/main/res/values-fr/string.xml”

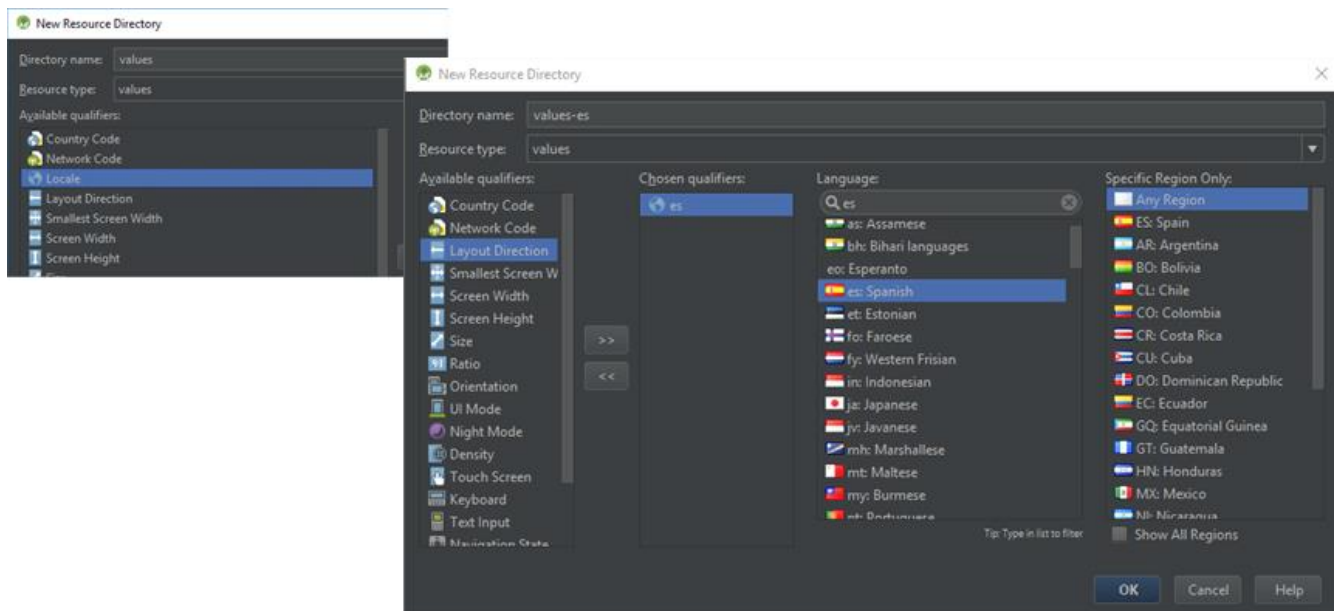


Figure 47. Creation of a subfolder in “src/main/res/” for the new language

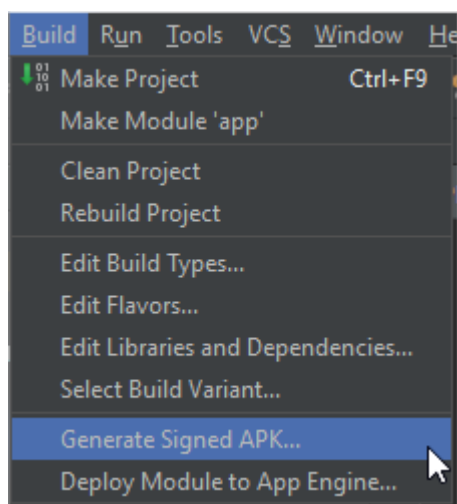


Figure 48. Menu of Android Studio



## 7.2 Appearance

### 7.2.1 Administrative web interface

It is possible to customize the following items of the administrative web interface:  
<http://localhost/sesDashboard/web>: name of the Application (“Argus by default”); logo next to the name; main colour of the interface.

- ▶ To change the application’s name: open the file «C:\xampp\htdocs\sasDashboard\web\custom\applicationName.txt» and modify its content. Let it empty to display no application name on the Dashboard web application. The default value is “Argus”.
- ▶ To change the application’s logo: open the folder «C:\xampp\htdocs\sasDashboard\web\custom» and replace the file “logo.png” with the updated logo. The logo file must be a .png file named “logo.png” with a 48x48 pixels dimension.
- ▶ To change the main colour of the interface: open the file «C:\xampp\htdocs\sasDashboard\web\custom\custom.css» and modify its content to override the current styles sheet.

After modifying the logo or application colour, you need to delete all subfolders in the folder «C:\xampp\htdocs\sasDashboard\app\cache».

### 7.2.2 Argus Web Platform

To modify the language of the login page and to add a flag to the footer of the page you will need to modify the source code and compile a new Argus web platform, this needs skills in software development.

To provide translations to the login page:

- ▶ Copy the file gb.json in the source code repertory: “argusangulardashboard/src/translations/”
- ▶ Paste it in the same repertory “argusangulardashboard/src/translations/” with a different name such as XX.json, XX being the acronym of the new language.
- ▶ Open the pasted file and modify the translations.

To provide a flag to be displayed in the footer of the Argus web platform:

- ▶ Add an image in .png format with a resolution of 92x28 pixels to the source code folder: “argusangulardashboard/src/assets/footer/other”
- ▶ Open the file “argusangulardashboard/src/assets/config-prod.json” and add the name of the image in the entry “otherLogo”.

To compile the Argus web platform with the new language and flag:



- ▶ Run the following command (see additional details on <https://github.com/ngx-rocket/starter-kit#main-tasks> and <https://angular.io/cli/build>):
  - `npm run build --env=prod`
- ▶ The compilation product will appear in a “dist” folder.
- ▶ Copy paste the compilation product in the “C:\xampp\htdocs\argus” repository.

### 7.2.3 Argus Android Client

It is possible to customize the flag appearing on the Argus Android Client application. You will need to use Android Studio: (<https://developer.android.com/studio/index.html>).

In the source code of Argus Android Client application:

- ▶ Create a new subfolder in the “app/src” folder and give it a unique name (e.g. MAR for Morocco, TGO for Togo).
- ▶ Within the new subfolder, create a new folder named “res” and within the folder named “res” create another folder named “drawable-xhdpi” (Figure 49).
- ▶ Add the new flag to be used, it needs to be a .png file, named “bottom\_logo.png” which resolution doesn’t exceed 500 pixels width and 300 pixels height.
- ▶ Update the “build.gradle” (<http://devdeeds.com/update-gradle-plugin-android-studio/>).
- ▶ Open the file “argus/app/build.gradle”, add a new entry in the “productFlavors” entries as in Figure 50.
- ▶ Compile a new signed apk:
  - In the menu of Android Studio, select “Build”, select “Generated Signed APK...” (Figure 48).
  - You need to have a key to sign the apk. This key need to be the same between the different versions of the application. You will find more explanations here <https://developer.android.com/studio/publish/app-signing.html>
  - After having using your key to sign the apk, you will be able to select the flavour you would like to compile. Use the new flavour you have created. You will find documentation about android flavours here : <https://developer.android.com/studio/build/build-variants.html#product-flavors>.



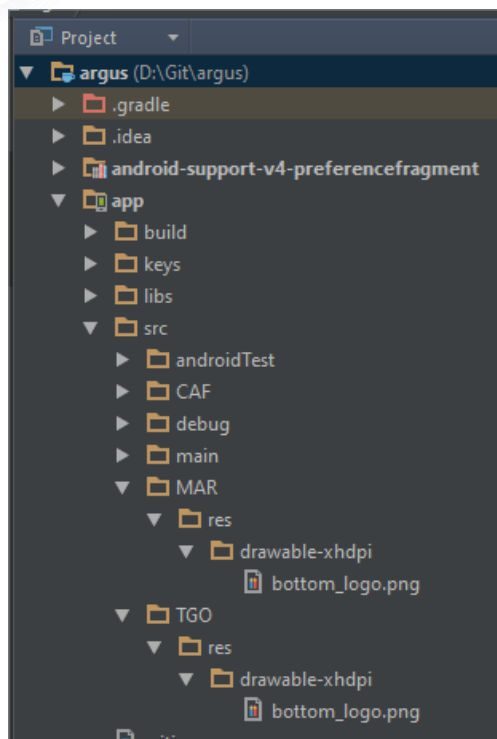


Figure 49. Creation of subfolders in “app/src” for the new flag.

```
productFlavors {
    _Default {
        versionName "${defaultConfig.versionName}"
    }
    MAR {
        versionName "${defaultConfig.versionName}-MAR"
    }
    CAF {
        versionName "${defaultConfig.versionName}-CAF"
    }
    TGO {
        versionName "${defaultConfig.versionName}-TGO"
    }
}
```

Figure 50. Add a new entry in the “argus/app/build.gradle” file.

## 7.3 R scripts

Argus web platform ([http://ip\\_address/argus](http://ip_address/argus)) displays HTML dashboards produced on a regular basis by an instance of the R software:

- ▶ In the file “C:\xampp\htdocs\sasDashboard\app\config\argus\rscript.yml”, the parameters “rscripts” under “parameters” allows you to configure HTML pages that will be displayed on the “Dashboard” page of Argus web platform (Figure 51).
- ▶ Each line represents a dashboard to be displayed, 3 parameters are needed for each dashboard:



- **title:** translated key of the analysis (i.e. 'rscripts.administrative.title' and 'rscripts.epidemiological.title');
- **directory:** relative path under the "C:\xampp\htdocs\ScriptsR\" folder to target the file location (i.e. 'argus/dashboards/reports');
- **file:** full name of the HTML file to be displayed on the dashboard page of the Argus web platform.

```
1 # File used to configure R script configuration
2
3 parameters:
4   rscripts:
5     - { title: 'rscripts.administrative.title', directory: 'argus/dashboards/reports', file: 'admin_dashboard.html' }
6     - { title: 'rscripts.epidemiological.title', directory: 'argus/dashboards/reports', file: 'epi_dashboard.html' }
7   analysesRscripts: 'C:/xampp/htdocs/ScriptsR/reports'
```

**Figure 51. Excerpt of the file**  
**"C:\xampp\htdocs\sasDashboard\app\config\argus\rscript.yml"**

Argus web platform can also provide access to files generated by the instance of the R software:

- In the file "C:\xampp\htdocs\sasDashboard\app\config\argus\rscript.yml", the parameter "analysesRscripts" defines the absolute path of a folder that will be checked by Argus (Figure 51).
- All files in this folder are displayed to the end user in the "Analyses" page of the Argus web platform for downloading purpose.



# Annexes

## Annexe 1. Installation screenshots

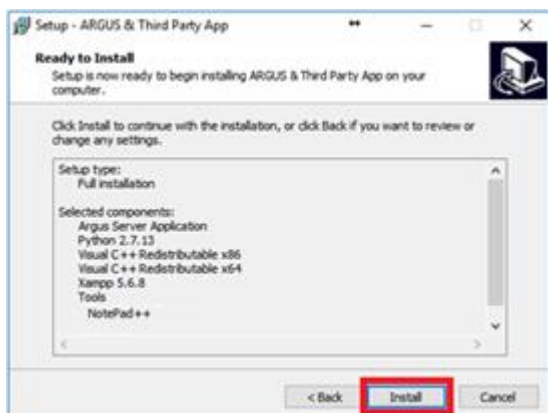
- ▶ Execute the installer Argus & Third Party app.
  - Choose the installation language.



- Choose the components you would like to install (we recommend installing **all components** even if a component is already installed, just make sure any previous version of XAMPP, Python and Argus have been uninstalled), and click next.



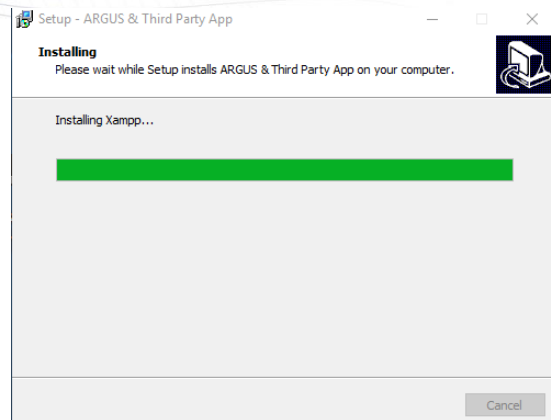
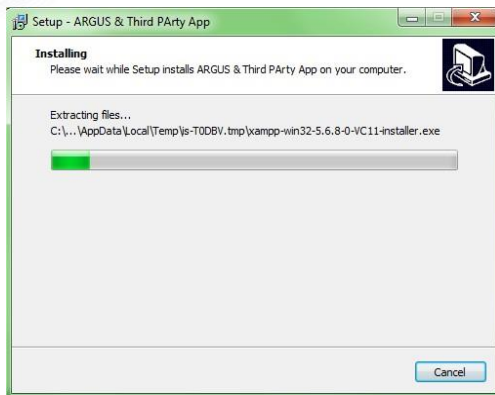
- On the recap screen, Click Install.



- Wait for all installation files to be extracted.

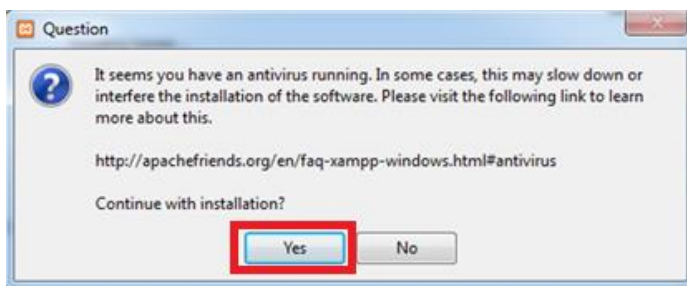




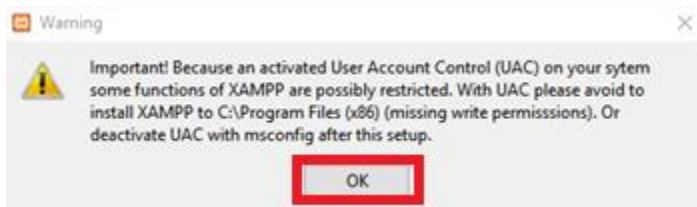


## ► XAMPP installation

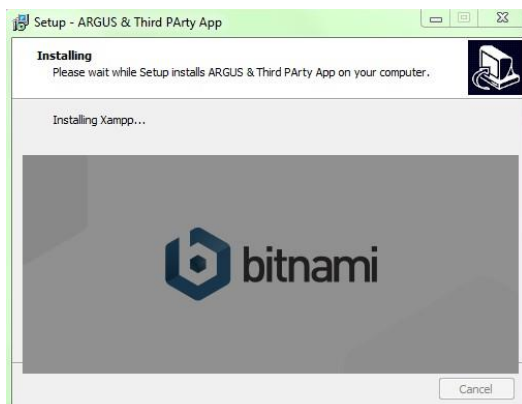
- If you have an antivirus installed, you may see the message below, click “Yes”.



- You may see the warning below message, click “OK”.



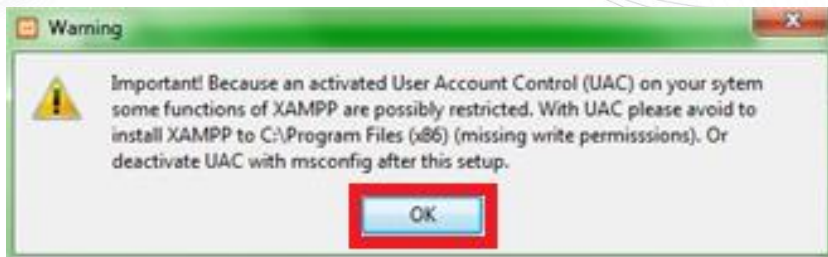
- Wait for the XAMPP setup to start.



- If you see the warning below message, click “OK”.



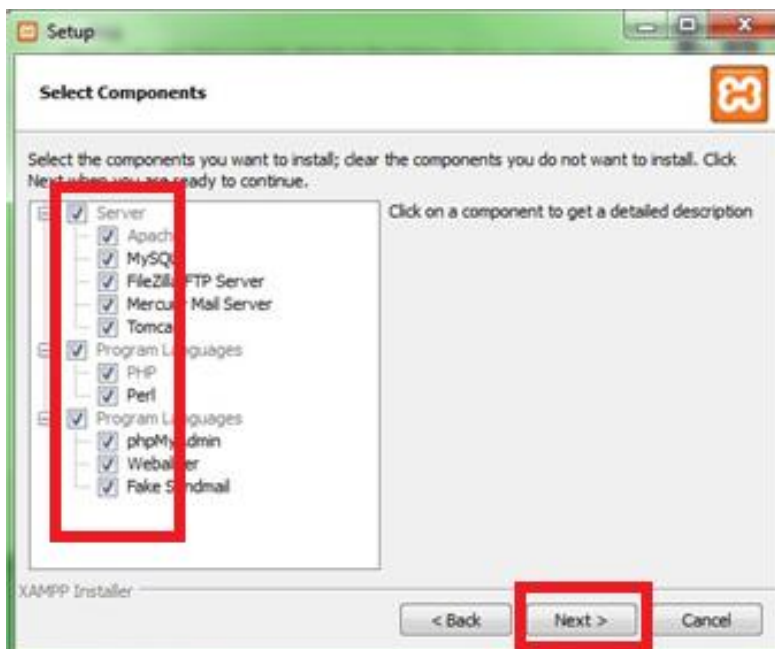




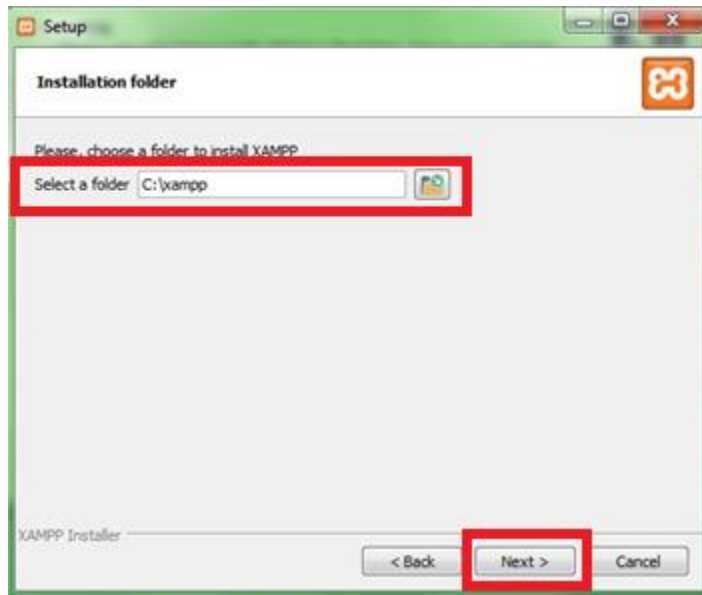
- On the XAMPP setup welcome screen, click “Next”.



- Make sure to select ALL components.



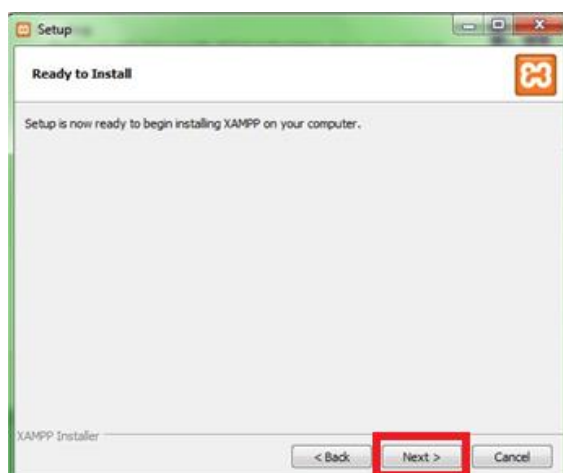
- Type in or select **C:\xampp** as the installation folder and click “Next”.



- Make sure the “Learn more” box is not ticked and click “Next”.



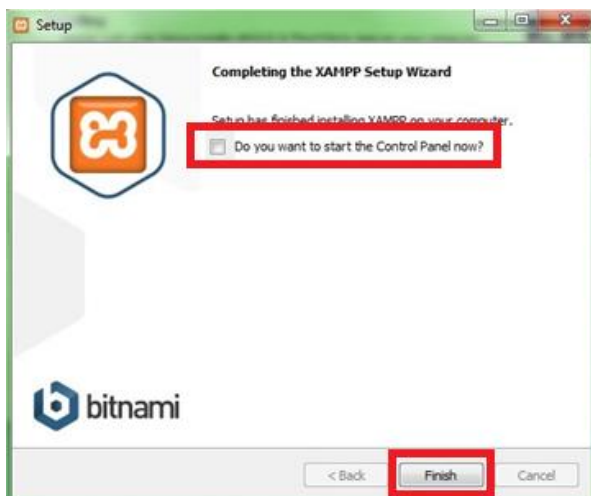
- Click “Next” on the “Ready To Install” screen.



- Wait for the installation of XAMPP to complete.

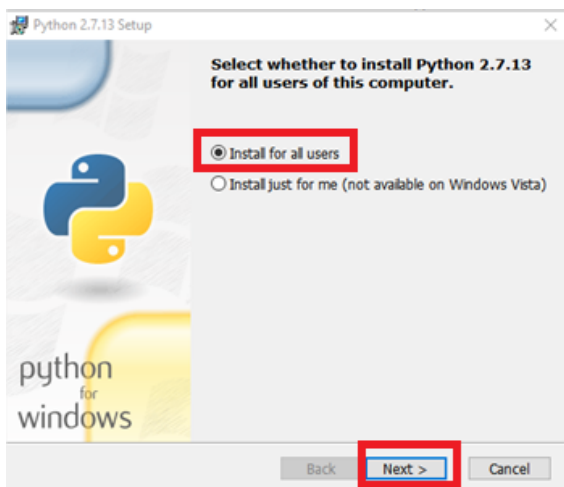


- Make sure the “Do you want to start the Control Panel now ?” box is not ticked and click “Finish”.

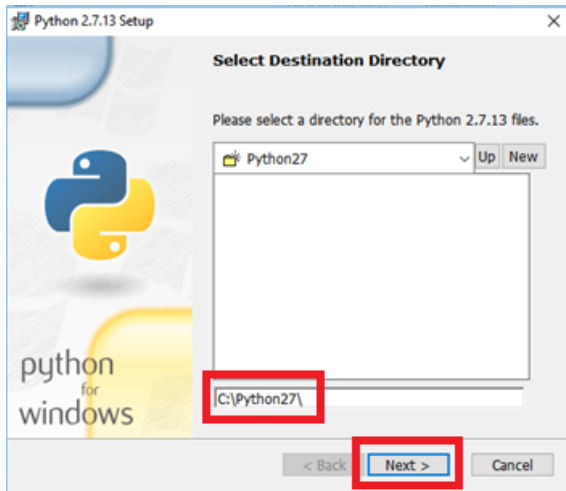


## ► Python 2.7.13 installation

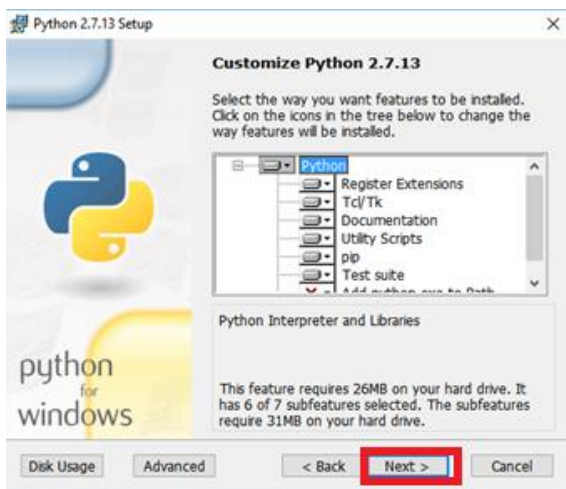
- Tick “Install for all users” and click “Next”.



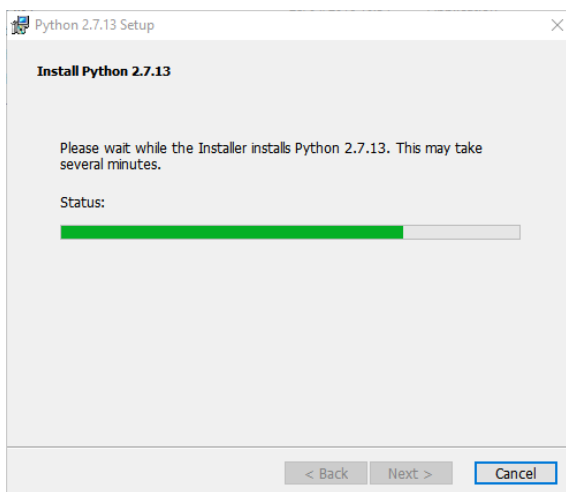
- On the “Select Destination Directory” screen type in or select “C:\Python27\” as the installation directory and click “Next”.



- On the “Customize Python 2.7.13” screen click “Next”.



- Wait for all installation files to be extracted.

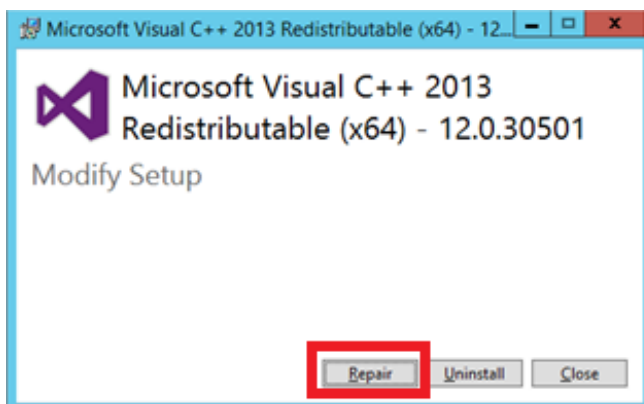


- On the “Complete the Python 2.7.13 Installer” screen, click “Finish”.

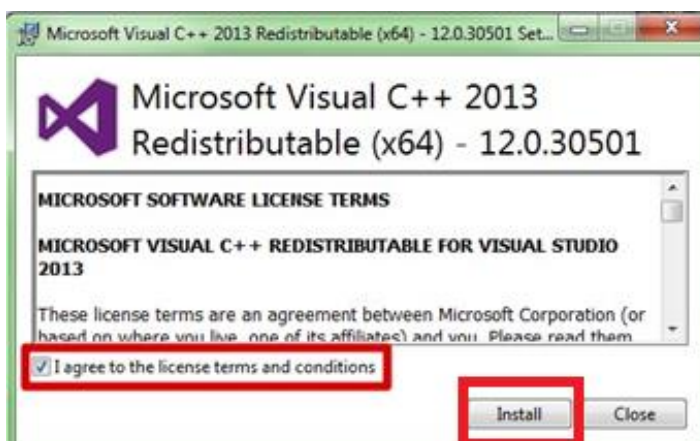


#### ► Microsoft Visual C++ installation

- If the Microsoft Visual C++ 2013 was already installed, Click “Repair”:



- If it is not yet installed, tick the box “I agree to the license terms and conditions” and click “Install”.

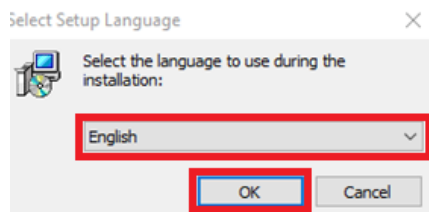


- On the “Setup successful” screen, click “Close”.

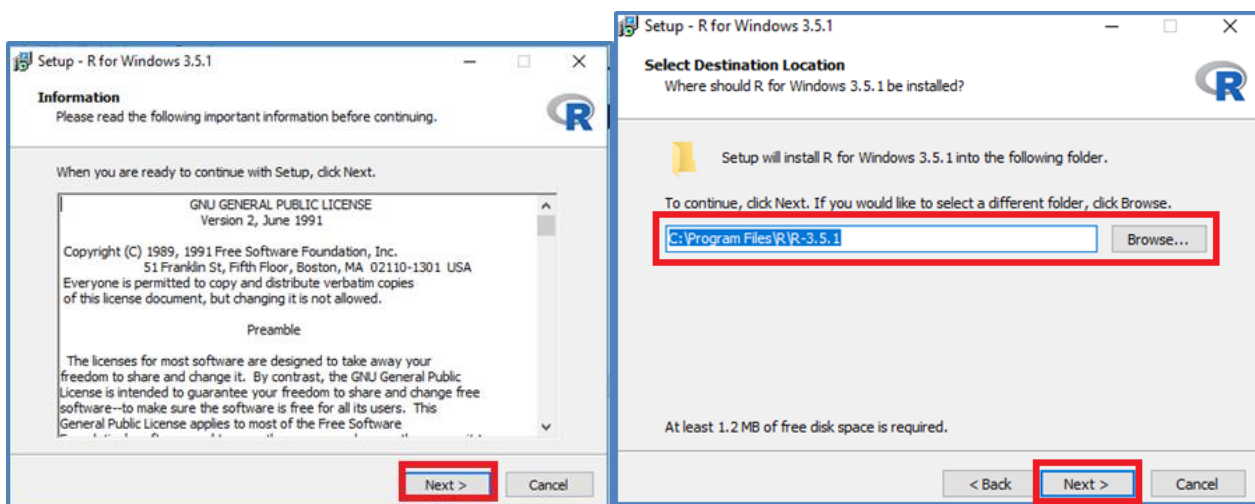


## ► R installation

- Choose the installation language.

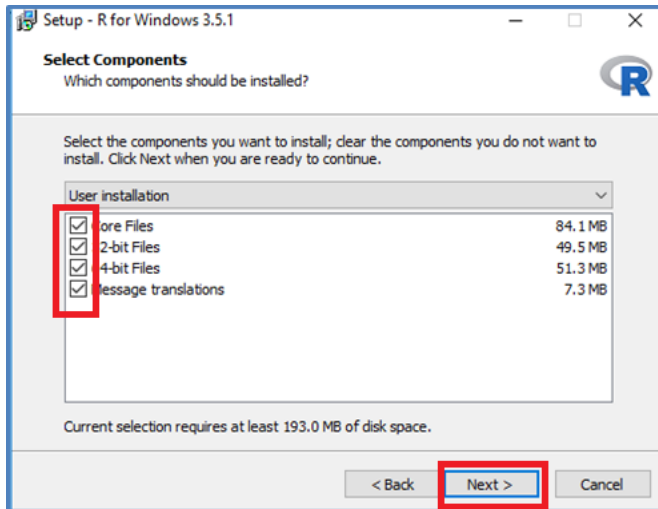


- Click “Next”.

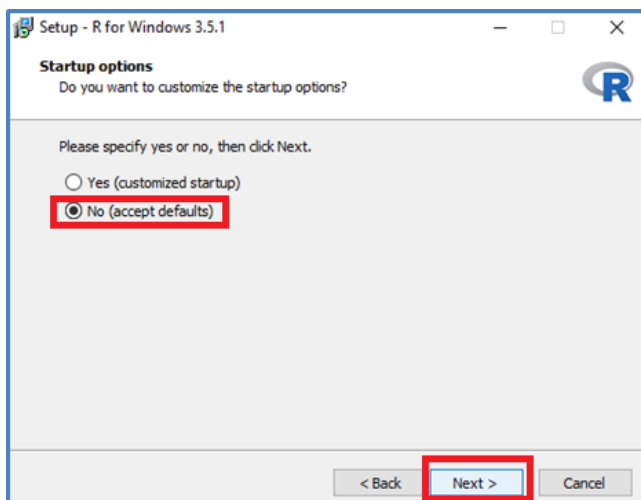




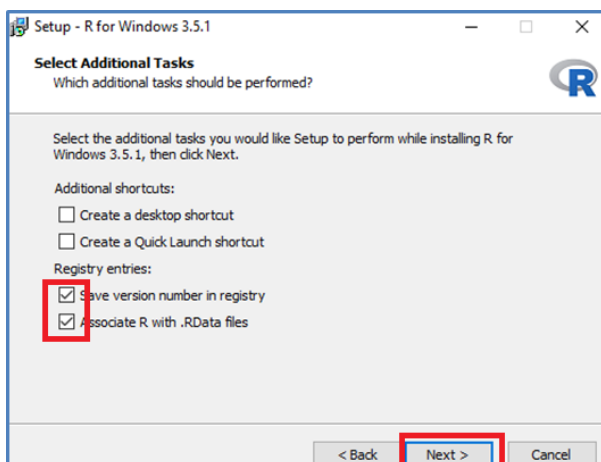
- In the “Select Components” screen, make sure to select ALL components and click “Next”.



- Accept default startup options and click “Next”.

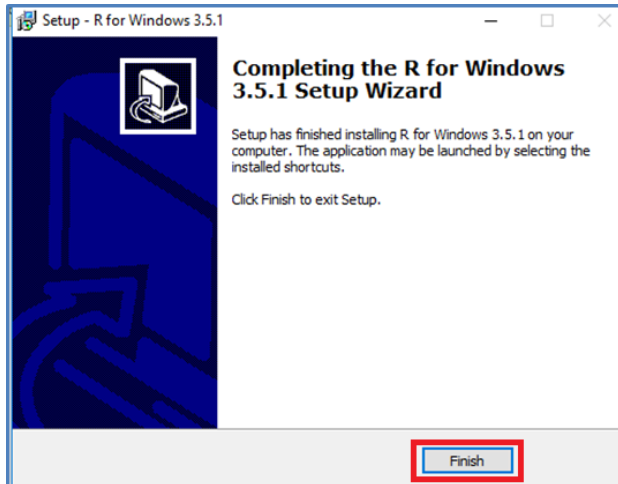


- In the “Select Additional Tasks” screen, tick “Save version number in registry” and “Associate R with .RData files” and click “Next”.



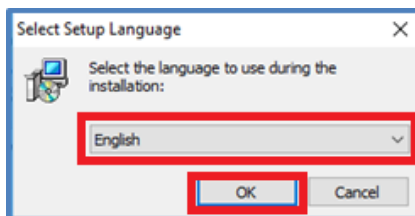


- Once the installation of R is completed click “Finish”.

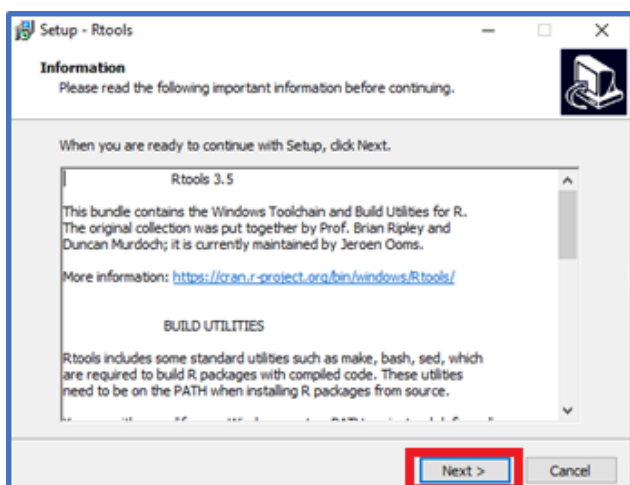


## ► R tools installation

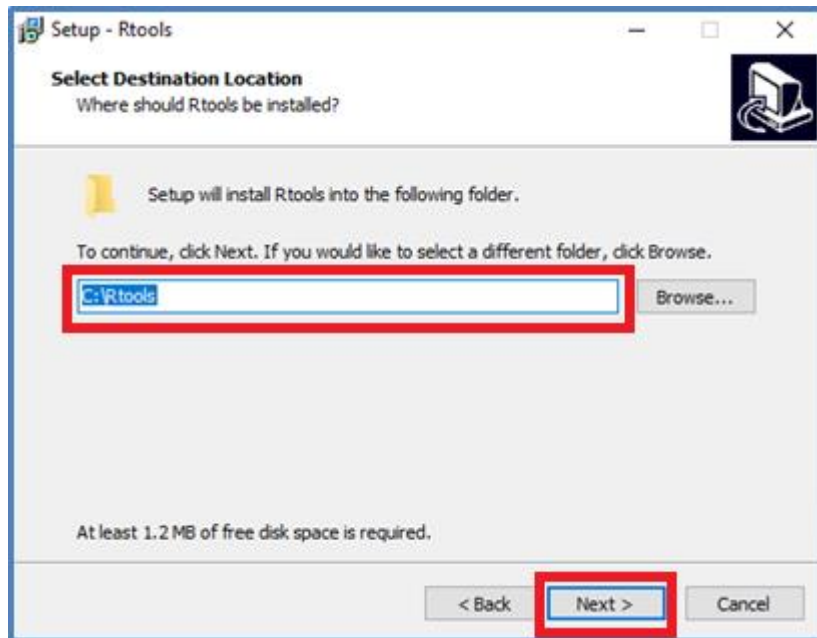
- Choose the installation language and click “OK”.



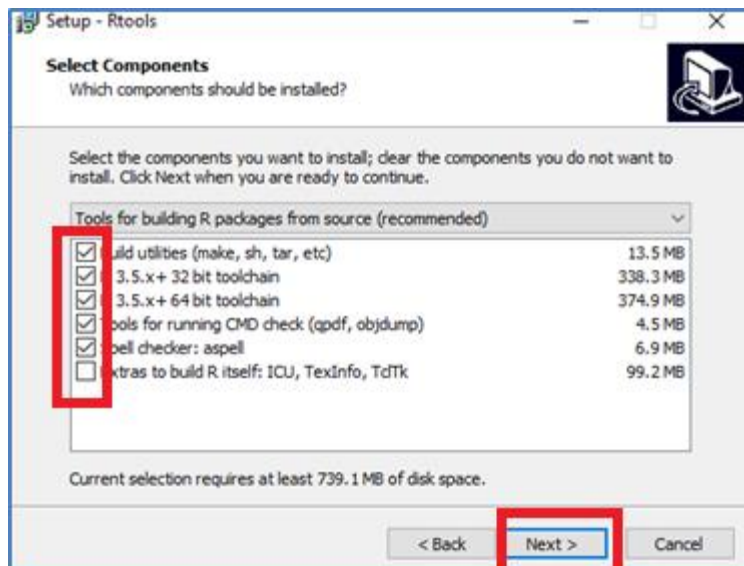
- On the information screen, click “Next”.



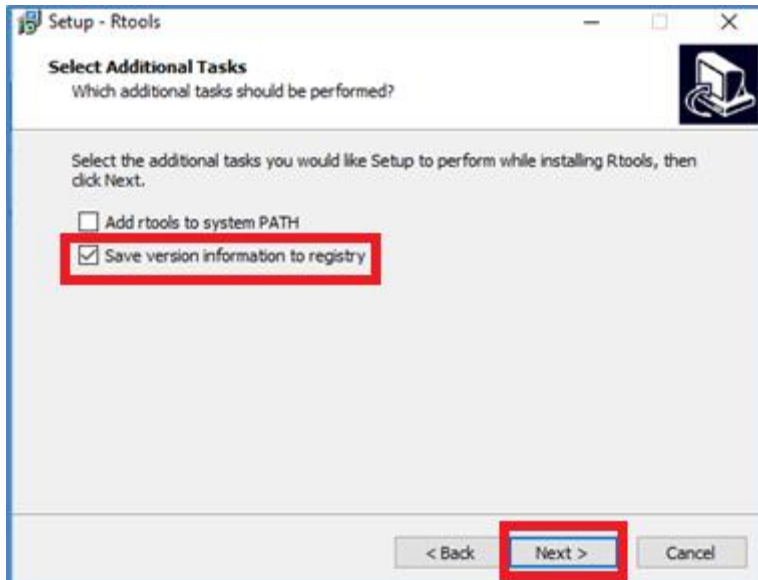
- Select the installation folder location (“C:\Rtools”) and click “Next”.



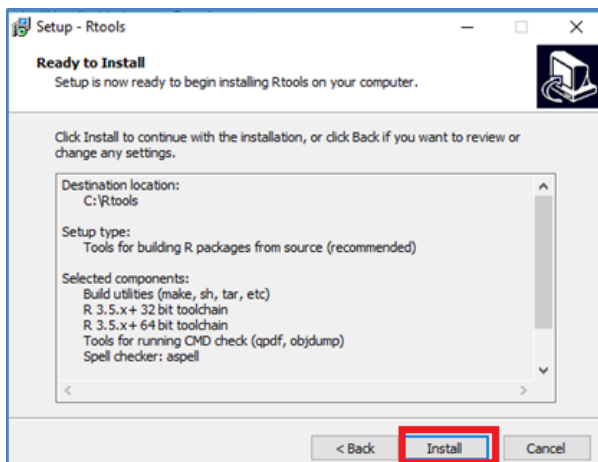
- In the “Select Components” screen, tick all components except the last one (“Extras to build R itself”), and click “Next”.



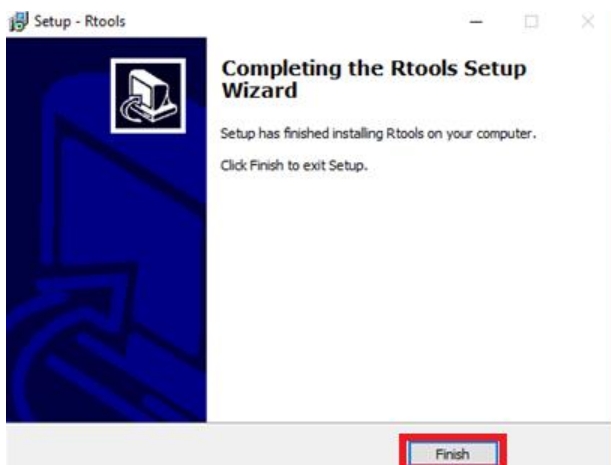
- On the “Select Additional Tasks” screen, tick “Save the version information to registry” and click “Next”.



- Click “Install”.

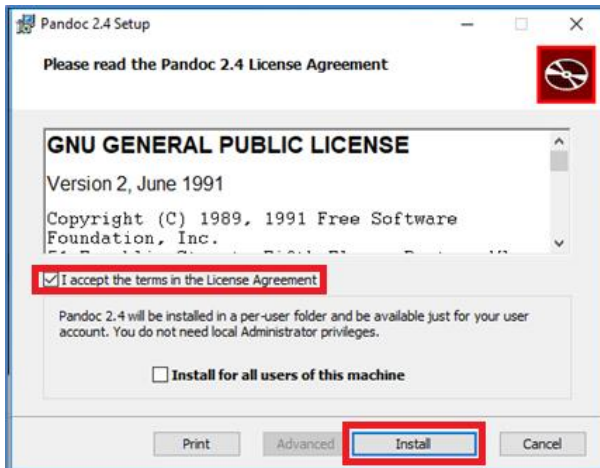


- Once the installation of Rtools is completed click “Finish”.

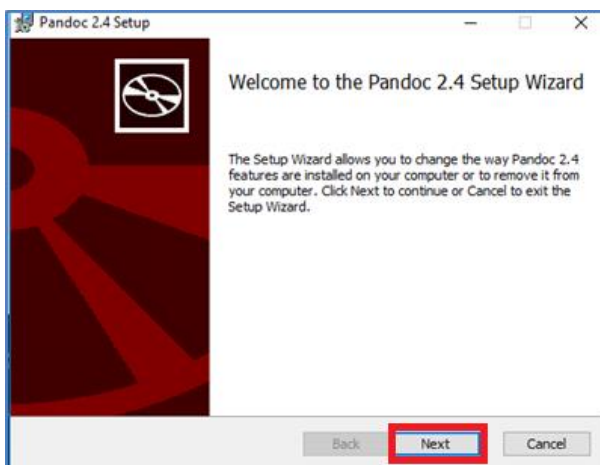


## ► Pandoc 2.4 installation

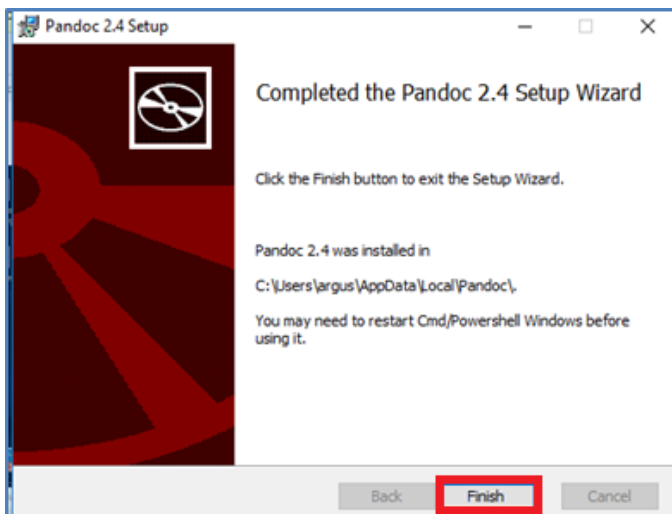
- Tick “I accept the terms in the Licence Agreement” and click “Install”.



- Click Next:



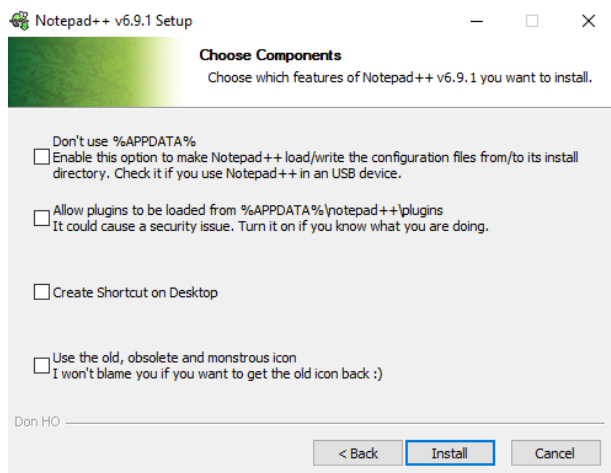
- Once the installation of Pandoc is completed click “Finish”.



- Installation of extra tool (optional): this tool is not necessary to operate Argus but may be useful during the installation process ([Notepad++](#)).

Don't restart the computer if during the installation of the extra tool you are asked to restart.

- If you install Notepad++, in the “Choose Components” screen, don't tick any box.



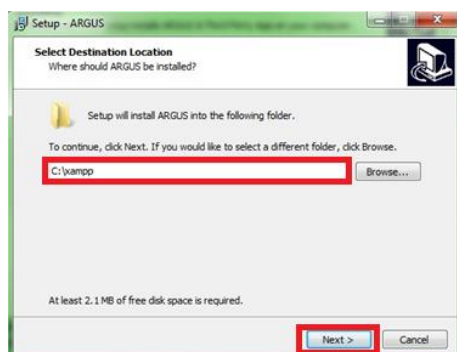
## ► Argus server components installation

- Choose the installation language and click “OK” (this is just the language for the installation process, and not the language that will be used by Argus).

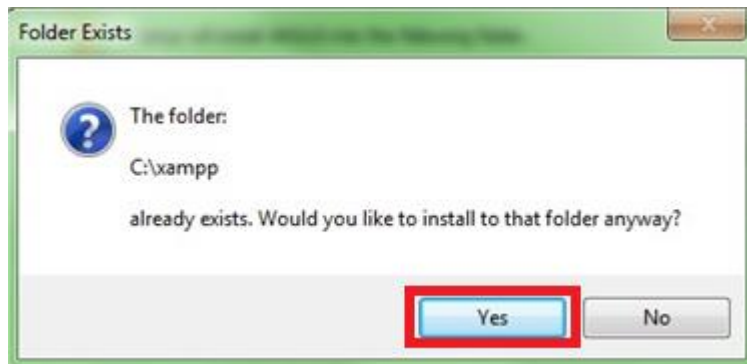


- On the “Select Destination Location” screen, type in or select “C:\xampp” as the installation folder and click “Next”

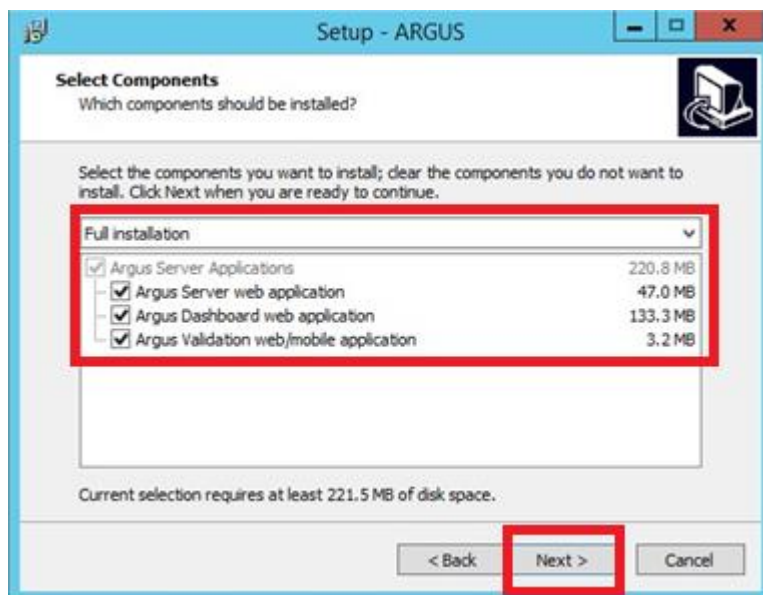
Ensure Argus is installed in the folder “C:\xampp”.



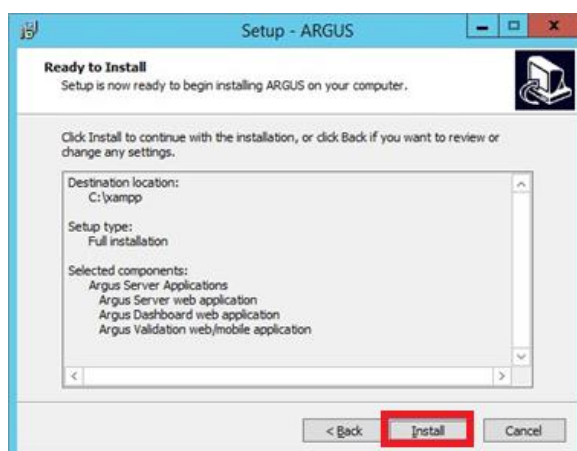
- When the message “The folder C:\xampp already exists. Would you like to install to that folder anyway” appears, click “Yes”.



- On the “Select Components” screen, tick all components and click “Next”.

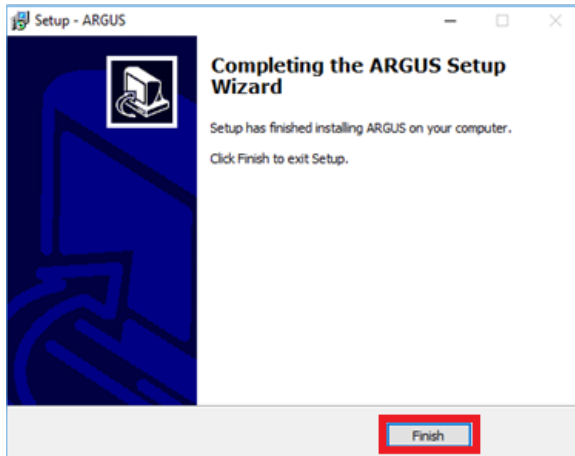


- On the “Ready to Install” screen click “Install”.





- Once the Argus installation is completed click “Finish”.



- Tick the box “Yes, restart the computer now” and click “Finish”.



All components have been installed, the server is going to restart.

If you have experienced any problems while installing the different components, please restart the server and try to re install from scratch.





## Annexe 2. XAMPP configuration

Run “XAMPP Control Panel” as administrator by right clicking on the shortcut and selecting “Run as administrator” .

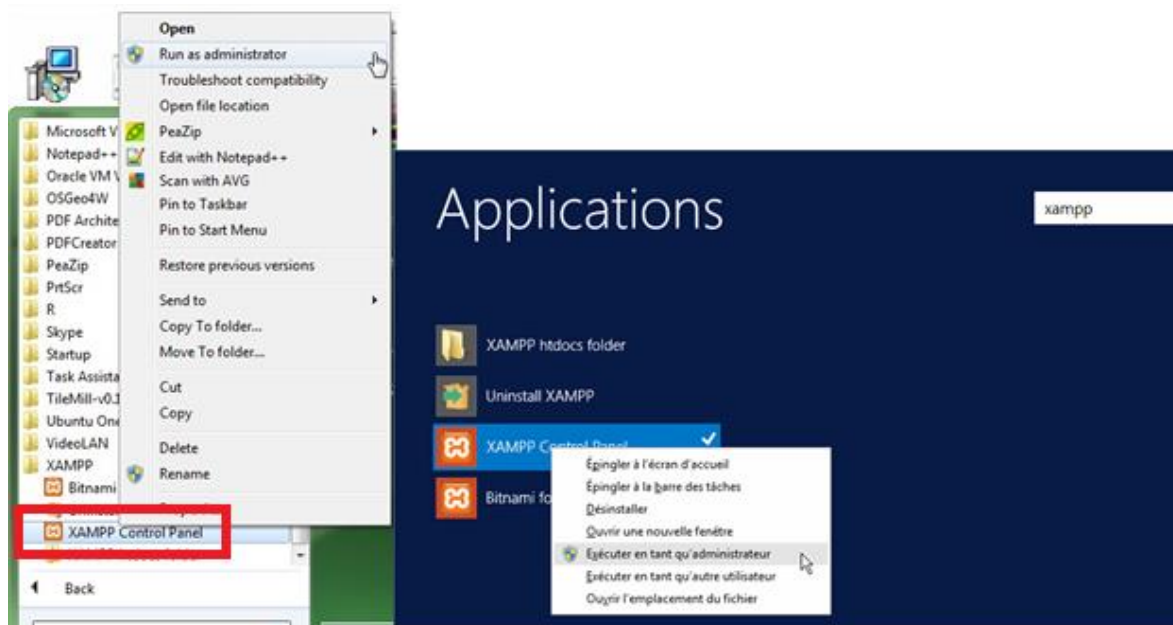
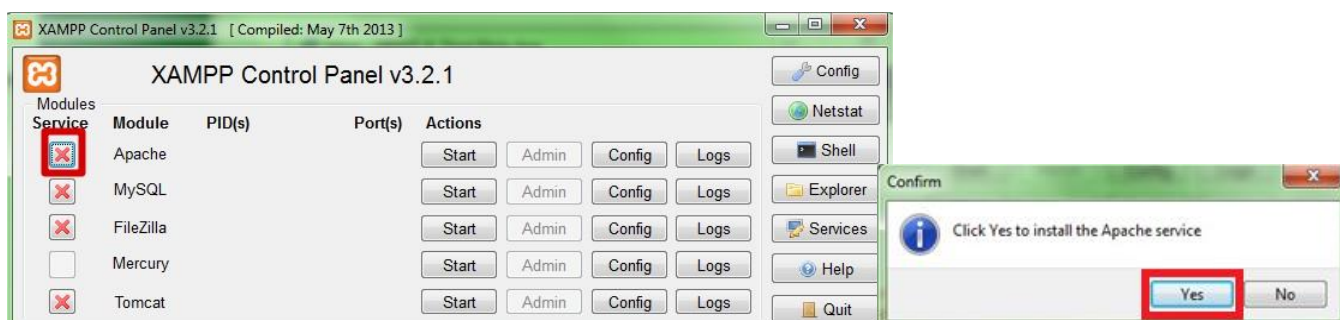


Figure 52. Run XAMPP Control Panel as administrator

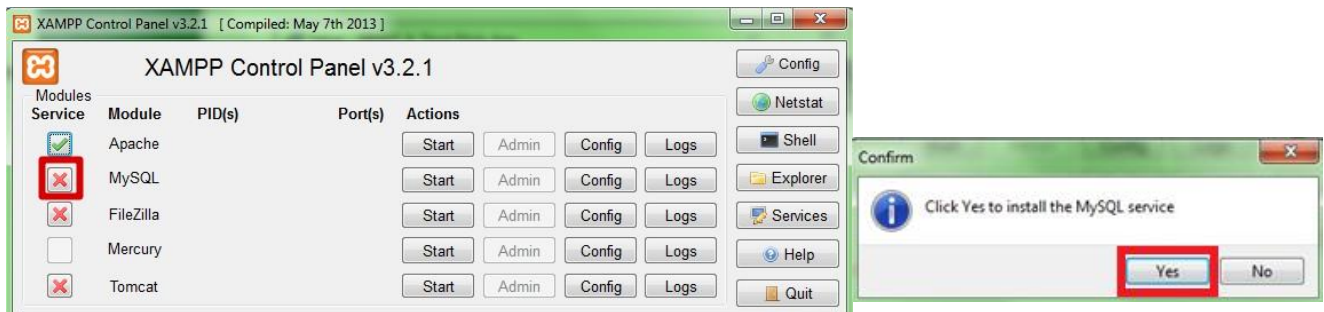
On the XAMPP Control Panel screen:

- ▶ Click on the Red cross behind “Apache” in order to install Apache as a service.
- ▶ On the confirmation screen of the Apache installation as a service, click Yes.

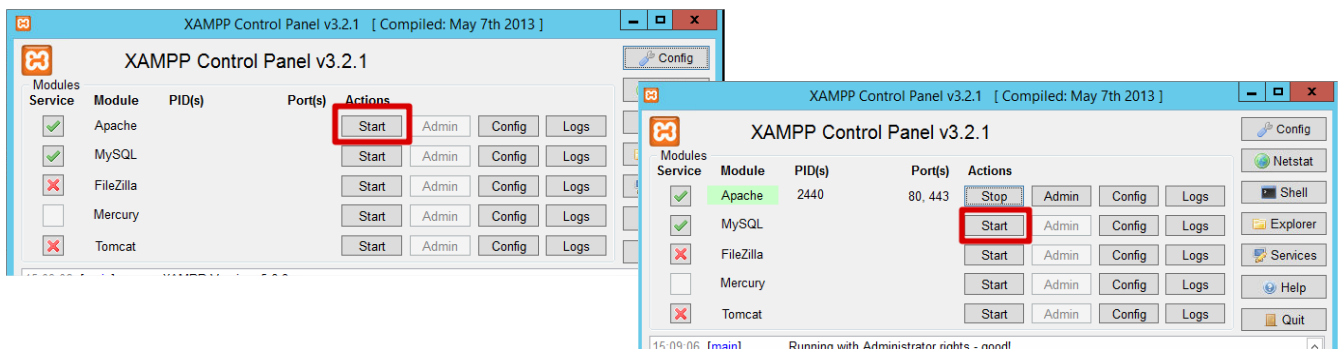


- ▶ Click on the Red cross behind “MySQL” in order to install MySQL as a service.
- ▶ On the confirmation screen of the MySQL installation as a service, click Yes.

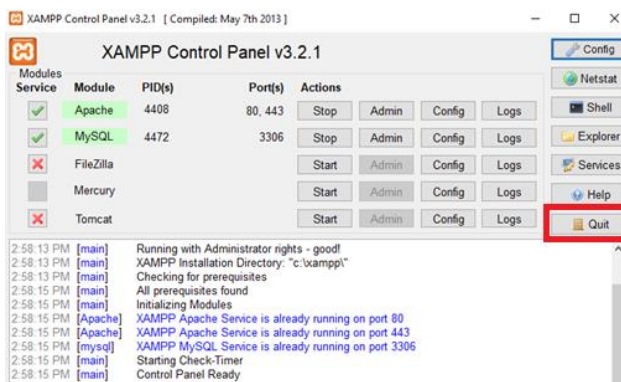




- Click on the Start button for starting Apache.
- Click on the Start button for starting MySQL.



- Click on the Quit button to close the XAMPP control panel.



## Annexe 3. Power shell script for automatic database backup

```
# Core settings - you will need to set these
$mysql_server = "localhost"
$mysql_user = "user"
$mysql_password = "password"
$backupstorefolder= "H:\ARGUS\MySQLBackup\"
$dbName = "argus"

# Days in the past to keep. Must be negative
$daysBackupToKeep = -30

$pathtomysqldump = "C:\xampp\mysql\bin\mysqldump.exe"

# Minimum size to consider backup valid
$bkpminsize=0.2

# Determine Today Date Day (monday, tuesday etc)
$timestamp = Get-Date -format yyyyMMdd-HH:mm:ss

$bkpsuffix = "_" + $dbName + ".sql"

# Set backup filename and check if exists, if so delete existing
$backupfilename = $timestamp + $bkpsuffix
$backuppathandfile = $backupstorefolder + "" + $backupfilename

write-host "Backing up database: " $dbName " to " $backuppathandfile

If (test-path($backuppathandfile)) {
    write-host "Backup file '" $backuppathandfile "' already exists.
Existing file will be deleted"
    Remove-Item $backuppathandfile
}

try
{
    # Invoke backup Command. /c forces the system to wait to do the
    backup

    If ($mysql_password.Length -eq 0){
        $out = cmd /c " `"$pathtomysqldump`" -h $mysql_server -u
$mysql_user $dbname --result-file=$backuppathandfile " 2>&1
    }
    Else{
        $out = cmd /c " `"$pathtomysqldump`" -h $mysql_server -u
$mysql_user -p$mysql_password $dbname --result-
file=$backuppathandfile " 2>&1
    }
}
catch
{
    write-host "Powershell error when creating backup:"
$_ .Exception.Message

    Exit
}

# Check if error string in output
if( ($out -ne $null) -and ($out.Length -gt 0) ) {
```



```

        if( $out -Match "error" ) {
            write-host "Mysql error when creating backup:" $out
            If (test-path($backuppathandfile)) {
                write-host "Delete file just created."
                Remove-Item $backuppathandfile
            }
            Exit
        }
    }

if (test-path($backuppathandfile)) {
    if((Get-Item $backuppathandfile).length/1MB -lt $bkpminsize) {
        write-host "File is too small. Remove file just created"
        Remove-Item $backuppathandfile
    }
}

# Filter to list backup files
$filter = "*" + $bkpsuffix

$date = Get-Date

$bkpfiles = Get-ChildItem $backupstorefolder | Where-Object
{$_ .Attributes -ne "Directory"} | Sort-Object LastWriteTime -
Descending

foreach ($file in $bkpfiles) {
    $file_date = get-date $file.LastWriteTime

    if ($file_date -le $date.AddDays($daysBackupToKeep)) {
        Write-Host "Remove old file " $file.Name
        Remove-Item $file.FullName
    }
}

```



