Armadito for GLPI Documentation

Release 1.0

Teclib

Oct 24, 2018

Contents

Armadito for GLPI is an open-source solution to manage computer antiviruses on IT infrastructures. It could be used to manage various kind of Antiviruses.

Key points :

- **Open source**
- **Multi Antiviruses**
- **Multi Operating Systems**
- **Multi Task schedulers**

Main features :

- **Scan** : on-demand scan deployment on computers
- **Alerts** : centralization of alerts (realtime + on-demand scans)
- **AVConfig** : centralized remote configuration
- **State** : databases updates and antivirus states

Compatibility matrix :

Antivirus	OS	Versions	Scan	Alerts	AVConfig	State
Armadito	Linux	0.12.8	Yes	Yes	Soon	Yes
Kaspersky	Windows	17.0.0	Yes	Yes	Yes	Yes
ESET Nod32	Linux	4.0	Yes	Yes	Soon	Yes
Avast	Windows		Soon	Soon	Soon	Soon
360TotalSec	Windows		Soon	Soon	Soon	Soon
…	…	…	…	…	…	…

This solution can be divided into two subprojects :

- **armadito-agent** : client-side part installed on each managed computer.
- **armadito-glpi** : server-side part developed as a plugin for GLPI.

CHAPTER 1

Introduction

Armadito for GLPI aims to be a Free IT management solution dedicated to Antiviruses management. It is a complementary solution to GLPI : the Free IT and Asset Management Software. Indeed, GLPI is an Information Resource-Manager with an additional Administration Interface.

Integrated as a plugin to GLPI, **armadito-glpi** relies on the powerful APIs of GLPI. The plugin provides many charts grouped on different boards. All these boards are configurable/customizable in order to fit administrator's preferences. This plugin is all about the capacity of simply managing multiple kind of antiviruses. Development is driven with that goal since the beginning. Also, it should be easier to manage multiple antiviruses.

Armadito Agent is the client side program which communicates to both Antiviruses and GLPI. Note that all communications with the plugin are within a RESTful API. Armadito agent is written in oriented object programming in Perl language. It has been conceived in a way that simplify being compatibile with new antiviruses. For maintaining code quality, perl-critic is passed on each build, including on travis-ci.

CHAPTER 2

Getting Started

Armadito Plugin for GLPI does not radically differs in usage from core GLPI. It is why people who already use GLPI should not be lost when using that plugin.

For this tutorial, we assume that you have GLPI >= 9.1 already installed and configured. If not, please follow the procedure on glpi-project.org.

2.1 1. Plugin Installation

- *Tutorial*

2.2 2. Enrollment Keys generation

To create a new enrollment key, go to **General** > **Enrollment Keys** menu in the plugin.

1 - Click on "+" button on the top at left

2 - Select an expiration date and the usage counter

3 - Validate form by clicking on add button

2.3 3. Agents installation

Please, follow one of these tutorials :

- *Linux Tutorial*
- *Windows Tutorial*

2.4 4. Agents configuration

Basically, you need to set a few things in **agent.cfg** the first time you install an agent :

1 - Plugin Server URL (ex: http://127.0.0.1/glpi/plugins/armadito/)

2 - An antivirus to manage (ex: Armadito, Kaspersky, Eset)

3 - The kind of scheduler you will use (ex: Cron, Win32Native)

4 - Your network advanced configuration (if needed, i.e. proxy, authentification, etc)

Furthermore, you should set a scheduling configuration that fits your needs in **scheduler-X.cfg**.

More info :

- *Configuration doc*
- *Scheduling doc*

2.5 5. Agents enrollment

On either Linux or Windows, you need admin/superuser rights for enrollment. It is due to the fact that armadito-agent retrieves your system UUID as an unique identifier. Indeed, it allows automatic association with inventory in GLPI.

Be sure that you got a valid enrollment key, or you won't be able to enroll your agent.

To enroll/re-enroll an agent, just type the following with **admin/superuser** rights :

```
$ armadito-agent -t "Enrollment" -k "AAAAE-AAAAD-AAAAF-AAAAZ-AAAA5"
```

Note: Feel free to ask on forum.armadito.org if you have any question.

CHAPTER 3

Armadito Agent

- **armadito-agent** : client-side part installed on each managed computer.

3.1 Introduction

Armadito Agent is the interface between Armadito plugin for GLPI and Antiviruses installed on managed computers. This agent basically provides a set of tasks that can be executed at any time :

- **Enrollment** : new agent ID assignation or re-assignation.
- **GetJobs** : get available jobs for this agent.
- **RunJobs** : run jobs with a given priority and post results to GLPI.
- **State** : get antivirus status and send it to GLPI.
- **Scan** : on-demand scan and send results to GLPI.
- **Alerts** : check for virus alerts and send it to GLPI.
- **AVConfig** : manage antiviruses' configurations

Note: You can also find a fully detailed documentation on CPAN.

CPAN documentation also includes binary usage description that you can also get by using *–help* option on computer where agent is installed.

3.2 Provided Tasks

It is important that administrators understand briefly how these tasks works. Thus, in this section, all tasks will be described in details.

3.2.1 Enrollment

– POST **/api/agents** :

1 - After retrieving computer’s UUID, the agent sends a request containing enrollment key to add or update agent in database.

2 - Enrollment key validity is checked on server side.

3 - An ID from **0** to **number_of_agents** is assigned and sent back to agent if enrollment is authorized.

4 - Then the agent stores persistently this ID.

Enrollment is mandatory and need to be done when agent is not in database (removed or first time). If your computer changes his UUID, a new agent ID will be assigned when running this task again. It means that the previous ID will still be in database. It is then administrator’s choice to keep it or remove it by using plugin’s web interface.

Example :

```
$ armadito-agent -t "Enrollment" -k "AAAAA-AAAAA-AAAAA-AAAAA-AAAAA"
```

3.2.2 Scheduler

– GET & POST **/api/schedulers**

1 - Retrieve Scheduler configuration defined into plugin Armadito for GLPI (if there is one)

2 - Update local Scheduler configuration (if needed)

3 - Retrieve current local Scheduler configuration

4 - Send it in a json message to plugin Armadito for GLPI

5 - Store only differences in database

Example :

```
$ armadito-agent -t "Scheduler"
```

3.2.3 Getjobs

– GET **/api/jobs** :

1 - Enrolled agent sends a request to get assigned jobs.

2 - The plugin sends back an array of jobs in a json message.

3 - The agent parses the message and stores it for later use.

There is a getJobs limit which defines the maximum of jobs that can be retrieved for each request to API. By default, it is limited to 10 jobs but you can change this value in **General** > **Configuration** > **Jobs** from Armadito plugin in GLPI.

Example :

```
$ armadito-agent -t "Getjobs"
```

3.2.4 Runjobs

– POST **/api/jobs**

1 - Get list of previously stored jobs (locally)

2 - Execute these jobs sequentially

3 - Sends Jobs execution statuses to GLPI. It can includes error messages.

A Job can have 4 differents levels of priority :

- low = 0
- medium = 1
- high = 2
- urgent = 3

Job priority can be selected by administrator when creating a new job in Armadito Plugin for GLPI. Note that, at each call of **Runjobs**, jobs are executed sequentially according to their priority level.

Example 1, tasks are executed after waiting 10 seconds :

```
$ armadito-agent -t "Runjobs" -w 10
```

Example 2, tasks are executed after waiting randomly between 0 and 10 seconds :

```
$ armadito-agent -t "Runjobs" -wr 10
```

Note: It works in combination with **Getjobs** task. **Getjobs** should be run more often than **Runjobs** in order to fully benefit from job priority system.

3.2.5 State

– POST **/api/states**

1 - Get Antivirus status (databases update status, on-access activation, etc)

2 - Sends this status in a json message to Armadito plugin for GLPI.

3 - Database is updated in GLPI

For Armadito Antivirus, the first step consists on sending a GET request to RESTful API of the antivirus.

Example :

```
$ armadito-agent -t "State"
```

3.2.6 Scan

– POST **/api/scans**

1 - Ask Antivirus for a new on-demand scan

2 - Send progress regularly to GLPI before scan's end (optional)

3 - Send scan results to plugin Armadito for GLPI

Example :

```
$ armadito-agent -t "Scan"
```

3.2.7 Alerts

– POST **/api/alerts**

1 - Retrieve Antivirus specific alerts

2 - Send alerts in a json message to plugin Armadito for GLPI

3 - Store these alerts in database

Example :

```
$ armadito-agent -t "Alerts"
```

Note: A checksum considering main characteristics is computed on server side. It allows to avoid inserting duplicates.

3.2.8 AVConfig

– GET & POST **/api/avconfigs**

1 - Retrieve Antivirus configuration defined into plugin Armadito for GLPI (if there is one)

2 - Update local computer Antivirus' configuration (if needed)

3 - Retrieve current local Antivirus configuration

4 - Send it in a json message to plugin Armadito for GLPI

5 - Store only differences in database

Example :

```
$ armadito-agent -t "AVConfig"
```

Note: The way Step **5** has been implemented leads to a great reduction of database size. Indeed, if 1000 agents have the same configuration, only 1 copy will be stored.

3.3 Task Scheduling

Because a task is an action that can be executed independantly from the others, the way tasks are planified can be from outside. I.e. from another program. It means that any tasks planification program should do the job. Thus, **Armadito Agent** does not include a task planification system in itself, but provides wrappers.

To allow easy remote control of agent's tasks, armadito plugin for GLPI provides some ways to configure schedulers from server side. Indeed, managing these planifications can be done within "Scheduler" agent task :

```
armadito-agent -t "Scheduler"
```

That task is a kind of wrapper for OS Schedulers, but it can communicates with Armadito Plugin for GLPI's RESTful API. Administrator could use these wrappers, but he can also decide to manage scheduling by himself from outside.

If Administrator decides to use Armadito Agent's wrappers, it has to be configured in main configuration file (etc/agent.cfg). It can be done, by simply setting which scheduler to use :

```
scheduler = Cron
```

Then, scheduler has to be configured properly. Each wrapper has a specific configuration file associated (etc/scheduler-win32native.cfg, etc/cron.cfg, etc). Because constraints in IT infrastructures differs from an organization to an other, frequencies and planification of these tasks are an administrator's choice.

3.3.1 Win32Native

Win32Native is a wrapper to the native "SCHTASKS" program of Windows. It basically simplify the use of schtasks in the agent specific case. For full documentation on possibilities offered by Schtasks, see on MSDN Schtasks.exe.

- **Configuration example** : scheduler-win32native.cfg
- **Configuration file path** : <installdir>\etc\scheduler-win32native.cfg
- **Source File** : Scheduler/Win32Native.pm

3.3.2 Cron

Cron simply add/update a crontab configuration file for Armadito Agent. For full documentation of crontab, see CronHowto.

- **Configuration example** : scheduler-cron.cfg
- **Configuration file path** : <installdir>/etc/scheduler-cron.cfg
- **Source File** : Scheduler/Cron.pm

In order to apply a new/updated configuration :

```
armadito-agent -t "Scheduler"
```

3.3.3 Armadito Scheduler

Warning: It is still under experimentation.

Armadito Scheduler is a task scheduler conceived with the purpose of maximizing equitability in the repartition of tasks over time.

- **Source Code** : Github Armadito-Scheduler

3.4 Compilation

armadito-agent can be built from sources with **cpan** on Windows and Linux.

3.4.1 Build on Linux

Prerequisites

- Git client
- GNU make
- C compiler
- Perl > 5.8

Ubuntu

```
$ sudo apt-get install libmodule-install-perl cpanminus
```

Instructions

Get the last version of Armadito Agent sources on github :

```
$ git clone -b DEV https://github.com/armadito/armadito-agent
```

To install all dependencies automatically :

```
$ cpanm --quiet --installdeps --no-test .
```

Then, at root of project's sources :

```
$ perl Makefile.PL
$ make
$ make test
$ make install
```

3.4.2 Build on Windows

Prerequisites

- Git client
- Perl > 5.8 (Strawberry Perl or something else)
- Perl module **inc::Module::Install**

Modules

```
$ cpan install inc::Module::Install
$ cpan install App::Cpanminus
```

Note: You might have to **force** Authen::Simple installation due to a known issue : https://rt.cpan.org/Public/Bug/Display.html?id=100750

Instructions

Get the last version of Armadito Agent sources on github :

```
$ git clone -b DEV https://github.com/armadito/armadito-agent
```

To install all dependencies automatically :

```
$ cpanm --quiet --installdeps --no-test .
```

Then, at root of project's sources :

```
$ perl Makefile.PL
$ dmake
$ dmake test
$ dmake install
```

Note: dmake is the make utility installed within Strawberry Perl. It may be **nmake** instead with an other Perl environment.

3.5 Installation

3.5.1 Installation on Linux

A PPA is provided for Ubuntu in order to simplify installation.

Note: For other distributions, installation can always be done by following instructions given in *Build from Sources* previous section of this documentation.

Ubuntu with PPA

Currently available for :

- xenial (16.04LTS)
- trusty (14.04LTS)

To install :

```
$ sudo add-apt-repository ppa:armadito/armadito-av
$ sudo apt-get update
$ sudo apt-get install libarmadito-agent-perl
```

After installation, you can enroll your computer :

```
$ sudo armadito-agent -t "Enrollment" -k "AAAAE-AAAAD-AAAAF-AAAAZ-AAAA5"
```

For further informations about PPA, see Launchpad.net

3.5.2 Installation on Windows

Basically, armadito-agent's installation on Windows can be made offline or online. It means at least two different kind of installers. We provide command line installation examples for both installers. We decided to use **Inno Setup** also because it is quite simple, open source and well documented. Also, it is a good alternative to Perl Dev Kit (now not available for individual sales) and old school installations with cpan.

> **Warning:** Inno Setup is now well known, but some Antiviruses still have false positives, for example with temporary files created by Inno Setup Installer.

About Enrollment Key(s)

In both cases, installation can be done without providing a good enrollement key, while it is not recommended. Administrators should be able to fastly generate enrollment key(s) from Armadito plugin for GLPI from menu General > Enrollment Keys.

If you installed without a valid enrollment key, no worry, you will still be able to enroll later.

Download Installer

Offline or Online : https://github.com/armadito/armadito-agent/releases

Offline installer

Offline installer's size is bigger (~80MB) because it includes a strawberry perl distribution and all perl dependencies.

Batch example :

```
@ECHO OFF
set version=0.10.1
set programpath=%~dp0\..

%programpath%\out\Armadito-Agent-%version%-Setup-Offline.exe ^
 /SP- /VERYSILENT /LOG=%programpath%\out\setuplog.txt /KEY=AAAAE-AAAAD-AAAAF-AAAAZ-
↪AAAA5
```

Online installer

Whereas Online installer is smaller (~0.5MB) but dependencies are downloaded at installtime on a cpan mirror. Furthermore, it allows agent to use already installed local perl distribution. Note that you can use a custom cpan mirror with that installer. CPAN proxy configuration has also been simplified.

Prerequisites

- a recent perl distribution installed on each agent's computer.

Strawberry Perl is recommanded but not mandatory.

To install Strawberry Perl, see strawberryperl.com.

Batch example :

```
@ECHO OFF
set version=0.10.1
set programpath=%~dp0\..

%programpath%\out\Armadito-Agent-%version%-Setup-Online.exe ^
 /SP- /VERYSILENT /LOG=%programpath%\out\setuplog.txt /KEY=AAAAE-AAAAD-AAAAF-AAAAZ-
↪AAAA5 /PERLPATH=C:\strawberry
```

Note: Because it is open-source, and because we provide packaging scripts, you can create custom installers by yourself.

3.6 Configuration

Agent configuration is basically quite the same on each platform. However, its emplacment differs because the installation process differs.

On linux, configuration files are stored by default in :

```
/usr/local/etc/armadito-agent
```

On windows, configuration files are stored by default in :

```
C:\\Program Files\\Armadito-Agent\\etc
```

There is two main configurations files :

- **agent.cfg**
- **scheduler-X.cfg**

Note: *.new files are the new configuration files installed when your update armadito-agent. It is done that way to avoid erasing previous configuration.

3.7 Enrollment

On either Linux or Windows, you need admin/superuser rights for enrollment. It is due to the fact that armadito-agent retrieves your system UUID as an unique identifier. Indeed, it allows automatic association with inventory in GLPI.

Be sure that you got a valid enrollment key, or you won't be able to enroll your agent.

To enroll/re-enroll an agent, just type the following with **admin/superuser** rights :

```
$ armadito-agent -t "Enrollment" -k "AAAAE-AAAAD-AAAAF-AAAAZ-AAAA5"
```

CHAPTER 4

Armadito for GLPI

- **armadito-glpi** : server-side part developed as a plugin for GLPI.

4.1 Introduction

Most Antiviruses editors provide their own management solution. While it is a good solution for most companies, it can be an expensive solution. Besides, most antiviruses management services are not open-source, leading users to worrying about their data.

Also, Armadito for GLPI aims to be a free and open-source alternative for these needs. Conceived as modular as possible, it should offer a reduced development effort for new features. In addition, a great attention is given to code quality, see SonarQube.com for details.

Because Armadito for GLPI is a plugin for GLPI, it means that if you already use GLPI, you won't have to install and configure a new server dedicated to Antiviruses management. It also means that computer inventories are automatically associated with armadito agents. Furthermore, you will be able to select and execute actions on computers from the GLPI's menu **Assets** > **Computers**.

4.2 Installation

4.2.1 Prerequisites

- GLPI installed >= 9.1

4.2.2 Instructions

1 - Download last version here

2 - Unzip and copy files into a new folder called armadito, i.e. **/<glpi_install_dir>/plugins/armadito**.

3 - Install dependencies in plugin's directory : composer install –no-dev

4 - Log into GLPI

5 - Install and enable the plugin in GLPI : go to **Setup > Plugins** and select Armadito.

4.3 Configuration

Plugin's configuration is accessible in menu **General** > **Configuration**. That menu will give more and more possibilities as time goes by.

4.3.1 General Setup

- **Debug Level** : [Verbose, Debug, Info, Warning, Error]

4.3.2 Boards

That section provides a preview in order to help you to select colors that you prefer. For now, colors palette are generated with 3 parameters (Hue, Saturation, Value). The way palettes are generated is explained in the following blog post :

how-to-create-random-colors-programmatically

- **Color Palette Hue** : [0..1]
- **Color Palette Saturation** : [0..1]
- **Color Palette Value** : [0..1]

4.3.3 States

4.3.4 Alerts

4.3.5 Scans

4.3.6 Jobs

- **Maximum jobs agents can get by round** : [0..100]

4.4 User Manual

This part can be considered as a kind of user manual that guide you through the use of **Armadito Plugin for GLPI**. All features will be described here with as much details as needed for everyone to understand how it works and what can be done. This documentation is structured according to plugin's menus structure.

4.4.1 General

This menu regroup things that are global to the whole plugin. It includes a global configuration section.

Board

The focus of this board is mainly about armadito agents management. That submenu is the main board of the plugin. Like all plugins' boards, it will be fully configurable.

For now, there is three charts :

- **AntivirusChart** : shows antiviruses repartition of enrolled agents.
- **ComputersChart** : shows armadito agents repartition in comparison to GLPI computers.
- **LastContactsChart** : shows agents connexions of last hours

Agents

This submenu should be used frequently because it is the main interface for managing agents. Basically, it is a configurable list of enrolled agents.

The first thing to understand is that you can easily search and select group of agents by this web page. It uses one of the most powerful features provided by GLPI project's core for manipulating objects you have in the web console. It is implemented and used in GLPI since a long time. It allows you to perform simple to very complex database requests. Then, once you have selected some agents, you can perform what GLPI calls "massive actions" on them.

Example :

You want to deploy an on-demand scan on agents that have Kaspersky installed.

1 - You configure the search engine in order that only agents with Antivirus Name containing "Kaspersky" are selected.

2 - You select all agents that are now listed

3 - You click on action and select *Scan*

4 - You select a scan configuration (previously created)

5 - You select a job priority and that's all.

Antiviruses

This submenu is a configurable list of all antiviruses enrolled until now. Some massive actions could be added here in future versions.

Enrollment Keys

This submenu is where you can manage your enrollment keys. You can create/revoke enrollment keys. Before doing anything else in the plugin, you have to create one or more enrollment key(s).

If you are not new to GLPI, you probably found by yourself how to add a new key. Indeed, the procedure is quite simple :

1 - Click on "+" button on the top at left

2 - Select an expiration date and the usage counter

3 - Validate form by clicking on add button

To revoke enrollment keys :

1 - Select one or more keys

2 - Select "put in dustbin" Action and validate

Note: Note that whenever you use “put in dustbin” action in GLPI, you can use “restore” action. It is possible because it is a simple flag in database.

Usage counter is decremented at each newly enrolled agent. It can be really helpful if you want to keep a true control of enrollment process in your infrastructure.

Configuration

That menu regroup configurations for the whole plugin. It allows you to rapidly check what configuration variables are available.

- *Configuration*

4.4.2 States

Board

That board has been implemented to simplify the way you can visualize your antiviruses. Each agent send regularly databases updates statuses. The provided charts are here to help you detecting which agents/antiviruses might have problems updating their databases.

The plugin provides some default charts but we really think that ussers feedback will help improve this kind of board. Users feedback should give an idea of what are the best indicators, of what really need administrators. All ideas are of course welcomed.

For now, there is three charts :

- **UpdateStatusChart** : shows databases updates statuses repartition
- **MostCriticalUpdatesChart** : shows top 10 agents with most critical updates
- **LastUpdatesChart** : shows databases updates of last hours

States

Similar to **General > Agents**, this submenu allows you to search and select agents. But this time, it is focused on databases updates management. And it gives you a simple way to be sure that everything is going well, that every antiviruses’ databases are up-to-date. Most antiviruses basically split their database updates into multiple sub parts (or modules). Also, a link inside each row allows you to check databases updates in details.

Furthermore, you probably want to be sure that antiviruses’ real time protection is activated. Also, a section called “AV Details” refers to every statuses information related to an installed Antivirus. It includes real time protection status for example. With some Antiviruses, it means a lot of details. It is why we called this menu “States”. It does not only consider databases updates.

AV Configurations

This part is about controlling your antiviruses’ configuration. It implies a large data set to store into GLPI database. Because GLPI uses MySQL, the implementation on how are stored configurations is very specific. To be able to gather data from big infrastructures, a custom Entity–attribute–value model has been implemented. Indeed, we think that most configurations over a same IT infrastructure are most of the time very similar, even sometimes identical. Also, it is not worth to store identical data multiple times. It leads to a great reduction of database size usage.

4.4.3 Alerts

Board

It is here possible to know which antivirus detects more viruses in your IT infrastructure. While it is not the initial purpose, it could be used as a realtime antiviruses comparison tool. You can also detects what kind of virus has spread the most.

For now, there is three charts :

- **AlertsByVirusNameChart** : shows alerts repartition by threat name
- **LastAlertsChart** : shows alerts traffic of last hours
- **AlertsByAntivirusChart** : shows alerts repartition by antivirus name

Alerts

That section is where centralized alerts can be monitored. For example, you can search for some specific alerts coming from multiple antiviruses, from multiple operating systems. Furthermore, you can manipulate these alerts by removing/restoring them as you wish.

More features will be easy to add because of the way “massive actions” are implemented in GLPI. We could later imagine features like sending a group of alerts by email, etc.

4.4.4 Scans

Board

Deployed scan results are stored in GLPI database. Also, some charts gives an overview of what has been successful or not. Scan durations can be compared to each other. It leads to a better management of future scans, because you are able to know how long a specific scan take in your infrastructure.

For now, there is three charts :

- **ScanStatusChart** : shows deployed scans statuses’ repartition
- **LongestScansChart** : shows top ten longest scans
- **AverageDurationsChart** : shows average duration by scan configuration

Scans

This submenu gives details about deployed scans. It includes a link to the scan configuration used. It gives you once again a search engine for selecting scans. Furthermore, it can be useful to know which kind of scan leads to more threat detections.

Configurations

This part is important because it is needed for deploying a new scan. It’s the single place where you set AV specific’s scan options. You can select an enrolled Antivirus, define where to scan and with which parameters.

Example :

You want to create an on-demand scan configuration for agents that have ArmaditoAV installed :

1 - You click on “+” on the top at left

2 - You fill form according to your needs

3 - You validate

4.4.5 Jobs

All actions deployed on agents are jobs. It is a kind of encapsulation for the communication with agents. Also, a deployed scan is a job. It is added to a queue like all jobs. Thus, a priority system is easy to apply.

Board

Once again, you want to be sure that all is working fine on your agents. Also, you could see which jobs takes too long.

For now, there is three charts :

- **JobStatusChart** : shows job statuses' repartition
- **LongestJobRunsChart** : shows top ten longest jobs executions
- **AverageDurationsChart** : shows average job execution duration by kind of jobs

Jobs

You probably want to know regularly what jobs fails and with which error message. It is possible by this submenu. It is another search and select menu. Some columns includes hyperlinks for more details about a job, a scan or something else.

4.4.6 Schedulers

This section will be implemented soon. It will be available in future versions. The main purpose will be about managing client side task schedulers.

Board

Schedulers

CHAPTER 5

RESTful API

All connections between agents and server-side (i.e. plugin for GLPI) are done within the RESTful API. This API is provided by the plugin to all agents managed.

For further details :

- API Source code
- API Swagger doc

CHAPTER 6

Licensing

Armadito for GLPI can be divided in few subprojects, which are the following :

- Armadito agent
- Armadito plugin for GLPI

Armadito agent

- **Description** : Perl Agent interfacing between Antiviruses and GLPI.
- **License** : GPLv3+
- **Github** : armadito-agent

Armadito plugin for GLPI

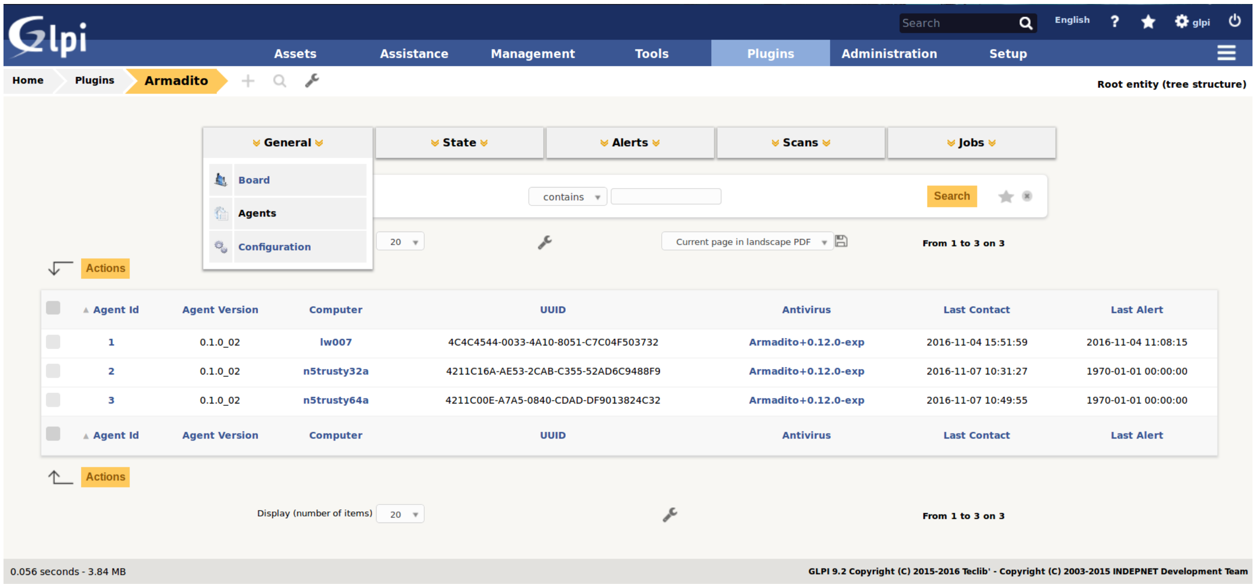
- **Description** : Plugin GLPI for antiviruses management.
- **License** : AGPLv3+
- **Github** : armadito-glpi

CHAPTER 7

Screenshots

7.1 Plugin Armadito for GLPI

You can visualize and research all enrolled agents directly from plugin :

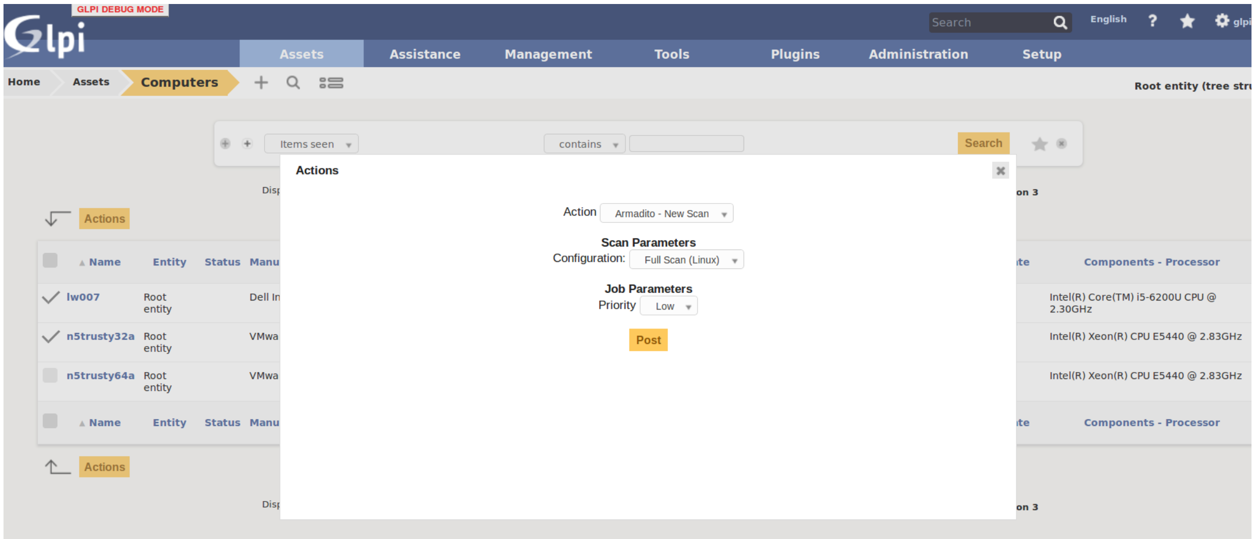


From 1 to 3 on 3

□	Agent Id	Agent Version	Computer	UUID	Antivirus	Last Contact	Last Alert
□	1	0.1.0_02	lw007	4C4C4544-0033-4A10-8051-C7C04F503732	Armadito+0.12.0-exp	2016-11-04 15:51:59	2016-11-04 11:08:15
□	2	0.1.0_02	n5trusty32a	4211C16A-AE53-2CAB-C355-52AD6C9488F9	Armadito+0.12.0-exp	2016-11-07 10:31:27	1970-01-01 00:00:00
□	3	0.1.0_02	n5trusty64a	4211C00E-A7A5-0840-CDAD-DF9013824C32	Armadito+0.12.0-exp	2016-11-07 10:49:55	1970-01-01 00:00:00

From 1 to 3 on 3

You can select an enrolled agent, or a computer and deploy a pre-configured on-demand scan :



Actions

Action: Armadito - New Scan

Scan Parameters

Configuration: Full Scan (Linux)

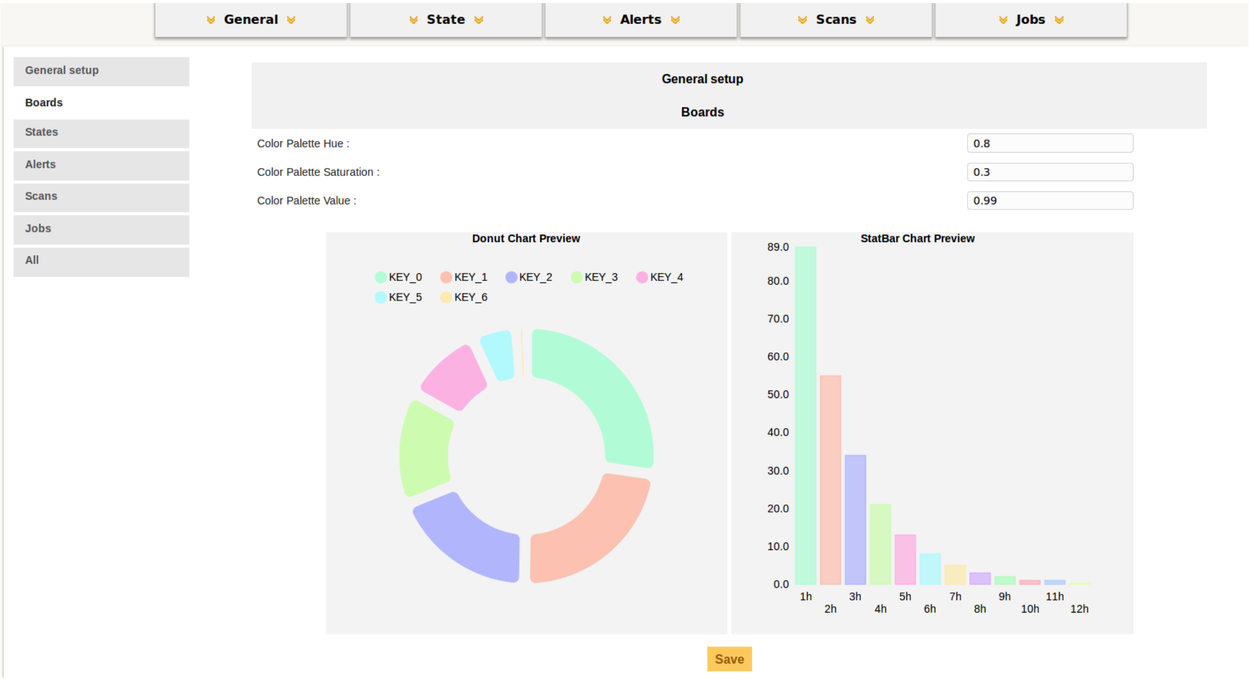
Job Parameters

Priority: Low

Post

	Name	Entity	Status	Manu	…	Components - Processor
✓	lw007	Root entity		Dell In		Intel(R) Core(TM) i5-6200U CPU @ 2.30GHz
✓	n5trusty32a	Root entity		VMwa		Intel(R) Xeon(R) CPU E5440 @ 2.83GHz
	n5trusty64a	Root entity		VMwa		Intel(R) Xeon(R) CPU E5440 @ 2.83GHz

You can configure the palette of colors used for graphics with a preview mode :



General setup

Boards

Color Palette Hue : 0.8

Color Palette Saturation : 0.3

Color Palette Value : 0.99