Getting Started with

RES ONE®
Automation

Agents for Unix and Linux

Version 10.1.0.0

Contents

Chapter 1: Introduction

RES ONE Automation is not only capable of automating IT tasks on machines running Microsoft Windows, but can also do this on machines running Unix or Linux. This document describes how to get started with the RES ONE Automation Agent for Unix/Linux.

Getting Started with RES ONE Automation Agents for Unix and Linux is primarily intended for beginning users of RES ONE Automation. Before reading this document, we recommend reading **Introduction to RES ONE Automation**, which explains the concepts behind RES ONE Automation.

- For information about all functionality of RES ONE Automation, please refer to the **Help**, which is available after installing the RES ONE Automation Console, by pressing **F1**.
- For in-depth information, please refer to the **RES ONE Automation Administration Guide**, available at the **Success Center** (http://success.res.com) at the **Downloads** section.
- For information about how to get started with the RES ONE Automation Agent for Mac OS X, please refer to the **Getting Started with RES ONE Automation Agents for Mac OS X**.

Chapter 2: Prerequisites and general guidelines

Prerequisites	
RES ONE Automation	• RES Automation Manager 2014 or later • The installation package and update Module for the Agent for Unix/Linux. These files can be downloaded at http://success.res.com, at the **Downloads** section.
Unix/Linux	• Red Hat Enterprise Linux 7 • Red Hat Enterprise Linux 6 • Red Hat Enterprise Linux 5.3 and higher • Red Hat Enterprise Linux 4.5 and higher • SUSE Linux Enterprise Server release 12 • SUSE Linux Enterprise Server release 11 SP1 and higher • SUSE Linux Enterprise Server release 10 SP3 and higher • IBM AIX Version 7.1: Technical level 01 and hgigher (PPC) • IBM AIX Version 6.1: Technical level 7 and higher (PPC) • IBM AIX 5L Version 5.3: Ttechnical level 4 and higher (PPC) • Ubuntu 16.04 • Ubuntu 12.04 • Oracle (Sun) Solaris 11 for SPARC: update 1 and higher • Oracle (Sun) Solaris 11 for Intel: update 3 and higher • Oracle (Sun) Solaris 10 for SPARC: update 6 and higher • Oracle (Sun) Solaris 10 for Intel: update 11 and higher
Account	• Administrator rights to access and add files on the target computer • Administrator rights to access and install software on the target computer

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Notes

- The Agents for Unix/Linux have been tested on the above mentioned Operating Systems. It may also work on other Operating Systems that support the use of the installation packages.
- When using Citrix XenServer 5.6, 6.0 and 6.1, you can only install Agents for Unix/Linux based on 32-bit versions of Red Hat Enterprise Linux release 5.
- If you want to **install the RES ONE Automation Agent for Unix/Linux using RES ONE Automation** (see page 9), a Samba client also needs to be installed on the target machine.

Network

When using multicast in your RES ONE Automation environment (Global Setting **Dispatcher discovery** set to **Autodetect**), port 3163 needs to be open on the machine running the Agent for Unix/Linux.

For example, you can do this by adjusting the firewall settings using iptables:

- `iptables -A INPUT -m udp -p udp --dport 3163 -j ACCEPT`
- `iptables -A INPUT -m tcp -p tcp --dport 3163 -j ACCEPT`

After activating the firewall rules, the Agent for Unix/Linux can be configured with:

```
/usr/local/bin/resamad –d m
```

File Transfer from Microsoft Windows

You may want to use applications such as WinSCP (http://winscp.net) or Tunnelier (http://www.bitvise.com) to transfer the installation package of the Agent for Unix/Linux from a Microsoft Windows share to the target machine.

Chapter 3: Installation

3.1 Manual installation

This chapter covers the manual installation of the Agents for Unix/Linux. The installation procedure is similar for all supported versions.

Installation

1. Transfer the installation package of the Agent to the target machine.
2. On the target machine, log in as root.
3. Change the working directory to the location of the installation package by typing the following command in a Terminal window:
   `cd /root`
4. Use the following command to install the Agent:

Red Hat	`rpm –ivh <package name>-<version number>.<architecture>.rpm`
SUSE	`rpm –ivh <package name>-<version number>.<architecture>.rpm`
IBM AIX	`rpm –ivh <package name>-<version number>.<architecture>.rpm`
Ubuntu	`Sudo dpkg –i <package name>-<version number>.<architecture>.deb`
Solaris	`pkgadd -d <package name>-<version number>`

For example: `rpm -ivh res-one-automation-agent-7.5-1.246575.x86_64.rpm` (on SUSE)

5. Use the following command to configure the Agent to start automatically:

Red Hat	`chkconfig --add resamad`
SUSE	`chkconfig --add resamad`
IBM AIX	`....`
Ubuntu	`sudo update-rc.d resamad defaults`
Solaris	`cd /var/svc/manifest/application/management` `svccfg import resamad.xml`

6. Change the working directory to `/usr/local/bin` by typing the following command:
   `cd /usr/local/bin`
7. Start the Agent for the first time and connect it to a known and operational RES ONE Automation Dispatcher. To do so, type the following command:
   `./resamad –dd<Dispatcher IP or hostname>`. Alternatively, use the command `./resamad –d m` to search for RES ONE Automation environments. When prompted, select a discovered RES ONE Automation environment. Use this setting when using multicast in your RES ONE Automation environment. See **Prerequisites and General Guidelines** (on page 5).
8. After this, the Agent will register itself in the node **Topology > Agents** of the RES ONE Automation Console.

9. Stop the Agent and restart it via the official start/stop script, which correctly initializes the Agent:

Red Hat	`/etc/init.d/resamad stop` `/etc/init.d/resamad start`
SUSE	`/etc/init.d/resamad stop` `/etc/init.d/resamad start`

IBM AIX	`/etc/rc.d/rc2.d/K90resamad stop`
	
	`/etc/rc.d/rc2.d/S90resamad start`

Ubuntu	`/etc/init.d/resamad stop`
	
	`/etc/init.d/resamad start`

Solaris	`svcadm disable resamad`
	
	`svcadm enable resamad`
	
	To check whether the Agent is running (enabled or disabled):
	
	`svcs resamad`

After this, the Agent will automatically start each time the machine on which it runs is booted. If, however, you need to stop and start the Agent manually, please use the official start/stop commands.

The configuration of the Agent is stored in `/etc/res/resamad.xml`. This file contains all necessary information for an Agent to connect to the RES ONE Automation environment. Instead of manual Agent configuration, you can also place a preconfigured `resamad.xml` file on each Agent.

3.2   Installing Agents using RES ONE Automation

Besides installing the Agent for Unix/Linux manually, you can also install it by executing a Task **Execute Secure Shell (SSH) Commands** on another (non-Unix/Linux) Agent. This requires a Samba client to be installed on the target machine:

1. Open the RES ONE Automation Console.
2. Configure a Module with a Task **Execute Secure Shell (SSH) Commands**.
3. Click the **Settings** tab of the Task **Execute Secure Shell (SSH) Commands**.
4. In the **Host** field, specify the appropriate machine(s).
5. As **Authentication method**, select **Password**.
6. In the **Security context** field, specify the account credentials with sufficient administrator rights to access, add and install files on the target machine (for example, **root**).
7. Select **Use Secure Shell commands**.
8. Click the **Commands** tab and add the following commands:
    ```
    smbclient $[SHARE] --user $[USERNAME]%$[PASSWORD] --workgroup
    $[DOMAIN] -c 'cd "$[LOCATION]"; get "$[RPM]"'
    rpm -ivh $[RPM]
    ```
9. Click the **Module Parameters** tab and add the following parameters:
    *   **SHARE:** A text parameter that holds the location of the share on which the installation package of the Unix/Linux Agent is located. If the sharename is a UNC path, every backslash should be succeeded with another backslash. So, `\\test\builds$` should be added as `\\\\test\\builds$`.
    *   **USERNAME:** A text parameter that holds the user name to log on with.
    *   **PASSWORD:** A password parameter that holds the user's password.
    *   **DOMAIN:** A text parameter that holds the user's domain.
    *   **LOCATION:** A text parameter that holds the location of the installation package of the Unix/Linux Agent.
    *   **RPM:** A text parameter that holds the name of the installation package of the Unix/Linux Agent.
10. Schedule a regular Job with the Module on one of the Agents in your RES ONE Automation environment. When reviewing the parameters on the **Job Parameters** tab, adjust any values if necessary.
11. When the Agent for Unix/Linux has been installed, log on to the target machine and continue from step 5 of the **Manual Installation** procedure. See **Manual Installation** (on page 7).

Example
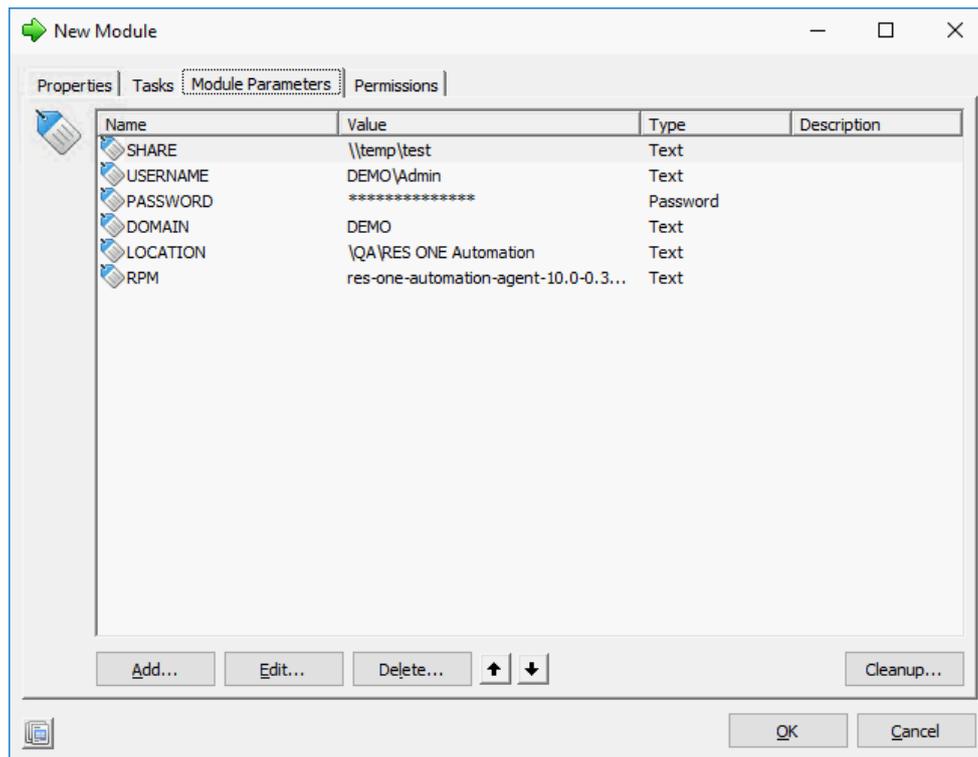
3.3   Other options

Tracing

To start the Agent in trace mode, start `resamad` with option `-v 3`. All trace information will be logged in the file `/var/log/resamad.log`

ℹ️   **Notes**

- Fatal errors will always be logged, irrespective of the debug level. Currently, these are errors that may occur due to the communication id or in SSL connections.
- Log files can have a maximum size of 4MB, after which they will be truncated.

Uninstallation

To uninstall an installation package, use the following command on the target machine:

Red Hat	`rpm -ev <package name>`
SUSE	`rpm -ev <package name>`
IBM AIX	`rpm -ev <package name>`
Ubuntu	`sudo dpkg -r <package name>`
Solaris	`Pkgrm RESagent`

For example:

- `rpm -ev res-one-automation-agent` (for Agents from version 2015 SR3 and higher)
- `rpm -ev res-am-agent` (for Agents from version 2015 and lower)

Upgrading

To upgrade Agents to a newer version, please uninstall your current version first. This needs to be done manually for each machine:

1. Stop the currently-installed Agent using the following command:

Red Hat	`/etc/init.d/resamad stop`
SUSE	`/etc/init.d/resamad stop`
IBM AIX	`/etc/rc.d/rc2.d/K90resamad stop`
Ubuntu	`/etc/init.d/resamad stop`
Solaris	`svcadm disable resamad`

2. Uninstall the Agent.

3. Install the new version.

4. Start the new Agent.

3.4   Updating Agents using RES ONE Automation

Agents for Unix/Linux clients can be updated using a universal updater. This makes it easier to update these Agents to a newer version.

The universal updater is a Building Block of a preconfigured Module and a series of Resources and contains the following:

- The Module *Universal Updater* contains various Tasks **Execute Unix/Linux Command** and **Download Unix/Linux Resource**.
- Resources with the latest version for the Agent for Unix/Linux and Mac OS X. This makes the universal updater also suitable to update Agents for Mac OS X.

After importing the Building Block into your RES ONE Automation environment, you can adapt the preconfigured Module to your situation if necessary, and schedule it on the Agents that you want to update. The Module will then automatically update these Agents with the correct software package.

When you update Agents using the universal updater, a log file containing update information is available at `/var/log/resamad_update.log`. When you update Agents with your own script, please adjust it to include extra logging.

Chapter 4: Next steps

You can use the Agent for Unix/Linux to perform the following Tasks:

- Unix/Linux Command (Execute)
- Unix/Linux Computer (Reboot, Shutdown)
- Unix/Linux Resource (Download)
- User Management (Create, Delete, Lock, Unlock, Change Password, Query)

In the Task library, you can find these Tasks at:
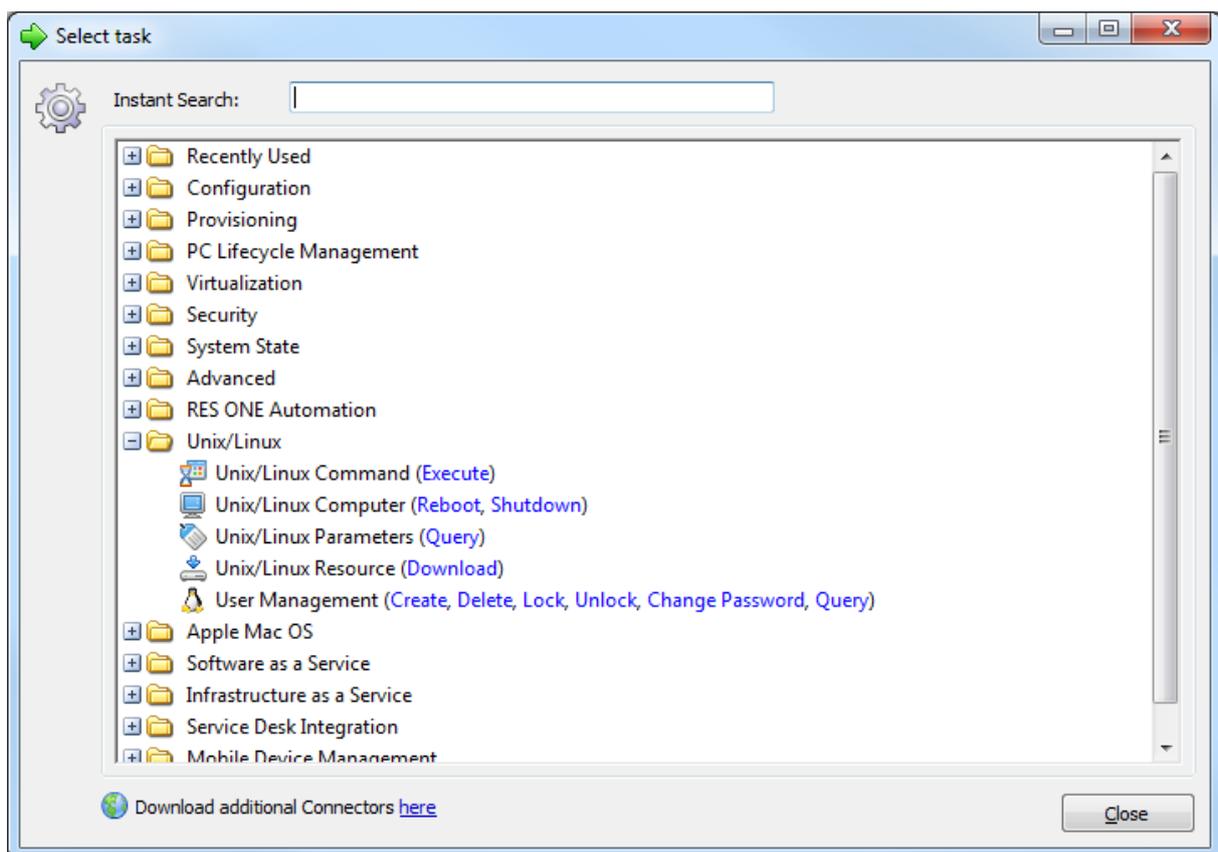
Chapter 5: Known Issues and Limitations

- If a firewall prevents sending multicast signals, **Dispatcher Discovery** in the Global Settings of RES ONE Automation should be configured to **Use Dispatcher address list**.
- The machine on which the Agent is installed must be capable of resolving the list of Dispatchers as specified in the `resamad.xml` file. If they are not (for example, because they are not a member of the same domain), the Agent will go offline again after an initial connection.
- Scripts that you run on Agents for Unix/Linux using the Task **Execute Unix/Linux Command** cannot include reboot and shutdown commands. Use the Tasks **Reboot Unix/Linux Computer** or **Shutdown Unix/Linux Computer** instead.
- At **Library > Resources**, the option **Parse variables, parameters and functions in contents of this file** will replace these items with actual values, when the Resource is used in a Job. When a Resource is downloaded, parameters and functions can be parsed. When the Job is executed on a machine running Unix or Linux, environment variables will not be replaced. As a result, the option **Skip parsing of environment variables** also does not work on these machines.
- Only the following Agent settings are supported:
  - **Dispatcher discovery**
  - **Dispatcher location**
  - **Dispatcher recovery**: This is always set to **Retry discovery**.
  - **Protocol encryption**
- Snapshot Intelligence is not supported for Agents for Unix/Linux.
- Using the **Prepare for Image** functionality will bring the Agent daemon down and remove all Agent information from the Datastore. The configuration settings of the Agent will be preserved and only the GUID will be removed from the `resamad.xml`. This means that the Agent can be restarted with the same name, as long as it has another GUID.
- The following functions are not supported:
  - `@[FILEVERSION(<filename>)]`
  - `@[REGISTRY(<registry value>)]`
  - `@[GET-ASSETTAG]`
  - `@[GET-COMPUTERFUNCTION]`
  - `@[GET-OS-SUITES]`
  - `@[GET-OS-VERSION]`
  - `@[REPLACE-DIACRITICS(<value>)]`
  - `@[GET-OS-TYPE]`
- The following Team rules are not supported:
  - **Computer Function**
  - **Operating System > Suite**
  - **Operating System > Type**

Chapter 6: RES Support

At RES, our core business is to help heighten productivity in your organization. RES Support helps us to achieve this goal, and has been embedded in the core principles of our company since it was founded. RES is dedicated to supporting everyone who uses or wants to use its proven products with RES Support, which elevates our enterprise solutions above and beyond technology.

Support - If you are experiencing difficulties with any of our products, you may find the solution in our Knowledge Base (**Success Center > Support**) or you can contact RES Support directly (**Success Center >** Click **Contact Us**).

Product Upgrades and Service Releases - To upgrade your product version to the latest standard, you can install Product Upgrade Packs from http://res.com and Service Releases from the **Success Center > Downloads**. The supporting documentation consist of Online Help, Release Notes and the Administration Guide (**Success Center > Downloads**).

Solution Assurance - To protect your investment, it is mandatory that you purchase one initial year of Solution Assurance with each license purchase. Solution Assurance unlocks access to Technical Support, Product Updates and Upgrades and the Knowledge Base. Solution Assurance is extended automatically, unless you specify otherwise. For more information: http://res.com/support.

Early Adopter Program - Participants of the Early Adopter Program are actively involved in taking RES solutions to the next level. The Early Adopter Program unlocks access to interim releases of our products. These releases are production-ready and allow you to test drive and explore new functionality.

RES Community - RES invites you to become part of our community to share best practices and tips with fellow IT professionals, find solutions and more (**Success Center > Q&A**).

Please visit the RES Success Center (http://success.res.com) for more information on Support.

Chapter 7: RES Training

RES has developed a mix of learning materials to help our customers and channel partners get the most out of our products. Our goal is to give you a choice in how you learn; whether that is in the classroom, online tutorials and virtual workshops, or downloading our self-study kits. Please visit the Academy at RES Success Center (http://success.res.com) or go to http://res.com/support/training to find more information on Training.

RES Academy - RES Academy provides an engaging way to learn about RES products and technologies. It consists of short video tutorials, including practice questions, informative links and more. These tutorials cover a broad range of subjects: from planning, installing and configuring an environment to using the functionality of the RES product.

Workshops - For customers and partners RES organizes free interactive online workshops. These one-hour events are intended for experienced users of our software and deal with specific use cases and troubleshooting. Due to the interactive nature of these workshops, the number of seats per session is limited.

Training Classes - For partners and customers, RES has developed several technical courses that deal with the installation and configuration of RES ONE Workspace, RES ONE Automation and RES ONE Identity Director. These technical courses are offered by RES Authorized Learning Centers (RALCs).

RES Certification - RES offers a certification program designed to validate IT professionals with the technical capabilities and expertise needed to effectively use the RES product portfolio, giving companies the confidence that their IT employees have the skills and experience needed to be successful.