**JBOSS Operations Network**

**Installation and Setup Guide**

**Version #1.0**

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Revision History

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Table of Contents

[1. Introduction 4](#_Toc523252936)

[1.1 Problem Statement 4](#_Toc523252937)

[2. Purpose 4](#_Toc523252938)

[2.1 In Scope 4](#_Toc523252939)

[2.2 Out of Scope 4](#_Toc523252940)

[3. Intended Audience 4](#_Toc523252941)

[4. Assumptions/Dependencies 5](#_Toc523252942)

[5. Installation 5](#_Toc523252943)

[5.1 Server Installation 5](#_Toc523252944)

[5.1.1 PostgreSQL Install 5](#_Toc523252945)

[5.1.2 Java (JDK) Installation 5](#_Toc523252946)

[5.1.3 JON Installation 6](#_Toc523252947)

[5.2 Agent Installation 7](#_Toc523252948)

[5.2.1 Agent Install 7](#_Toc523252949)

[5.2.2 Service Install 7](#_Toc523252950)

[5.2.3 Agent Import 7](#_Toc523252951)

[6. JON Configuration/Setup 8](#_Toc523252952)

[6.1 SMTP Setup 8](#_Toc523252953)

[6.1.1 Email Setup 8](#_Toc523252954)

[6.1.2 Email Test 8](#_Toc523252955)

[6.2 Alerts 8](#_Toc523252956)

[6.3 1099 Connection Error Fix 8](#_Toc523252957)

[7. References 8](#_Toc523252958)

[8. Definitions, Acronyms, and Abbreviations 9](#_Toc523252959)

# Purpose

The purpose of this document is to provide an overview of how to install, setup and use JBOSS Operations Network (JON) to monitor Java based applications. While not a comprehensive installation/administration guide, it provides general guidelines for getting a basic setup of the application up and running

# Intended Audience

This document was written with the intention to be used by someone familiar with setting up and installing software and/or modifying of JBOSS/Application files. Generally speaking the audience would be someone who as a fairly technical background and/or familiarity with Java and/or JBOSS applications

# Assumptions/Dependencies

# Installation

## Server Installation

### PostgreSQL Install

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| **Step #** | **Detail** |
| 1 | On dedicated JON server(s), copy PostgresSQL-9.5.13-1-win64-bigsql.exe to server and run as administrator |
| 2 | Follow the prompts of the installation wizard entering the following details during each step along the installation process (note: any options/values not provided are assumed to be the default:   * Install directory: D:\PostgreSQL (note may need to create folder prior to installation) * Select Components: pgAdmin3 LTS (this is not a required component but provides a GUI for accessing PostgreSQL database/tables after installation) * Username: postgres (not configurable) * PostgreSQL password: LtcgJ1N& * Retype password: LtcgJ1N& * Port: 5432 (default) |
| 3 | Post PostgreSQL Installation tasks:   * Create new role   + Ensure PostgreSQL service is running   + Open pgAdmin3   + Double-click local server to connect   + Right-click login roles and select new login role   + Enter role name and password as follows and select OK     - Role name: rhqadmin     - Password: rhqadmin * Create new database   + Ensure PostgreSQL service is running   + Open pgAdmin3   + Double-click local server to connect   + Right-click Databases and select New Database   + Specify Name and Owner as follows and select OK     - Name: rhq     - Owner: rhqadmin |

### Java (JDK) Installation

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| **Step #** | **Detail** |
| 1 | On dedicated JON server(s), copy jdk-6u43-windows-x64.exe to server and run as administrator |
| 2 | Follow the prompts of the installation wizard entering the following details during each step along the installation process (note: any options/values not provided are assumed to be the default:   * Exclude installation of source code * Install path: D:\jdk1.6.0\_43\ |
| 3 | Post JDK Installation tasks:   * Set JAVA\_HOME   + Open Environment Variables   + Under System Variables select New   + Set the following values     - Variable name: JAVA\_HOME     - Variable value: D:\jdk1.6.0\_43\ * Set RHQ\_JAVA\_HOME   + Open Environment Variables   + Under System Variables select New   + Set the following values     - Variable name: JAVA\_HOME     - Variable value: D:\jdk1.6.0\_43\ |

### JON Installation

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| **Step #** | **Details** |
| 1 | On dedicated JON server(s), copy jon-server-3.3.0.GA.zip to server and extract to D:\ |
| 2 | Copy jon-server-3.3-update-10.zip to server and extract to D:\ |
| 3 | Open a command line as administrator, navigate to D:\jon-server-3.3.0.GA-update-10 and enter the following command to upgrade JON server to update 10:   * apply-updates.bat D:\jon-server-3.3.0.GA   *note: upon successful upgrade, jon-server-3.3.0.GA-update-10 folder and zip file can safely be removed* |
| 4 | Complete the following tasks to install the JBOSS EAP plugin into JON:   * Copy jon-plugin-pack-eap-3.3.0.GA-update-07.zip to JON server * Extract zip file to D:\jon-plugin-pack-eap-3.3.0.GA-update-07 * Copy plugins folder from extracted folder to D:\jon-server-3.3.0.GA\plugins folder overwriting any existing content if applicable   *Note: upon successfully adding plugin, jon-plugin-pack-eap-3.3.0.GA-update-07 folder and zip file can safely be removed* |
| 5 | Edit D:\jon-server-3.3.0.GA\bin\rhq-server.properties file to update the following existing property to allow remote access to JON GUI:   * jboss.bind.address=0.0.0.0 |
| 6 | Open command prompt as administrator, navigate to D:\jon-server-3.3.0.GA\bin and enter the following command to complete JON install   * rhqctl install –start   + When prompted, enter yes to rhq.autoinstall.server.admin.password   + Password: rhqadmin |

## Agent Installation

### Agent Install

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| **Step #** | **Detail** |
| 1 | Log onto the JON server UI and download the necessary agent JAR file  (i.e. http://<jonservername>:7080/agentupdate/download) |
| 2 | Copy download JAR file to agent server to be added to JON |
| 3 | Create folder on agent D:\jon-agent and place copied JAR file from JON to folder |
| 4 | On agent server, open command prompt as admin, navigate to D:\jon-agent folder and enter the following command:   * java -jar <downloaded\_agent\_jar\_file.jar> --install |
| 5 | After successful run of command above, navigate to rhq-agent\bin and execute the following command   * rhq-agent.bat |
| 6 | At prompts enter the following:   * Agent name: <name of agent server – note prompt will provide suggestion of name to add> * Agent Hostname or IP Address: <agent server name> * Agent Port: <use sample provided – 16163> * JON Server Hostname or IP: <JON server name> * JON Server Port: <unless changed at install, 7080> * At > prompt enter ‘exit’ |

### Service Install

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| **Step #** | **Detail** |
| 1 | Open command prompt as administrator, navigate to D:\jon-agent\rhq-agent\bin and execute the following command:   * rhq-agent-wrapper.bat install |
| 2 | Upon successful install, go to services and locate rhq-agent<server> service and set logon user to an appropriate service account with admin rights on the agent and start the service |

### Agent Import

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| **Step #** | **Detail** |
| 1 | After successfully installing an agent, it must be imported into the JON server to be recognized and monitor the agent |
| 2 | Log onto the JON server UI and go to Inventory tab (note: use rhqadmin account)  (i.e. http://<jonservername>:7080/) |
| 3 | Select Discovery Queue |
| 4 | Find and select the check box for each appropriate agent(s) to import |
| 5 | At prompt to select child elements, select Yes |
| 6 | Select Import |
| 7 | After successful import, go to Platforms and verify new agent(s) available |

# JON Configuration/Setup

## SMTP Setup

### Email Setup

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| **Step #** | **Detail** |
| 1 | Open D:\jon-server-3.3.0.GA\bin\rhq-server.properties on the JON server and edit the following properties:   * rhq.server.email.smtp-host=smtp.ltcg.com * rhq.server.email.smtp-port=25 * rhq.server.email.from-address=rhqadmin@jbosson |
| 2 | Restart rhq services on JON server |

### Email Test

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| **Step #** | **Detail** |
| 1 | Go the following URL: http://<jonserver>:7080/coregui/#Test/ServerAccess/EmailTest (note: provide rhqadmin login info) |
| 2 | Select Server Access>Email Test |
| 3 | Enter appropriate info to send to an appropriate email address to send test email to |
| 4 | Submit test and verify after several minutest that email goes through successfully |

## Alerts/Memory Monitoring

### Low Memory Alert

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| **Step #** | **Detail** |
| 1 | Log into JON server GUI  (i.e. http://<jonserver>:7080/ |
| 2 | Select the resource for which the error is occurring (i.e. agent such as MNEPAPP81-D) in Inventory>Servers |
| 3 | Select Alerts tab |
| 4 | Select New button to create a new alert |
| 5 | Enter the following values for each property as follows under General Properties:   * Name: Low Memory * Priority: High |
| 6 | Under Conditions tab, choose Add to create new condition |
| 7 | Select the following options at prompt:   * Condition Type: Measurement Absolute Value Threshold * Metric: JVM Free Memory * Comparator: < (Less Than) * Metric Value: 256 MB |
| 8 | Select Notifications tab and choose Add to add new notification |
| 9 | Under Notification Sender, choose Direct Emails and enter a comma delimited list of email addresses to send to |
| 10 | Save alert |

### Server Down Alert

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| **Step #** | **Detail** |
| 1 | Log into JON server GUI  (i.e. http://<jonserver>:7080/ |
| 2 | Select the resource for which the error is occurring (i.e. agent such as MNEPAPP81-D) in Inventory>Servers |
| 3 | Select Alerts tab |
| 4 | Select New button to create a new alert |
| 5 | Enter the following values for each property as follows under General Properties:   * Name: Server Down * Priority: High |
| 6 | Under Conditions tab, choose Add to create new condition |
| 7 | Select the following options at prompt:   * Condition Type: Availability Duration * Availability State: Stays Down * Duration: 5 minutes |
| 8 | Select Notifications tab and choose Add to add new notification |
| 9 | Under Notification Sender, choose Direct Emails and enter a comma delimited list of email addresses to send to |
| 10 | Save alert |

### Thread Dump

***Note: this requires additional testing to determine exactly where thread dump gets output to***

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| **Step #** | **Detail** |
| 1 | Log into JON server GUI  (i.e. http://<jonserver>:7080/ |
| 2 | Select the resource for which the error is occurring (i.e. agent such as MNEPAPP81-D) in Inventory>Servers |
| 3 | Select Alerts tab |
| 4 | Select New button to create a new alert |
| 5 | Enter the following values for each property as follows under General Properties:   * Name: Thread Dump * Priority: High |
| 6 | Under Conditions tab, choose Add to create new condition |
| 7 | Select the following options at prompt:   * Condition Type: Measurement Absolute Value Threshold * Metric: JVM Free Memory * Comparator: < (Less Than) * Metric Value: 100 MB |
| 8 | Select Notifications tab and choose Add to add new notification |
| 9 | Under Notification Sender, choose Direct Emails and enter a comma delimited list of email addresses to send to |
| 10 | Select Notifications tab and choose Add to add another notification type and enter the following details:   * Notification Sender: Resource Operations * Resource Selection Mode: Relative Resource * Start Search From: JBossAS Server * Then Filter By: JBossAS -> Threading * Operation: Thread Dump |
| 12 | Save alert |

### Heap Dump on Out of Memory

***Note: Heap dump cannot be obtained through JON -> steps are to add to agent directly***

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| **Step #** | **Detail** |
| 1 | Add the following argument to the JVM startup parameters of the appropriate JBOSS agent (note: agent will need to be restarted after to take effect):   * -XX:+HeapDumpOnOutOfMemoryError   Where this gets set can vary based upon JBOSS version. The following are some examples of where to add the parameter for given JBOSS versions:   * JBOSS AS 6.x/EAP 5.x: $JBOSS\_HOME\bin\run.conf.bat * JBOSS AS 7.x/EAP 6.x: $JBOSS\_HOME\bin\standalone.conf.bat   For each scenario, either add to existing set "JAVA\_OPTS… or add a new line similar to the following:   * set "JAVA\_OPTS=%JAVA\_OPTS% -XX:+HeapDumpOnOutOfMemoryError"   Note: by default heap dump created in same directory as JVM param set (named <jvm pid>.hprof). However, this can be changed by adding the following additional param:   * -XX:HeapDumpPath=<path>/<filename>.hprof |

## 1099 Connection Error Fix

*Note: this is in the event errors are appearing in the alerts section of the JON server GUI regarding 1099 port*

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| **Step #** | **Detail** |
| 1 | Log into JON server GUI  (i.e. http://<jonserver>:7080/ |
| 2 | Select the resource for which the error is occurring (i.e. agent such as MNEPAPP81-D) in Inventory>Servers |
| 3 | Select Inventory tab |
| 4 | Select Connection Settings sub-menu |
| 5 | Change Naming Provider URL from jnp://[0:0:0:0:0:0:0:1]:1099 to appropriate URL (i.e jnp://<agentserver>:1099 |

# References

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| --- | --- | --- |
| **ID** | **Reference Name** | **Reference Description** |
|  |  |  |

# Definitions, Acronyms, and Abbreviations

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| --- | --- |
| **Term / Acronym / Abbreviation** | **Definition** |
| JON | JBOSS Operations Network – monitoring application created by RedHat to provide capabilities to monitor a variety of different Java related platforms in a central system, including but not limited to JBOSS hosted applications |
| JDK | Java Development Kit |
|  |  |