# RabbitMQ Installation and Integration with Advanced Marketing Solution

Version 2.0

# Document Change Sheet

| Revision | Date | Description of Change | Author |
|---|---|---|---|
| v1.0 | 6/11/2014 | Initial Version | Murali Valluri |
| V1.1 | 6/26/2014 | Add ERLANG_HOME and Management plugin steps | Xueling Lu |
| V1.2 | 7/16/2014 | Added Clustering Setup Instructions | Murali Valluri |
| V1.3 | 11/20/2014 | Added Logging related instructions | Murali Valluri |
| V1.4 | 04/01/2015 | Added information related to Offline Queue | Murali Valluri |
| V2.0 | 01/02/2016 | Added information about newly added Queues for Customer Service | Kiran Akella |
| V2.1 | 14/09/2017 | RabbitMQ and Erlang version upgrade | Gaurav Singh |

# Table of Contents

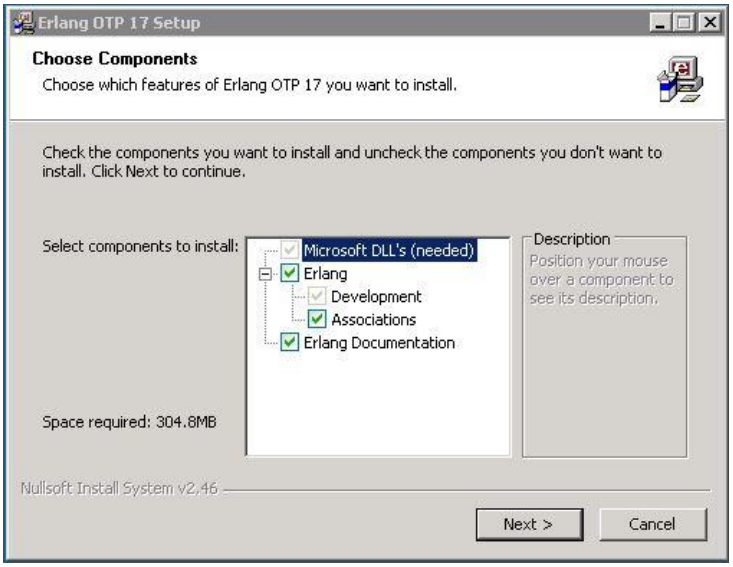
# 1. Introduction

This document assumes that RabbitMQ is being installed one of the Logix servers.

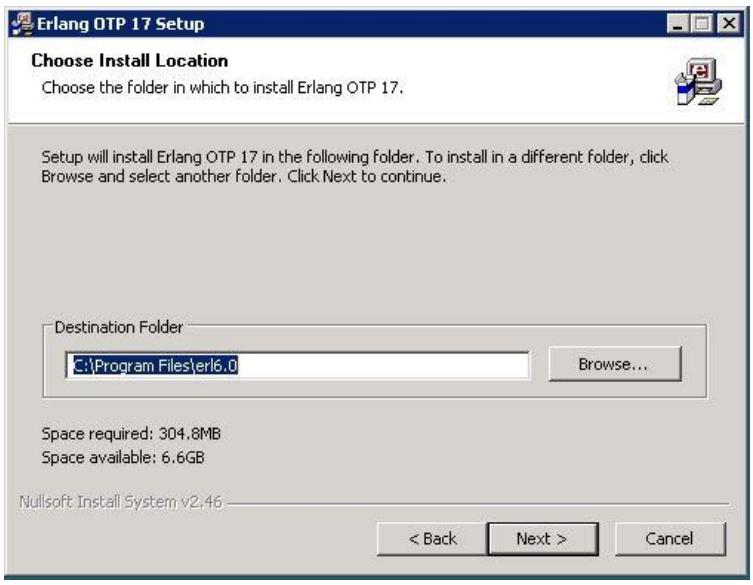
# 2. Erlang Installation

Download Erlang 19.1 from http://www.erlang.org/download.html. If the system is 32-bit download x86 binaries or else download x64 binaries. Run msi and follow the steps below.

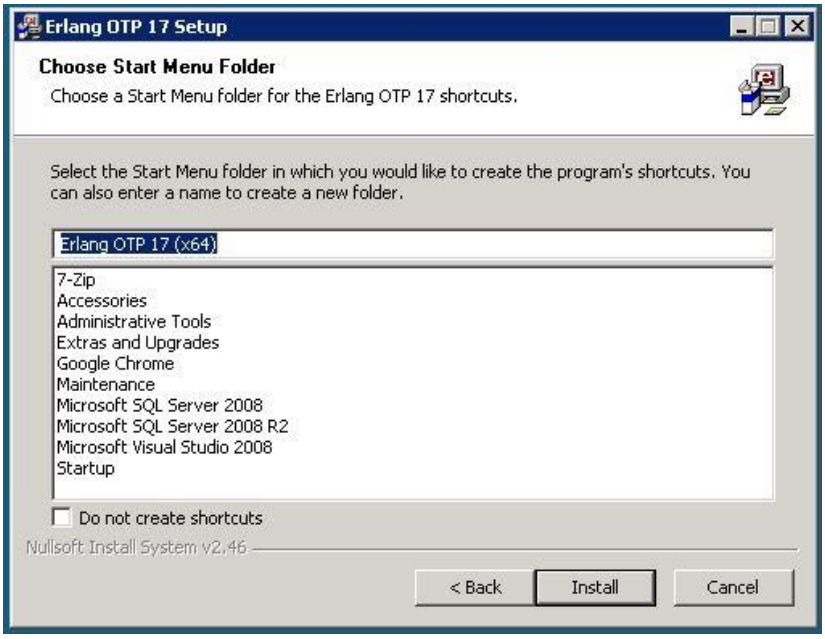
a. Select all the components and click next.




b. Select the location where you want to install Erlang.

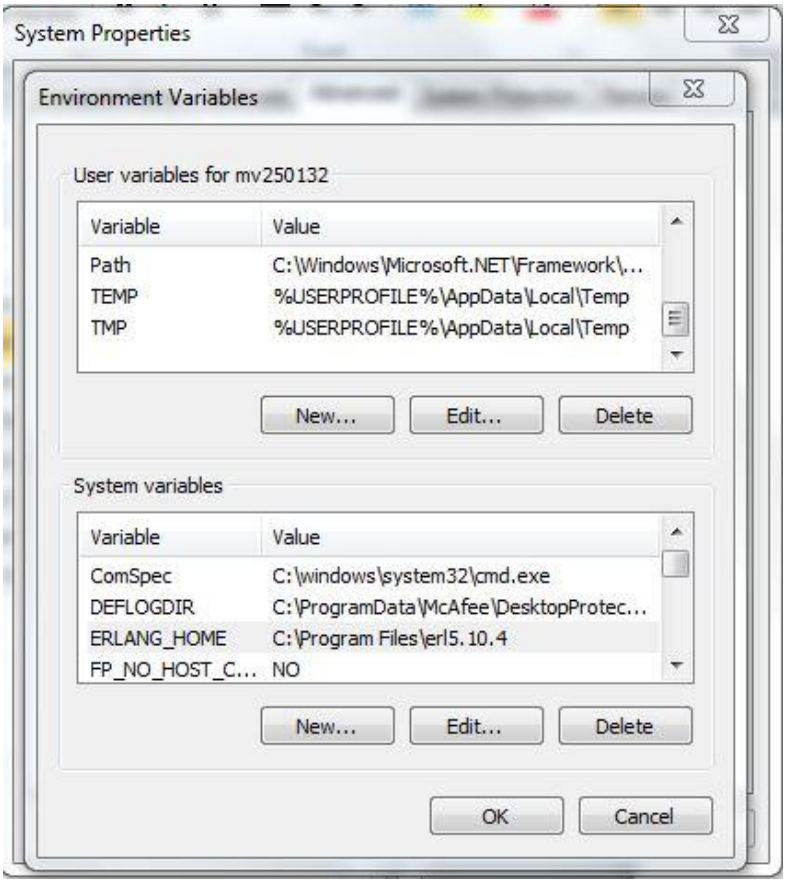


c. Click install.




d. Set ERLANG_HOME environment variable

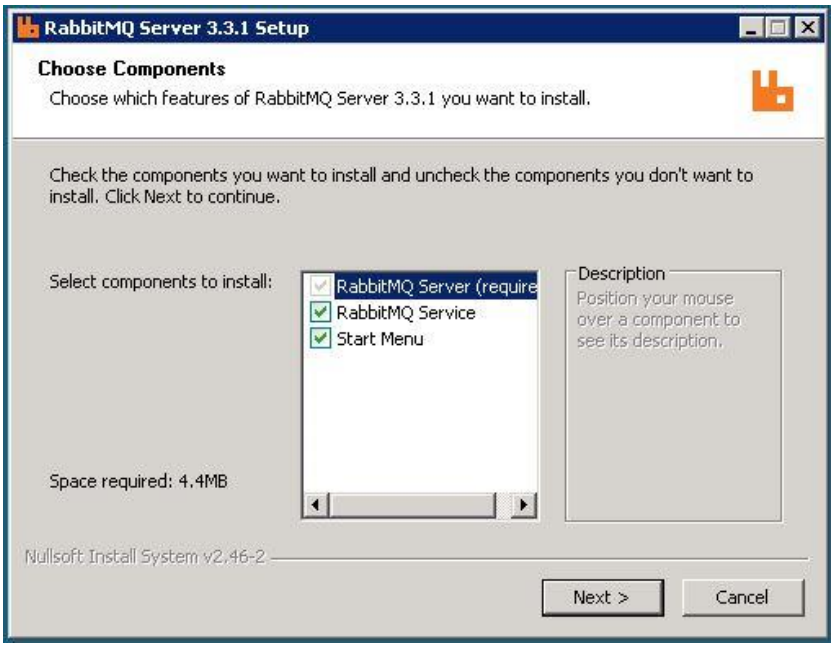
Go to Start > Settings > Control Panel > System > Advanced > Environment Variables. Create the system environment variable ERLANG_HOME and set it to the full path of the directory which contains `bin\erl.exe`.



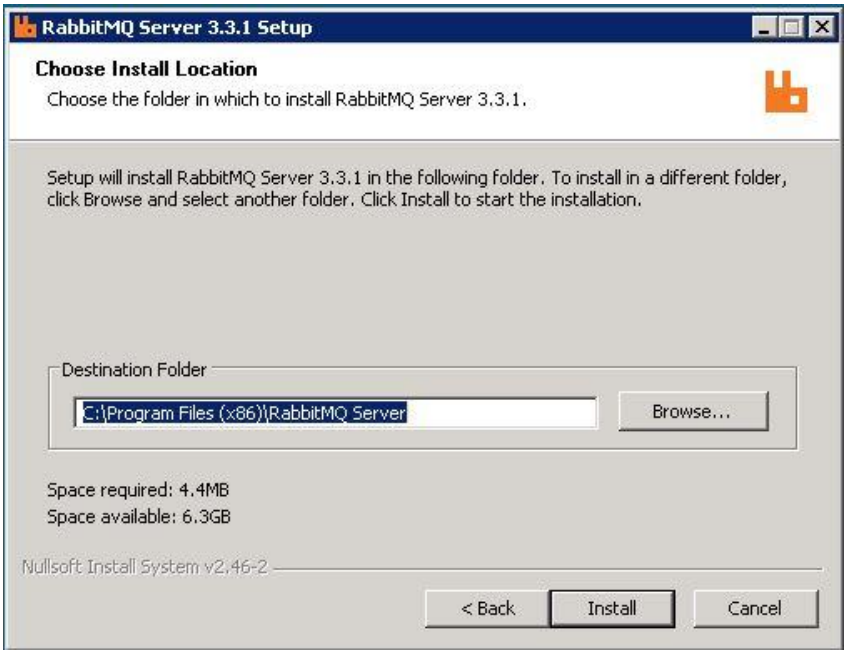
# 3. RabbitMQ Installation

Download RabbitMQ 3.6.5 Server from http://www.rabbitmq.com/download.html, run the msi and follow the steps below.

a. Select both RabbitMQ Service component and Start Menu and click next.



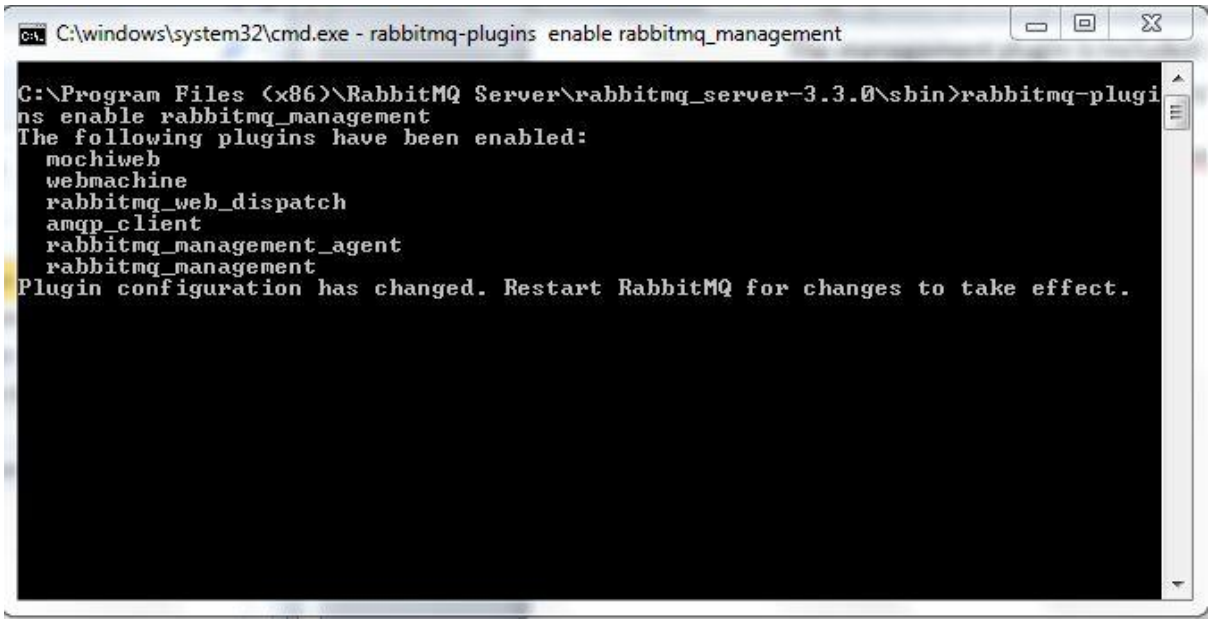

b. Give the path where you want to install RabbitMQ server and click install.



c. Enable RabbitMQ management plugin

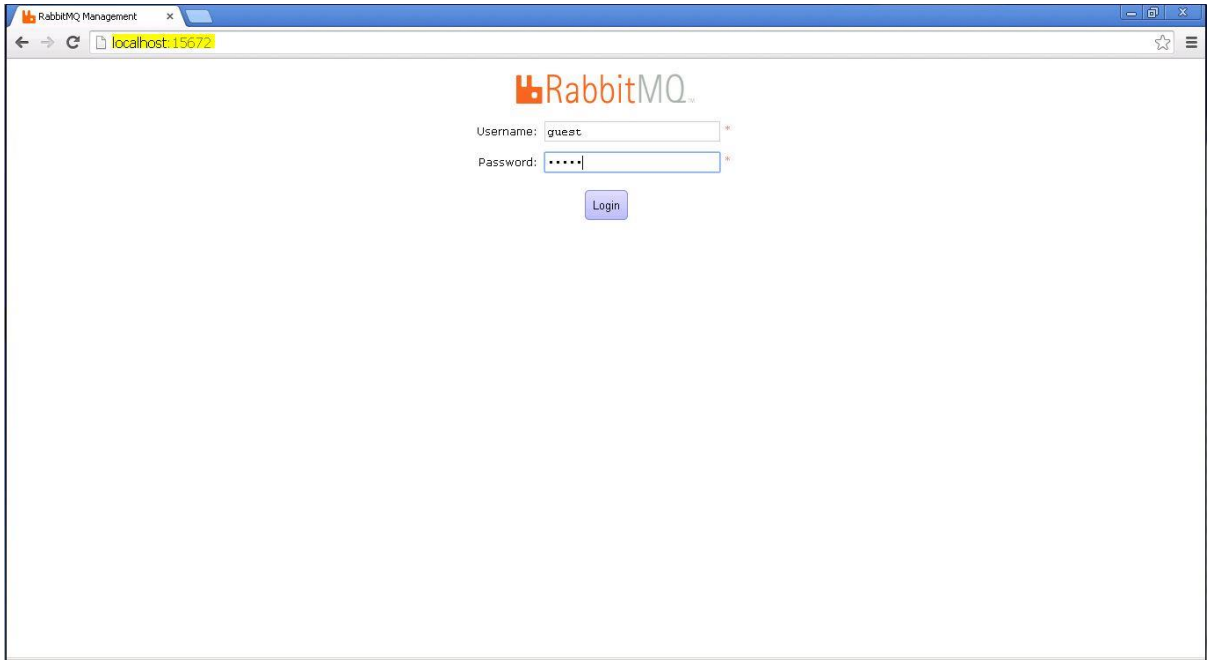
The management plugin is included in the RabbitMQ distribution. To enable it, open a console window, change directory to *RabbitMQ installation*\sbin:

rabbitmq-plugins enable rabbitmq_management



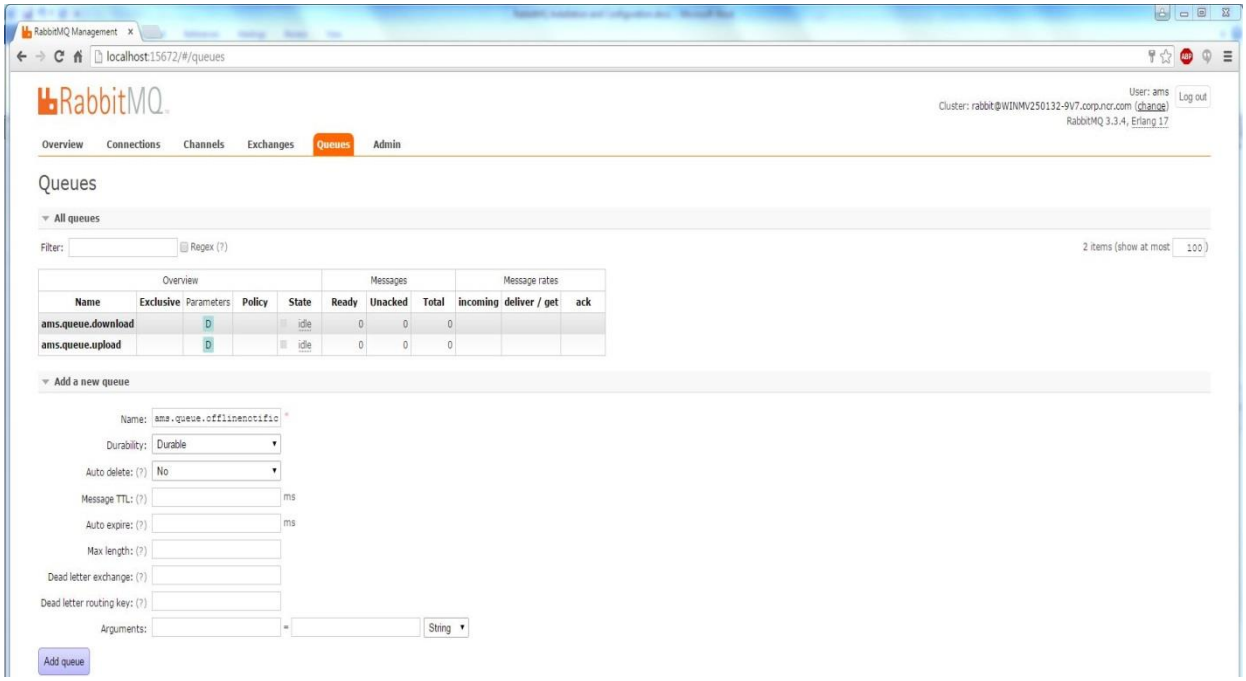
# 4. RabbitMQ Server Configuration

a. Go to http://*localhost:15672*, give username as *'guest'* and password as *'guest'* and login.




b. If using UE offline feature, add a queue and name it as **'ams.queue.offlinenotification'.**

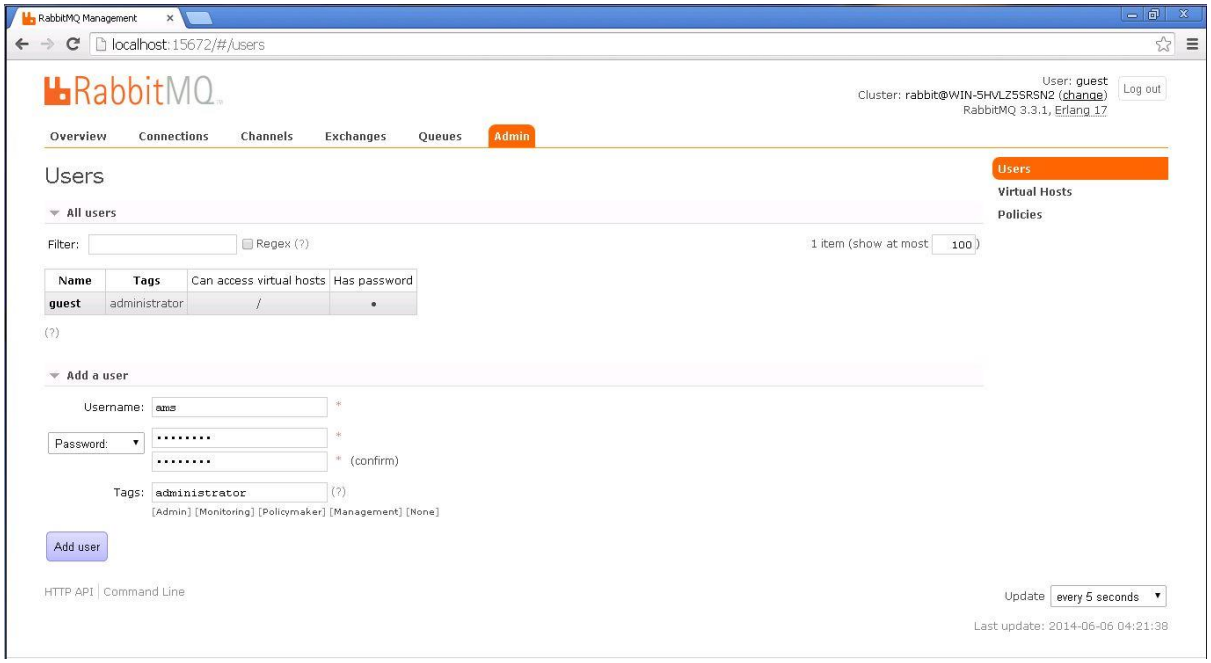
**Note: Queue name should be 'ams.queue.offlinenotification'. It cannot be changed.**



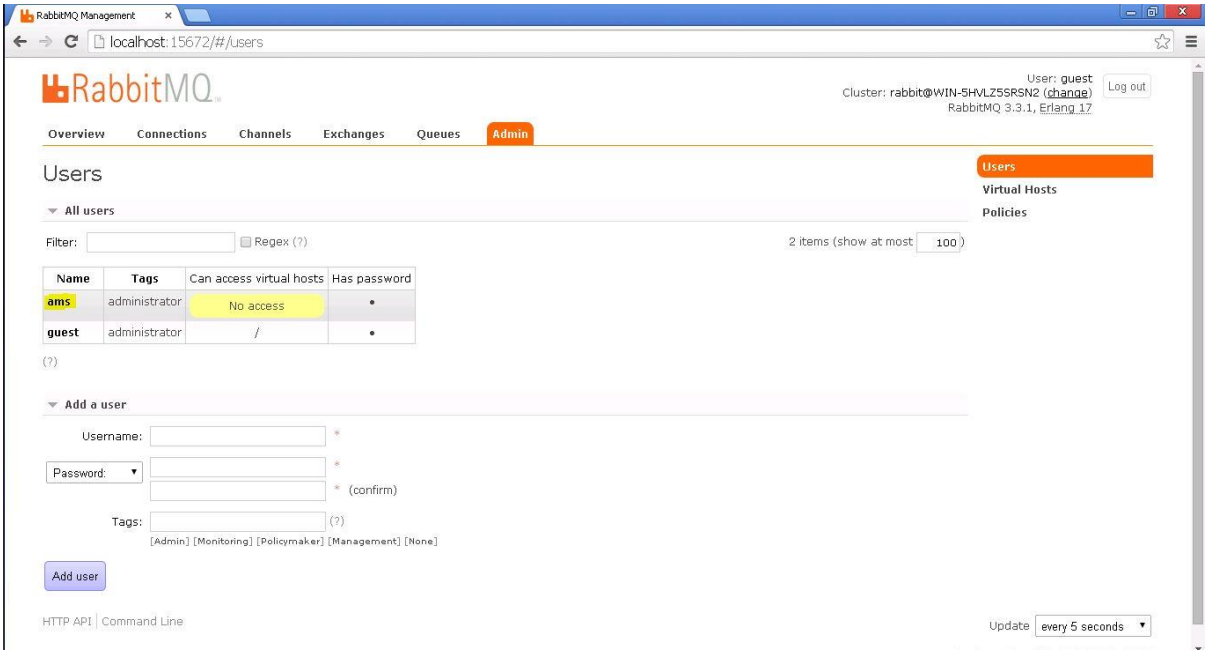

c. Now go to *Admin* tab and add new user. Enter username, password and in tags enter ‘administrator’.

**Note: By default Customer Broker assumes password to be ncr.ams.**

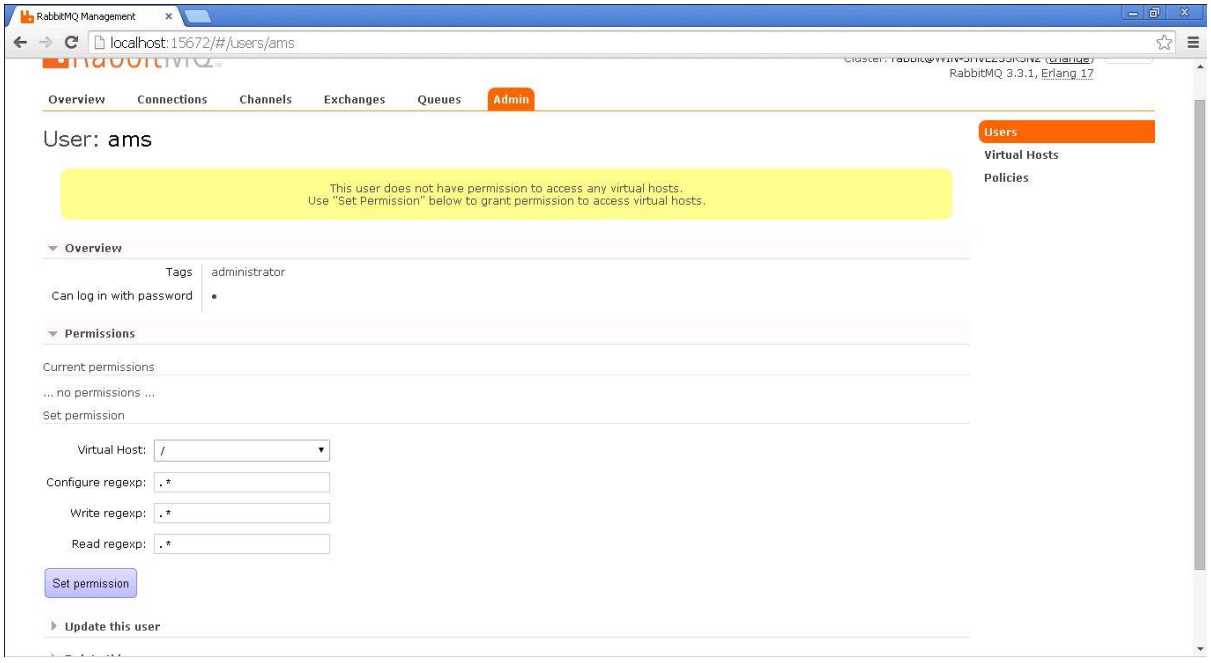
**Note: Adding tag as administrator is important.**



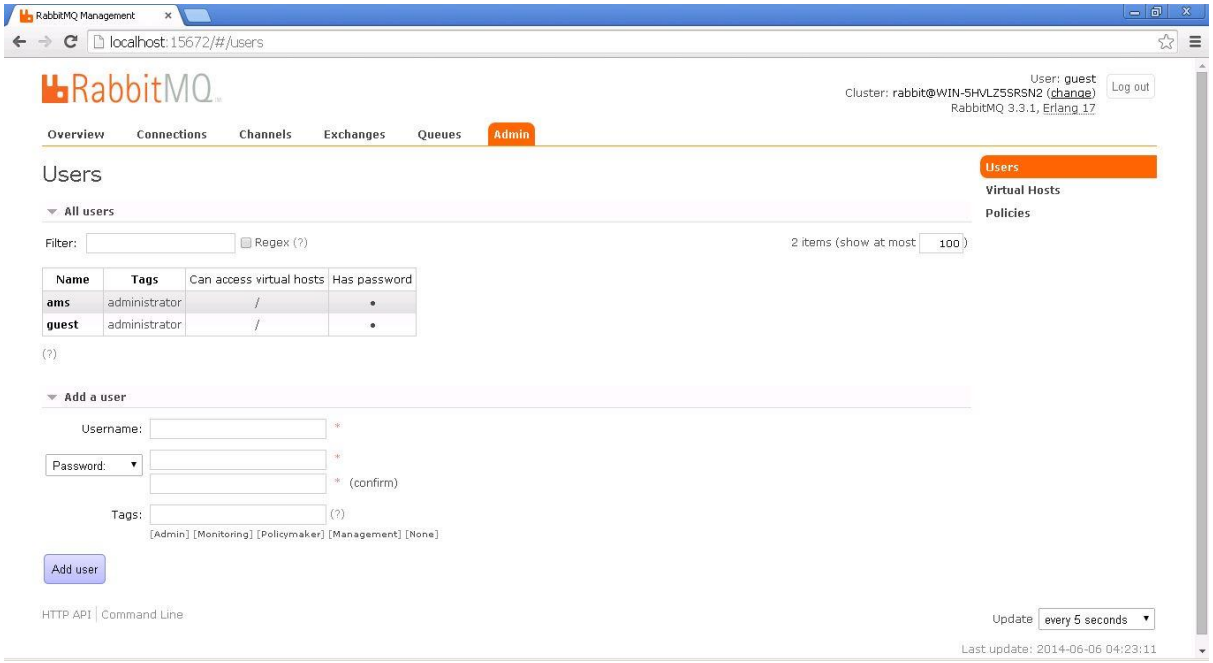

d. Now click on user which has been added in previous step so the access permissions can be given.




e. By default all the fields are filled with default values so click *Set permission*.



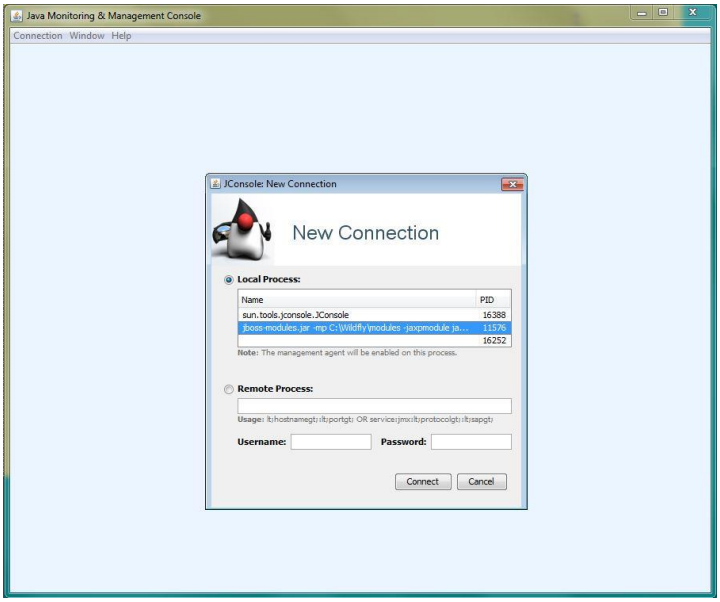

f. Now *Admin* tab should display 2 users with tags as '*administrator*' and Can access virtual hosts as '/'.




# 5. Integrating Customer Broker with RabbitMQ

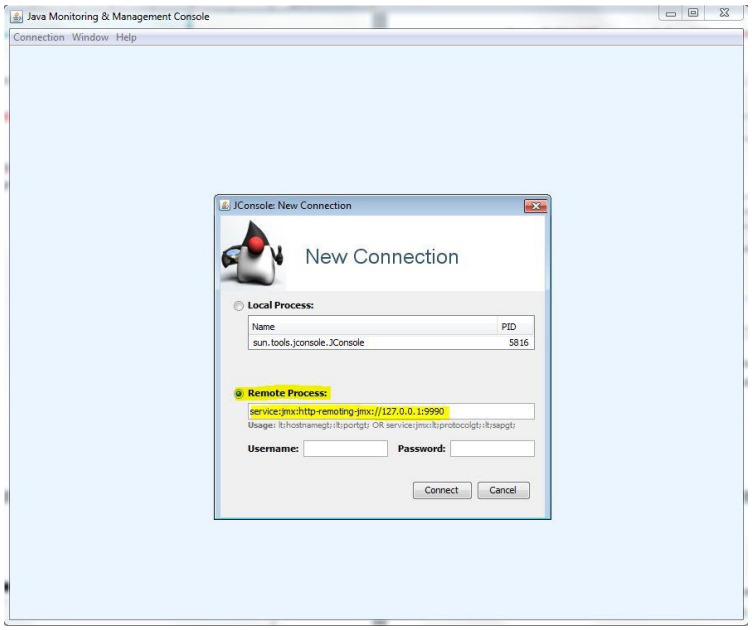
By default, password is set to *ncr.ams* in encrypted format during Customer Broker installation. **If you do not want to change the default password, skip step a-b**. If you have used a different RabbitMQ password other than the default one, follow step a-c to generate encrypted password for it through JConsole.

a. Navigate to [Wildfly-Directory]/bin/, open jconsole.bat and connect to Wildfly server if it is listed under Local Process.

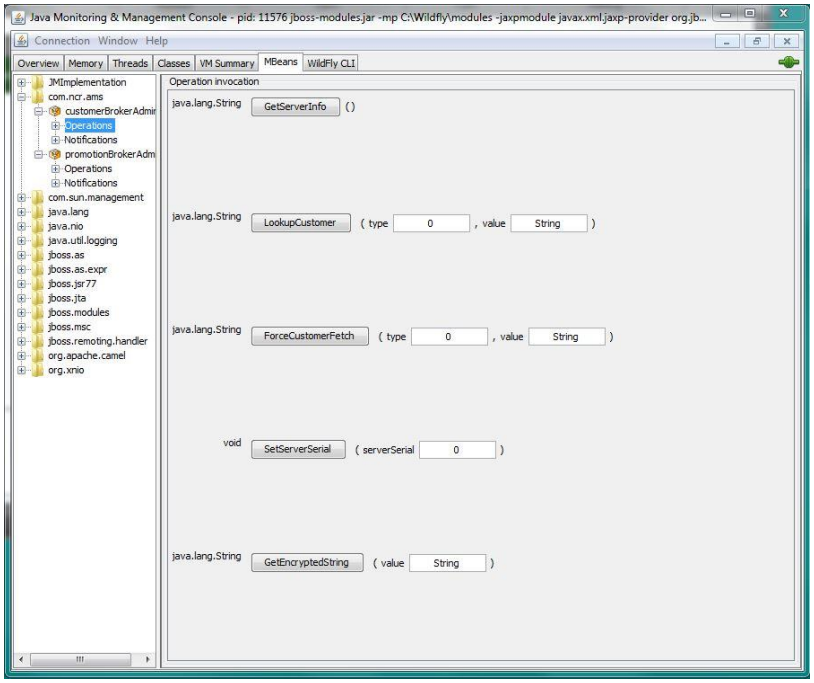


b. If it is not listed under Local Process, connect to the server using Remote Process using the following command.

service:jmx:http-remoting-jmx://{Wildfly_Server_ip}:9990

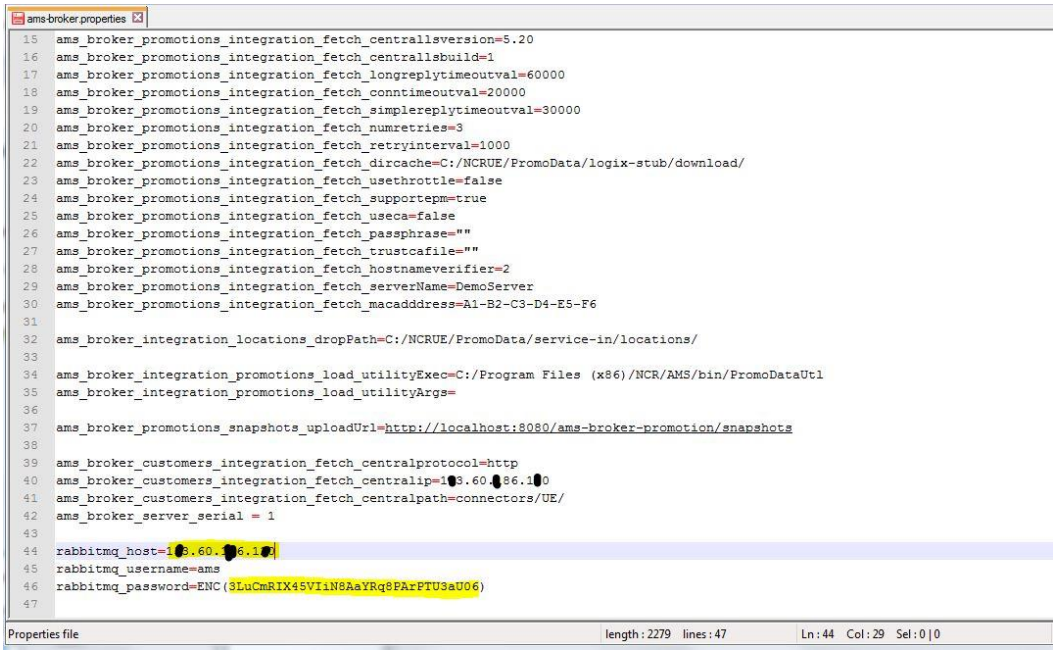



c. In the text box beside *GetEncryptedString, e*nter the new password which you have given while creating RabbitMQ user to get the new encrypted password.

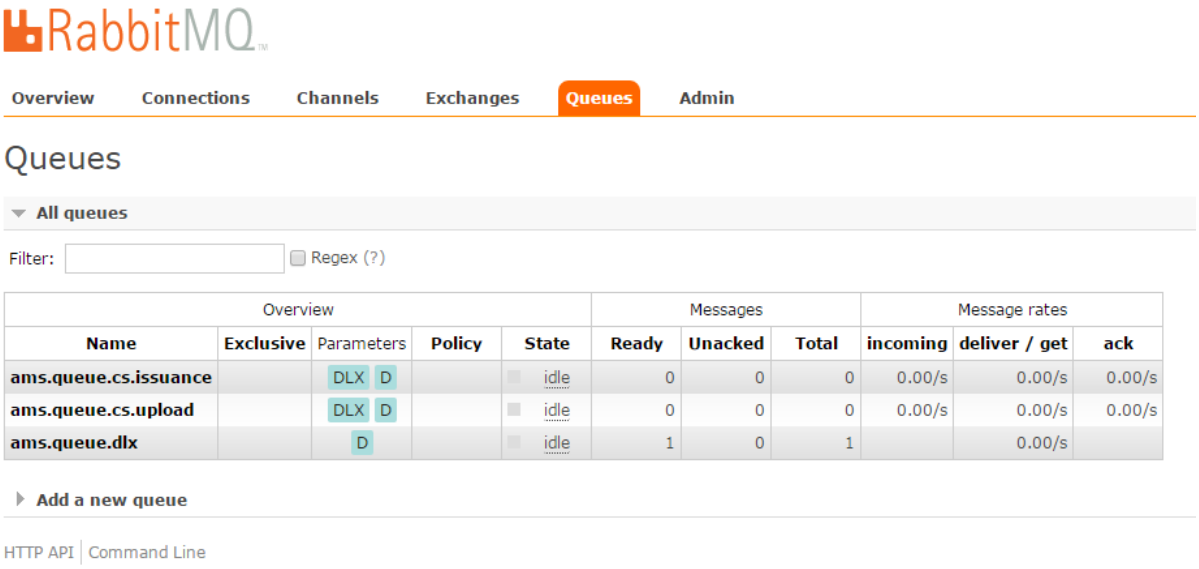



d. Navigate to C:/etc/ams directory on Windows (or) /etc/ams directory if Customer Broker is installed on Linux. Open ams-broker.properties in text editor and edit the following lines in it. Set rabbitmq_host, rabbitmq_username, rabbitmq_password with appropriate values and restart customer-broker.

**Note: RabbitMQ password should be in encrypted format and should be within ENC()**




e. After successful deployment, Customer Service will automatically create the following 3 queues: **ams.queue.cs.upload**, **ams.queue.cs.issuance** and **ams.queue.dlx**. This confirms that Customer Service will be producing and consuming on these queues.




f. The ams.queue.dlx is a dead-letter-queue that is used to hold messages that were not processed by Customer Service. Any malformed or invalid messages that cannot be consumed by Customer Service are put on this queue.

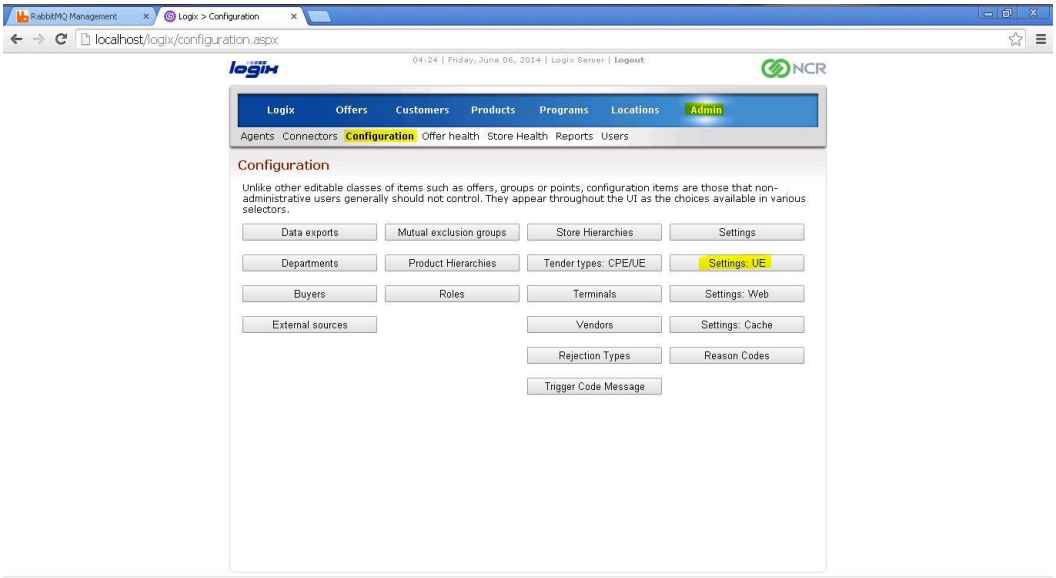
**Logix MessageReceiverAgent deprecated**

g. For upgrading from previous AMS setup,
    a. The Logix AMSMessageReceiverAgent has been replaced by Customer Service and the ams.queue.upload is used by the MessageReceiverAgent.
    b. Once the 6.1.2 Customer Service is successfully deployed, the ams.queue.upload will become obsolete.
    c. Then, the AMSMessageReceiverAgent can be disabled after making sure that the ams.queue.upload is empty.
    d. The ams.queue.upload is deprecated and will not be used further. This queue can be deleted once the AMSMessageReceiverAgent has been disabled.
    e. Also, the previous queue - ams.queue.download is no longer used and can be deleted.

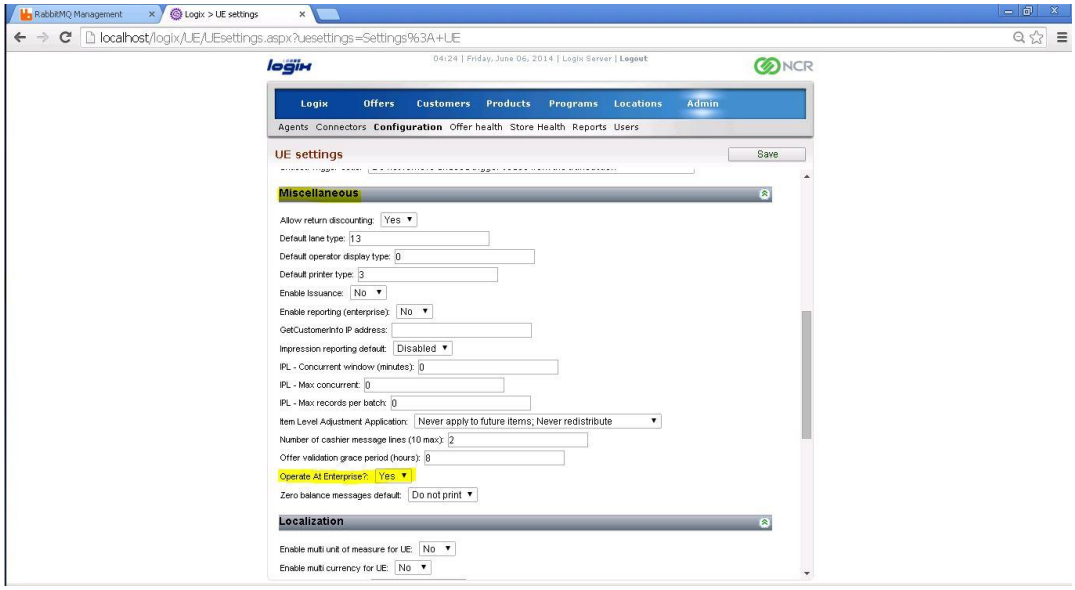
# 6. Integrating Logix with RabbitMQ

**Note: By default Logix is configured with default username: "*ams*" and password: "*ncr.ams*".**

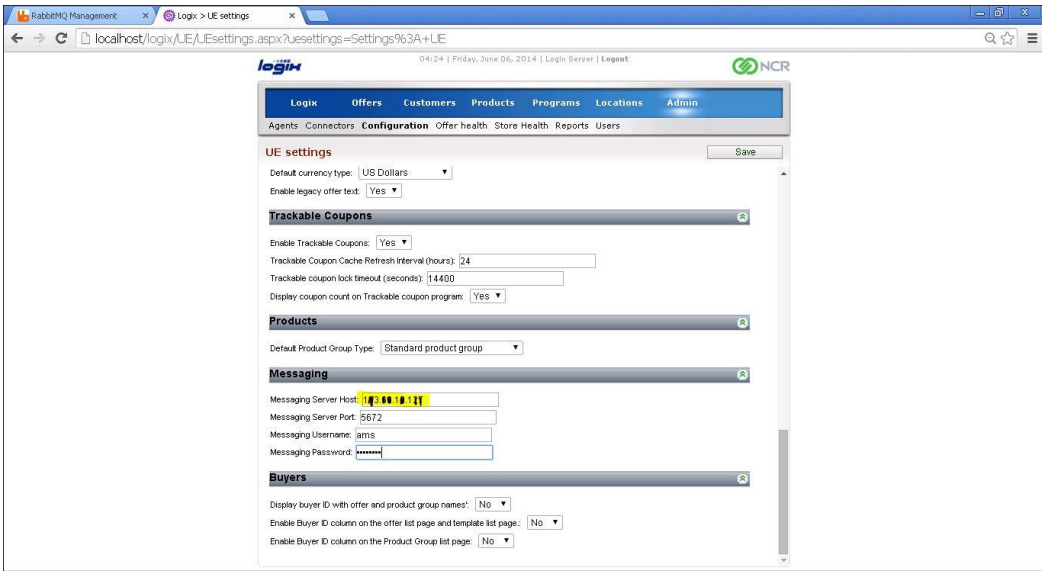
a. Navigate to Logix->Admin->Configuration->Settings:UE




b. Under Miscellaneous section, set *Operate at Enterprise* to '*Yes*'.




c. Now a new section named Messaging would be displayed. Under this, set the ip or DNS name of RabbitMQ as host, and also username and password which were configured previously and click save.

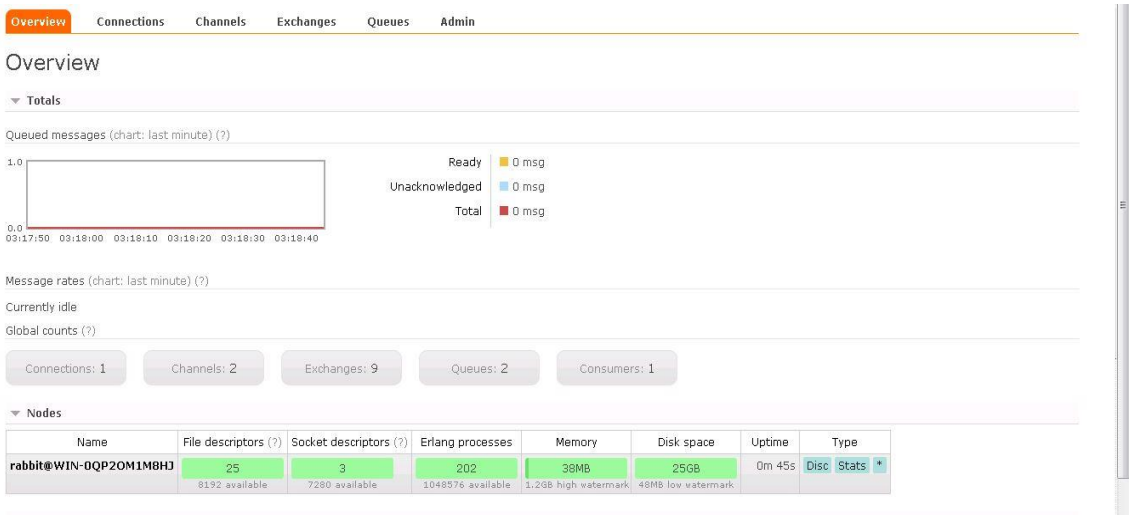


# 7. Clustering

This section explains how to setup RabbitMQ clustering.

**Note: In order to setup RabbitMQ cluster, all nodes should have same version of Erlang and RabbitMQ Server. And also make sure 4369 port is open.**

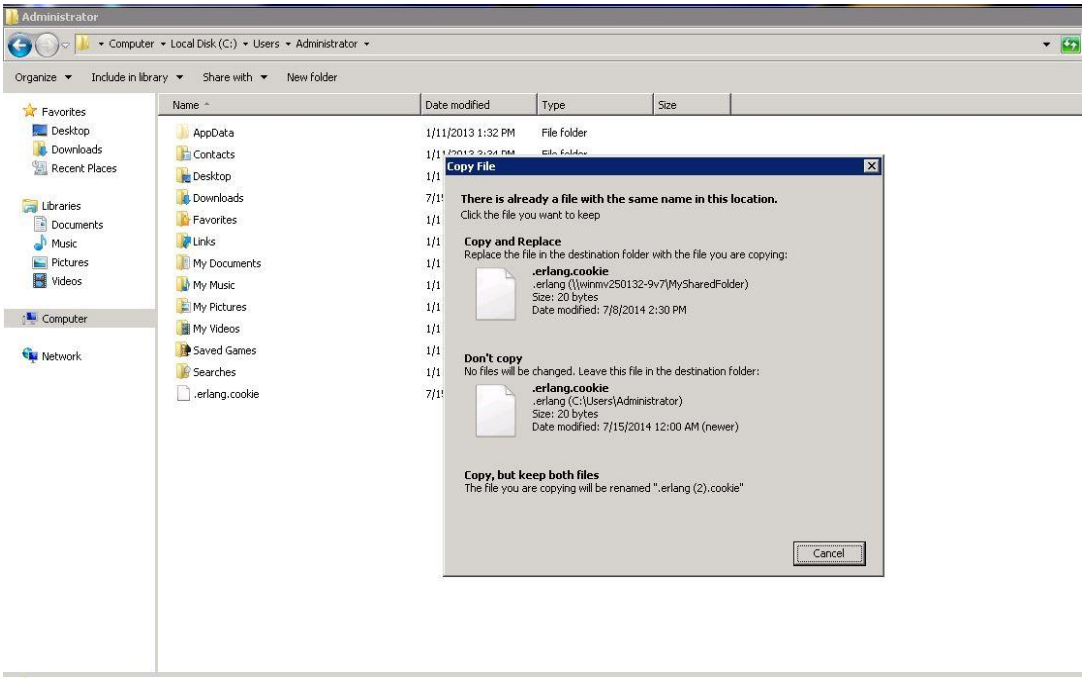
a. Follow steps in sections 2 and 3 to install Erlang and RabbitMQ.




b. Create new user and password following steps mentioned in section 4 of this document.

**Note: Do not create queues on non-master nodes. And also username and password should be the same on all the nodes. By default username is "ams" and password is "ncr.ams".**


c. Copy cookie file which is located in ***%UserProfile%\.erland.cookie*** of the first node to ***%systemroot%*** and ***%UserProfile%*** on all other nodes. Restart RabbitMQ service on all other machines.

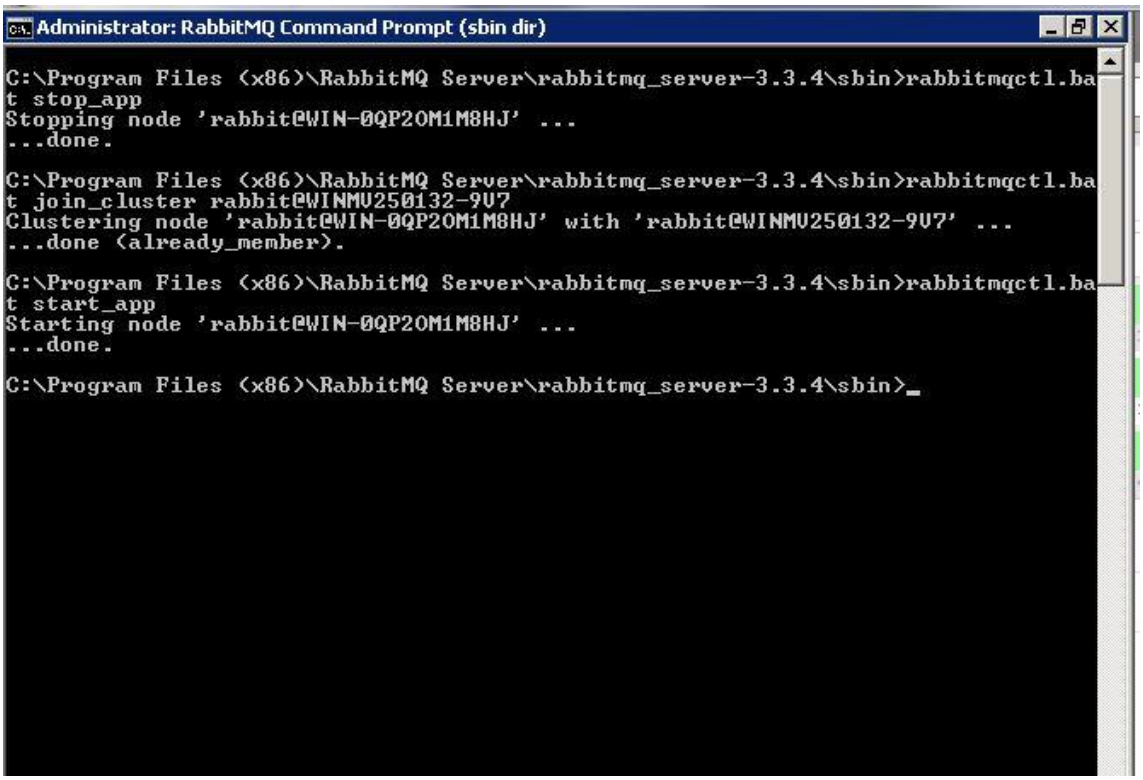



d. Go to RabbitMQ sbin directory and enter the following command.

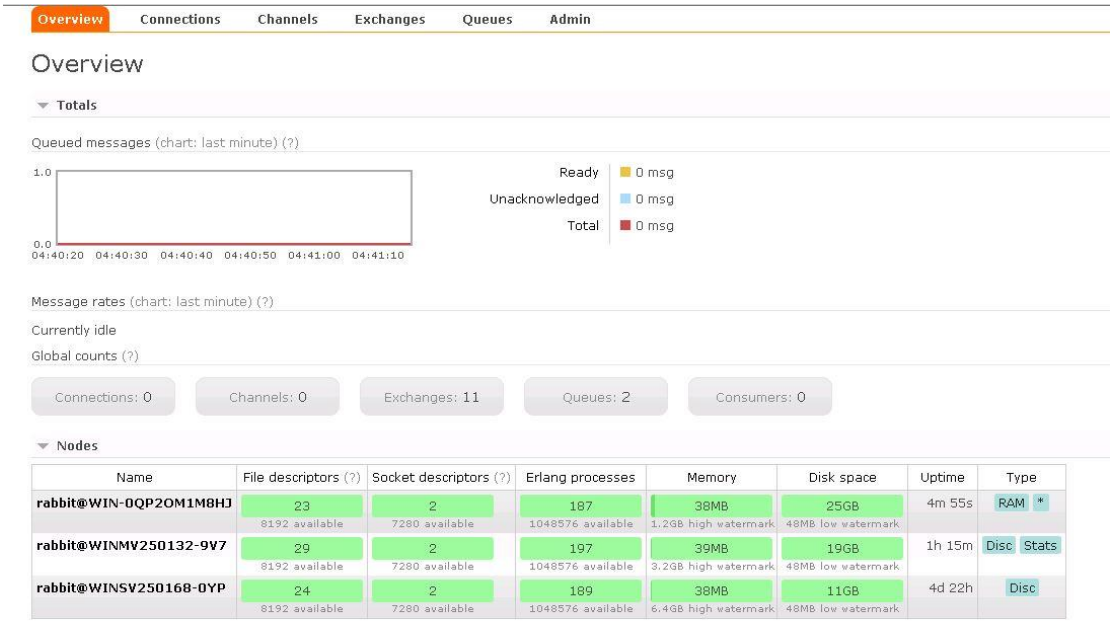
**> rabbitmqctl stop_app**

**> rabbitmqctl join_cluster NODE_NAME@COMPUTER_NAME.**

**> rabbitmqctl start_app**

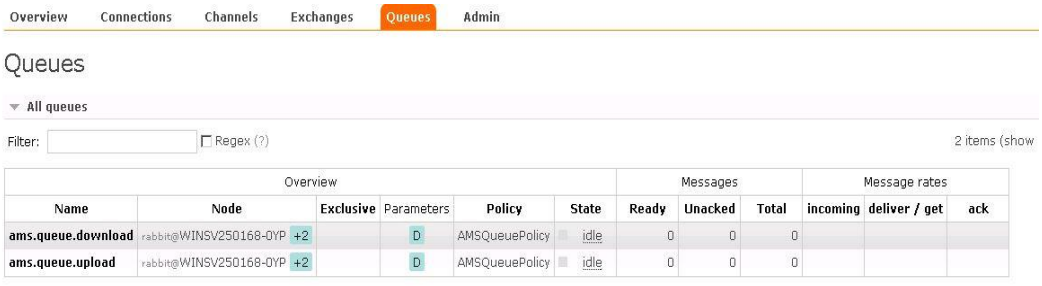


e. Verify that the cluster has been created and connected.




f. Now create a new policy in the first node, so that both the queues would be replicated on all nodes.


g. Once it is done verify on other nodes whether those queues are created.



# 8. Miscellaneous

The following ports need to be opened in order to communicate with RabbitMQ.

| Port Number | Description |
|---|---|
| **5672** | Main RabbitMQ port used for sending and receiving data from queues. |
| **15672** | Used for accessing management console. |
| **25672** | Port used for clustering. |
| **4369** | Used by EPMD (Erlang Port Mapper Daemon). This makes sure that the nodes can find each other. |

# 9. Logging

To change the default log path

| | |
|---|---|
| RABBITMQ_LOG_BASE | This base directory contains the RabbitMQ server's log files, unless RABBITMQ_LOGS or RABBITMQ_SASL_LOGS are set explicitly. |
| RABBITMQ_LOGS | The path of the RabbitMQ server's Erlang log file. This variable cannot be overridden on Windows. |
| RABBITMQ_SASL_LOGS | The path of the RabbitMQ server's Erlang SASL (System Application Support Libraries) log file. This variable cannot be overridden on Windows. |

Logs levels can be configured so that you can log only when particular event occurs. To configure log levels, you need create “rabbitmq.config” in ***%AppData%\RabbitMQ***. Add the following lines to config file.

```
[
  {
    rabbit,
    [
      {log_levels, [{connection, error}, {mirroring, error}]}
    ]
  }
]
```

There are 3 categories for logs.

| | |
|---|---|
| connection | For all events relating to network connections |
| mirroring | For all events relating to mirrored queues. This is needed when RabbitMQ is clustered. |
| federation | For all events relating to federation. Currently we are not using federation. |

Currently there are 4 different log levels.

| | |
|---|---|
| info | Logs everything. This is the default log level for all categories. |
| warning | Logs all warnings and errors. |
| error | Logs only errors. |
| none | Logs will be disabled |

**Note: More information about logging and other configuration can be found in the below link**

https://www.rabbitmq.com/configure.html#example-config

# 10. Frequently Asked Questions

a. Unable to access localhost:15672 from browser.
   Make sure that RabbitMQ service is running.

b. Unable to login to RabbitMQ server.
   Make sure that you type the correct [username, password] combination. The default username, password combination is[guest, guest].

c. Unable to access RabbitMQ from other machine.
   Make sure new user has been added with proper permissions set**. You cannot login to remote RabbitMQ server with [guest, guest].**

d. Messaging settings unavailable in Logix.
   Make sure *Operate at Enterprise* is set to *Yes.*

e. ams.queue.upload has 0 consumers.
   Make sure RabbitMQ server ip, port, username, password are configured correctly in Logix and also restart *AMSMessageSenderAgent* and *AMSMessageReceiverAgent* when settings are changed.

f. ams.queue.download has 0 consumers.
   Make sure RabbitMQ server ip, port, username, password are configured correctly in ams-broker.properties.

g. Error: unable to connect to nodes [rabbit <at> master]: nodedown
   **This means either node is down or port 4369 is not open.** Open the port and try again. Also make sure that same cookie file is present on all the machines.

h. Where to find more information about clustering?
   For more information refer to http://www.rabbitmq.com/clustering.html and http://www.rabbitmq.com/ha.html