

ACTI 4850 – Lab 2 – Work Management and Knowledge Base

Instructor	Mike Mulder (mmulder10@bcit.ca)
Total Marks	10
Due Dates	Demo Due by End of Next Week's Class <ul style="list-style-type: none">• Jan. 22nd for Set C (Monday)• Jan. 23rd for Set B (Tuesday)• Jan. 25th for Set A (Thursday)

Applicable Requirements

- **REQ1010** - The Enterprise Development Environment shall be prototyped on Microsoft Azure cloud infrastructure.
- **REQ1050** – The Enterprise Development Environment shall have a Work Management capability. The Work Management tool will be JIRA. Note: An evaluation license will be used for JIRA.
- **REQ1060** – The Work Management capability shall support Kanban and Scrum based work management. Note: JIRA Software has the concept of a Kanban and Scrum boards.
- **REQ1070** – The Enterprise Development Environment shall have a Knowledge Base capability. The Knowledge Management tool will be Confluence. Note: An evaluation license will be used for Confluence
- **REQ1080** – The Knowledge base capability shall allow logical groupings of online documentation by team and department. Note: Confluence has the concept of a Space to logically group content. Each Space can have separate users, permissions and theme.
- **REQ1090** – The Enterprise Development Environment shall use MySQL as the preferred database for tool installations.
- **Note:** We will not integrate JIRA and Confluence with Azure Active Directory at this time due to time constraints. We may implement this as a future improvement.
- **SEC1010** – All password credentials will be stored in a password safe.
- **SEC1020** – All web applications and API endpoints shall be encrypted (i.e., https endpoints). Note: Self-signed certificates are sufficient for the prototype environment.

Group Work

You will be working on the same Azure cloud environment as the previous lab, shared with your Lab partner. However, this lab you will divide up the work and each install a different tool (i.e., one installs JIRA, the other Confluence).

You will be marked individually on this lab.

If you are working on your own, please do the Confluence installation only – you will be using it for Assignment 1.

JIRA Installation

To be completed and demoed by one lab partner

Step 1 – Create a Virtual Machine in Azure

Create a Linux Virtual Machine (using the Virtual Machines Service) with the following specifications under your Azure for Students subscription:

- Resource group name: Jira
- Virtual machine name: Jira
- Region: (US) East US 2 (or another region where the B2s is available)
- Image: Ubuntu 20.04 LTS
- Size: B2s (this is needed to be able to run JIRA)
- Authentication Type: SSH public key (create an SSH key if necessary and paste in the public key)
- Inbound Ports: Allow SSH (22) only

Leave everything else at the defaults and Create the Virtual Machine. This may take a few minutes.

Step 2 – Install MySQL on your Virtual Machine

Login to your Virtual Machine using ssh.

Follow the instructions here to install MySQL 5.7:

<https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-ubuntu-20-04>

Configure your MySQL installation for JIRA based on the instructions here:

<https://confluence.atlassian.com/adminjiraserver0901/connecting-jira-applications-to-mysql-5-7-1155490939.html>

- Note that after Item 1 in the instructions above is where you will do the JIRA installation below. Then you need to come back to complete the remaining steps.
- When you download the MySQL driver, download the Platform Independent Zip file – this contains the JAR files compatible with Confluence.
- Use jiradb for the database name, localhost for the JIRA server hostname and jiradbuser for the DB user.
- Alternately, you can do the JIRA installation below and then come back to this.

Note the following for your MySQL installaton:

- Default Port: 3306
- Database Name (i.e., jiradb)
- Database Username (i.e., jiradbuser) and Password
- You will need the information above later when you setup the database

Make sure you store your root password for MySQL in your password safe.

Now you will install JIRA.

Step 3 – Install JIRA Software

Follow the steps provided by Atlassian to install JIRA with a **Linux installer**.

<https://confluence.atlassian.com/adminjiraserver/installing-jira-applications-938846823.html>

Notes:

- You may need additional ports open on your VM to access JIRA (i.e., port 8080).

In the Microsoft Azure Portal, view All Resources. Find the resource called Jira-nsg. This is your network security for your VM. Add new Inbound rules for the required ports and protocols.

- You want to install **JIRA Software** – this is the Agile version of JIRA
- When running the JIRA install steps in the browser use the “I’ll set it up myself option” with a “My own database” database setup
- We do not need to setup an Email server
- You can deal with the license when setting up JIRA. At that point, obtain a free 30 day trial.
- You can download the JIRA installation to your laptop and then use sftp or scp to transfer the file to the VM.
- **Make sure you store your admin password for JIRA in your password safe.**

Step 4 – Setup a JIRA Board

Using online documentation for JIRA Software, setup a JIRA Scrum or Kanban Board.

Make sure you shutdown any Azure resources (i.e., the VM) to conserve your credits and free tier usage.

Confluence Installation

To be completed and demoed by one lab partner

Step 1 – Create a Virtual Machine in Azure

Create a Linux Virtual Machine (using the Virtual Machines Service) with the following specifications under your Azure for Students subscription:

- Resource group name: Confluence
- Virtual machine name: Confluence
- Region: (US) East US 2 (or another region where the B2s is available)
- Image: Ubuntu 20.04 LTS
- Size: B2s (this is needed to be able to run Confluence)
- Authentication Type: SSH public key (create an SSH key if necessary and paste in the public key)
- Inbound Ports: Allow SSH (22) only

Leave everything else at the defaults and Create the Virtual Machine. This may take a few minutes.

Step 2 – Install MySQL on your Virtual Machine

Login to your Virtual Machine using ssh.

Follow the instructions here to install MySQL 5.7:

<https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-ubuntu-20-04>

Configure your MySQL installation for Confluence based on the instructions here:

<https://confluence.atlassian.com/doc/database-setup-for-mysql-128747.html>

- You've already done Item 1, so skip it
- For Item 2, do the Linux specific instructions
- When you download the MySQL driver, download the Platform Independent Zip file – this contains the JAR files compatible with Confluence.
- Note that Item 4 in the instructions above is where you will do the Confluence installation below. Then you need to come back to complete Items 5 and 6
- Alternately, you can do the Confluence installation below and then come back to this.

Note the following for your MySQL installation:

- Default Port: 3306
- Connection String:
`jdbc:mysql://localhost:3306/confluence?sessionVariables=tx_isolation='READ-COMMITTED'`

Make sure you store your root password for MySQL in your password safe.

Now you will install Confluence.

Step 3 – Install Confluence

Follow the steps here to install Confluence with a Linux installer:

<https://confluence.atlassian.com/doc/confluence-installation-guide-135681.html>

Notes:

- You can download the Confluence installation to your laptop and then use sftp or scp to transfer the file to the VM. Or you can use wget to download directly to the VM.
- Setup a DNS Name for your Confluence VM in the Azure Portal.
- Based on the prerequisites, the following ports need to be open on your VM: 8090 and 8091.

In the Azure Portal, view All Resources. Find the resource called Confluence-nsg. This is your network security for your VM. Add new Inbound rules to allow port 8090 and 8091 for protocol TCP.

- Setup Confluence for a Production Installation (not a Trial Installation) and My Own Database (not Built-in).

- You can deal with the license when setting up Confluence. At that point, obtain a free 30 day trial for Confluence (Server).
- **Make sure you store your admin password for Confluence in your password safe.**

Step 4 - Using Confluence

- As Admin, create a user for yourself and your partner in your Confluence installation
- As Admin, create a new Space called ACIT 4850 Enterprise Development Environment. Make yourself the Space Admin. Make sure your partner has sufficient permissions to read and write to the Space.
- As your own user, create a page in the new Space and document some of the details of your Confluence installation.

Make sure you shutdown any Azure resources (i.e., the VM) to conserve your credits and free tier usage.

Demo, Grading and Submission

A demo of your lab against the applicable requirements which will determine your grade on the lab. All mandatory requirements must be met otherwise you will receive zero on the lab. You can re-demo the lab if you haven't met the mandatory requirements, up to the last class before the midterm week, but you will lose 20% every week late.

JIRA

Req.	Mandatory	Demo	Marks
REQ1010	Yes	<ul style="list-style-type: none"> • Show your Azure dashboard. • Show your running VM. 	2
REQ1050	Yes	<ul style="list-style-type: none"> • Show your running JIRA instance at the DNS name of your server from Azure 	1
REQ1060	Yes	<ul style="list-style-type: none"> • Show that you can login to JIRA with a user account • Show that you have a Scrum or Kanban board setup 	3
REQ1090	Yes	<ul style="list-style-type: none"> • Show that your JIRA installation is configured to use a MySQL database (NOT the trial embedded DB) 	3
SEC1020	No	<ul style="list-style-type: none"> • Show that you have used ssh keys for ssh access to your VM. 	1
Total			10

Submit a screenshot of your JIRA board to the Lab2 dropbox under Activities -> Assignments on D2L.

Confluence

Req.	Mandatory	Demo	Marks
REQ1010	Yes	<ul style="list-style-type: none">• Show your Azure dashboard.• Show your running VM for Confluence.	2
REQ1070	Yes	<ul style="list-style-type: none">• Show your running Confluence instance at the DNS name of your server from Azure	1
REQ1080	Yes	<ul style="list-style-type: none">• Show that you can login to Confluence with a user account• Show that you have your Space setup	3
REQ1090	Yes	<ul style="list-style-type: none">• Show that your Confluence installation is configured to use a MySQL database	3
SEC1020	No	<ul style="list-style-type: none">• Show that you have used ssh keys for ssh access to your VM.	1
Total			10

Submit a screenshot of your Confluence Space homepage to the Lab2 dropbox under Activities -> Assignments on D2L.