

# Student Assignment

## Assignment 2 Final Report Learning Contract

Negotiated Work and Project Based Learning in  
Computing

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# Negotiated Work-Based Learning Contract

## ***Assignment 2: Learning Contract Final Report***

This Final Report is the outcome of the Negotiated Work-Based Learning Contract definition Appendix 1 written by me (Manuel Munoz) and submitted for evaluation at TVU a few weeks ago. Appendix 1 defined the subject of the Learning Contract and a description of the goals I needed to achieved.

My learning goals outlined in Appendix 1 were to gain knowledge and obtain practical skills for a Network Management Solution software called CC4 (Community Connect 4) that will be implemented in the school where I work over the summer. I needed to analyse and evaluate the implication that this upgrade will have over the exiting network, report my finding to the ICT Coordinator of the school and also create tutorials, guides and presentations for staff, communicating them the substantial changes, benefits and difficulties that the upgrade will bring.

### ***1. Previous Details from Appendix 1***

- **Student details**

Manuel Munoz Soria, student ID 21076464

I am currently studying towards a Foundation Degree in Computing and Information Systems, obtaining simultaneously with the Foundation Degree a professional qualification by a Company called Cisco, leading manufacturer of switches and routers. I work full time as an ICT Technician in St James Catholic, a secondary high school based in North London. It is in the grounds of this school where the work-based learning contract is taking place.

- **Employer details and needs**

St James Catholic High School<sup>1</sup>

St James Catholic High School has a population of 1,100 students and 130 staff members. It has a Microsoft-based network of 10 servers and about 550 workstations. Since 2002 St James' Network has been running a Network Management Solution software called Community Connect 3<sup>2</sup> (CC3), developed by a company called RM<sup>3</sup>. During the summer 2010, St James Network will be upgraded to Community Connect 4<sup>4</sup>, the latest version of the RM Network Management Solution software. As stated in the introduction of this report, my learning goal is to learn CC4 and apply my gained knowledge to support the school network.

- **Contact Person**

Mr Osman Kent; Osman Kent is the Network Manager of St James School and responsible of hiring new personnel. He is in charge of supervising the roll out of CC4 and is the person I report to. He is not directly involved with the actual use of the CC4 applications.

- **University Tutor**

Mr Ray Gumme; Ray Gumme is the University Tutor of Manuel Munoz at TVU, and is responsible of supervising the Negotiated Work-Based Learning Contract.

## 2. What is Community Connect 3?

Before attempting the upgrade, I must first understand thoroughly the purpose of Community Connect 3 in the school network; this is in order to value the differences that Community Connect 4 will bring after the upgrade.

The term 'network' refers to any number of computers that have been linked together. St James' network computers are linked in the model client-server<sup>5</sup>, where powerful computers called servers provide services to other computers (called clients) such as sharing files, printers, documents or providing roles in the network like database or website hosting. Community Connect 3 is based on Windows Server 2003. It is a modular system where many programs and components are added on top of the standard Windows Server interfaces to make the network appropriate for an educational establishment.

CC3 is designed to provide a safe, educationally orientated working environment for students and staff, providing them with access to the resources they need and customising them to the way they work.

Community Connect 4 has been designed on the foundations of CC3, and it brings better control over hardware and software, more flexible access over the resources for staff and students, delegating them the power to perform routine tasks themselves in a safe manner (without altering the inner line configuration of the operating system).

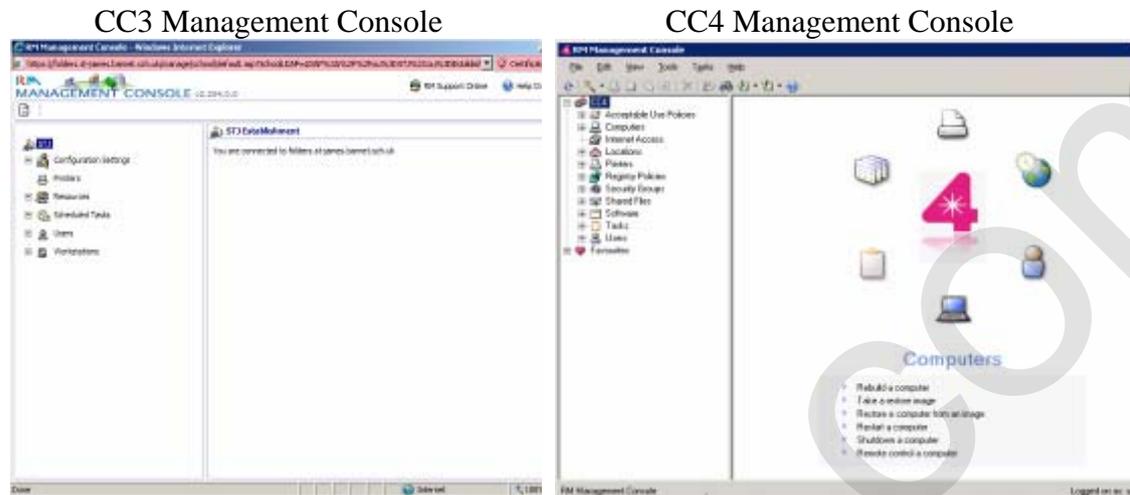
They are a huge list of modules that we can add to a CC3 environment to personalise the school needs. Some of the core components that must always be included on a CC3 network are the following:

Network Component	Description
RM Management Console	Manage objects such as printers, computers and users
RM Learning Resources	Organise shared folders delegating the access to users according to the role and the department they belong to
RM Application Tools	RM Application Wizard and Virtual CD for package creation using msi extensions.
RM Mobile Tools	Install software, manage drive mapping, allocate printers to location
RM Type Manager	Create registry policies and software restriction policies
RM Easylink	Allow logon to the network remotely from home using an internet-linked computer
RM Hardware Configuration Manager	Provide inventory information for computers
RM Local Support Tools	Perform and schedule many remote tasks on computers, like schedule starts/shutdowns of the systems
RM Password Plus	Create multiple password policies to meet different needs
RM Auditor	Monitors activity of network users, programs, computers and printers

CC3 has got a dedicated portal<sup>6</sup> on the RM.com website that deals with technical articles regarding the implementation of the different modules. One of the important differences between CC3 and CC4 is that CC3 only supports Windows XP Operating System as a client, while CC4 provides support for XP, Vista and Windows

7, allowing the school to upgrade the operating system of certain workstation as long as they got the license for the required operating system.

Just as a visual example, compare in the pictures below the CC3 RM Management Console against the CC4 RM Management Console, and notice that the CC4 console provides more and flexible settings:



### 3. The Planning Guide

In order to achieve a successful installation, I designed with the help of RM and the supervision of Osman Kent a planning guide to first of all analyse the current state of the network, then perform the upgrade to CC4 and finally do some after checking to ensure the upgrade has been completed successfully.

This planning guide consists of several steps framed on a timetable, which is displayed in the table below:

CC4 Upgrade Summer 2010 – The Planning Guide			
Date:	Tasks:	Achieved:	Result/Recommendation
7 <sup>th</sup> to 11 <sup>th</sup> June	The Health Check	Yes	Hardware upgrade
14 <sup>th</sup> to 18 <sup>th</sup> June	The Documentation	Yes	Kept electronically
21 <sup>st</sup> June -Present	The Test Room	Still in progress	Prioritise applications
28 <sup>th</sup> to 29 <sup>th</sup> June	The Training	Yes	The purchase of RM Internet Access Manager
21 <sup>st</sup> to 30 <sup>th</sup> July	The Upgrade	Scheduled	-

We'll study each of these steps separately:

## 1. The Health Check

To prevent a failure, the upgrade must be done over a solid and consolidated network, where any issues with performance or reliability have been fixed and there are not outstanding problems that could compromise the upgrade.

Among the things that I checked during this Health Check was the correct configuration of DNS, Active Directory Replication, the package status of the programs installed in the CC3 network (ensuring there are no multiple version of the same programs on the servers), and finally checking that the backup works flawlessly on the servers, restoring critical files as a test and creating Emergency Repair Disks for all the servers in case a disaster strikes.

One of the conclusions I got after this extensive Health Check was that one server had an amount of memory below the recommendation by RM for the upgrade to CC4. RM recommends 2GB of RAM per server, and this particular server only had 1GB. I ordered some more memory from RM and upgraded the server as appropriated.

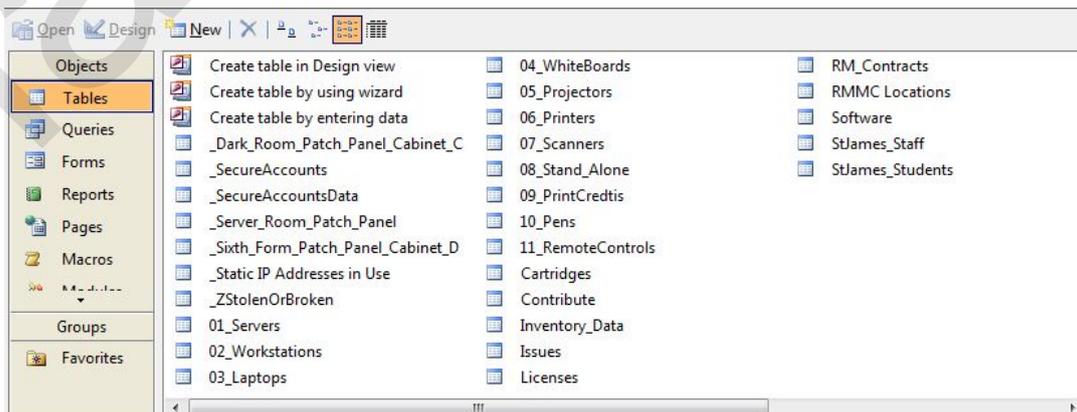
Another good result of the Health Check was the removal of packages and programs that were not in used any more, like old version of Adobe Reader or Office 2000 that were not in used at all in the school now. The removal of these programs also free some space in the application servers.

## 2. The Documentation

It is critical to document the Network in order to provide a smooth rollover to CC4, specifying in this documented network the number of computers in the school, their locations, printers, number of users, types of resources they need to access to, critical usernames and passwords for administration, wireless infrastructure and security keys, IP addresses distribution, exclusions and DHCP scope, Acceptable User Policy and global password policy to access the system. All of these without leaving behind the actual map of the network with number of switches, routers and their IP addresses for remote management.

I designed a number of MS Excel documents and a database using MS Access where this documentation is now kept in digital format, thus making the maintenance of the data for the future paper-free. Before, the hardly documented network was kept on a log book that made the changes of the network and addition/removal of computers very hard to track.

This has been a very hard work, and I have to admit I've done it with the help of the other full-time IT Technician of the school, we both were gathering data about projectors, printers and computers, but only me was inputting this data on the database I designed. Here is a screenshot of the tables I created:



### 3. The Test Room

As stated on Appendix 1, I decommissioned one of the small IT rooms of the school mid-June and rebuilding the room as a test room for CC4. This room is known in the school by the name of LR4 (Learning Resources 4). The decommission was done with the help of another IT Technician that also works in the school. Osman Kent allowed the usage for LR4 for the CC4 testing, removing the room from the teaching timetable of the teachers.

I connected the 15 workstations in LR4 to a separate network switch, virtually isolating the traffic from the production network. We then use the test CC4 server send by RM, connecting it to the same switch and rebuilding the workstations in LR4 under the CC4 environment. I copied the CC3 packages form the production servers to this test CC4 server using a portable hard drive.

This enclosed tested environment helped me to analyse and troubleshoot application deployment of software packages created previously under CC3 and now tested under CC4 management. Some of the packages were not working at all under Windows 7 operating system, while others were working only for administrator's users and not for students/staff due to restriction of the new software policies implemented with CC4.

I realised that the best way to roll out the package to the new CC4 network will be by prioritising the application according to the real need of the users, and to organise the workload I created "four" categories of applications:

- Priority 1 = solve the problem *immediately*. This includes Office 2003/2007 as well as SIMS.net<sup>7</sup>, the software that links to the school sql database.
- Priority 2 = solve the problem *shortly*. This includes issues with applications like Adobe, Flash Player, and other programs required for a proper use of the system and most frequently use by the users after priority 1.
- Priority 3 = *no rush* to solve the problem. This includes programs related to departments, like suites for Science of programs specifically for French or Spanish, to give a few examples.
- Junk = *delete*. This includes programs that will not work on the CC4 environment, that are too old or with a very low usage on the current CC3 network that will not justify the effort to migrate them to CC4.

### 4. The Training

I attended a two days training course called "Community Connect 4 FastTrack" in Abingdon, Oxford, and successfully passed the RM Certified CC4 Technician Examination that took place after the course.

In was during this course that I noticed the big advantages that CC4 will bring to the school network; among these benefits are:

- Improved RM Management Console, with easier access and management.
- New integrated build process allowing network administrators to roll out Operating Systems other than Microsoft XP.
- Improved management software with more efficient software installations and easier diagnosis of failed applications.
- Better security and flexibility overall.
- Improved methods, like "My Connect" application, to allow users checking their printing credits and space allocation. This is a screenshot of this application:



Thanks to the training, I noticed the development by RM of a module called “RM Internet Access Manager” that allows to granulate and restrict the Internet Access for students during certain times of the day and on certain computers, providing more flexibility to deal with the abuse the students do of their Internet access, playing games during lessons or visiting unsuitable sites. I found this module very useful and recommended the ICT Coordinator of the school to purchase it and install it with the core of CC4 during the summer.

Though I earned the RM Certified CC4 Technician Examination, I am still waiting for the certificate, but please find on bullet point 5 a scan of the certificate of attendance that I was given right after the course.

## 5. The Upgrade

The actual upgrade from CC3 to CC4 will take 8 working days, starting 21<sup>st</sup> July and finishing on the 30<sup>th</sup> July. During all this time the school will be closed and the network will not be operational. RM engineers will visit the school where I will be the main point of contact, providing them with the relevant passwords and access to the server room so that they can do the upgrade.

I will ensure that there is a full backup of the system before the RM engineers will attempt the upgrade. This upgrade process would be divided in the following stages:

- Upgrade the Forest Domain Controller of the network to CC4
- Migrate the Replicas Domain Controller to CC4, thus finished the upgrade in the core of the network.
- Roll out the upgrade to the main offices and department computers in the school.
- Roll out the upgrade to the IT rooms
- Allocate the *Priority 1* applications to the computers and then create a restore image.
- Allocate the *Priority 2* applications to computers as long as they are working and there are no major problems with the *Priority 1* applications.
- Finally, allocate the *Priority 3* applications to computers once the above steps are fully completed and there are no outstanding problems with any of the applications fallen in the Priority 1 or 2 categories.

#### 4. After the Upgrade

A critical point will be once the RM Engineers finished upgrading the network and delegate the access to me. I will need to explain the changes to first the ICT Coordinator and then the teaching staff in the school, ensuring that they are not a significant disruption of they way they work.

I created a presentation to the staff warning them that a major upgrade is coming, and I showed to them just after I came back from my CC4 training. This is a screen shot of the slide 1 of the presentation:



I will have to prepare a number of tutorials and maybe arrange for some in-house training for staff. I am thinking as well in preparing some short exercises that staff can do and that will allow me to explain them the new features of the system. Some of the tutorials that I will have to develop after the upgrade are:

- A tutorial (possible a video using Adobe Captivate<sup>8</sup>) to show staff the best way of accessing their work and the shared areas using Community Connect 4.
- A tutorial showing staff how to use RM Tutor 4<sup>9</sup>. At present we are running RM Tutor 3, and this is a module extensile use in the school for teachers.
- A demonstration once a week after school for staff in need to further help in using the new system. This will be particularly helpful for staff with little IT knowledge and literacy.

#### 5. RM Certificate of Attendance

Please find a scan below of the Certificate of attendance that I obtained after attending the course “Community Connect 4 FastTrack”.

# Education Development Centre

## *Certificate of Attendance*

This is to certify that

**Manuel Munoz**

.....

of

**St James RC High School**

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has attended the following  
**Training Course**

Community Connect 4 FastTrack

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**Bernard Kilsshaw**

Tutor.....

**29 June 2010**

Date.....

**IRM**

## References

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- <sup>1</sup> St James Catholic High School <http://www.st-james.barnet.sch.uk> [Accessed 11 April 2010]
- <sup>2</sup> Community Connect 3 <http://www.rm.com/shops/rmshop/Story.aspx?cref=PS369996&SrcURL=/cc3> [Accessed 19 May 2010]
- <sup>3</sup> RM - Research Machines [http://en.wikipedia.org/wiki/RM\\_plc](http://en.wikipedia.org/wiki/RM_plc) [Accessed 15 May 2010]
- <sup>4</sup> Community Connect 4 <http://www.rm.com/generic.asp?cref=GP1102986&SrcURL=/cc4> [Accessed 19 May 2010]
- <sup>5</sup> Client-Server Model <http://en.wikipedia.org/wiki/Client-server> [Accessed 29 June 2010]
- <sup>6</sup> Connect 3 Home <http://www.rm.com/Support/Portal.asp?title=Community%20Connect%203%20Portal> [Accessed 29 June 2010]
- <sup>7</sup> SIMS.net <http://en.wikipedia.org/wiki/SIMS.net> [Accessed 17 May 2010]
- <sup>8</sup> Adobe Captivate Software <http://en.wikipedia.org/wiki/Captivate> [Accessed 5 July 2010]
- <sup>9</sup> RM Tutor 4 <http://www.rm.com/shops/rmshop/product.aspx?cref=PD1179770> [Accessed 5 July 2010]