



SCADA Lab Instructions Series

CSC 2001 Tutorial

How To Run CSC 2001 Tutorials In The SCADA Lab

Document Version: 1.1/0
Document Date: 31 January 2002
Document Status: Released
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Abstract

These instructions explain how to run the tutorial we prepared for the CERN School of Computing 2001 in the SCADA Lab. These instructions are based on the document called "SCADA Practical - Distributed Control Systems Tutorial Handout". They adapt the tutorial run at the school to the lab setting with 3 PCs running Windows 2000.

1 Prerequisites

In order to run this tutorial in the lab the following conditions must be satisfied:

1. The lab machines must be installed with Windows 2000, PVSS and the CSC 2001 tutorial setup on them. This should be the case. If in doubt, please check this by sending a mail to pvss.support@cern.ch.
2. As the tutorials take place on Windows 2000, you must have a Windows 2000 account. If you do not have such an account, do not use your Windows NT account as your roaming profile will be corrupted. Contact your space manager or e-mail helpdesk@cern.ch to ask for a Windows 2000 account.
3. Put aside one or two days to work in the lab. The tutorials are designed to be done in half a day.
4. You should have a copy of the "SCADA Practical - Distributed Control Systems Tutorial Handout". If copies where not available in the lab, you can print one from the following location <http://cern.ch/itcobe/Services/Pvss/CSC/>.
5. When you are done with the tutorial, please send a mail to pvss.support@cern.ch and ask them to arrange for the 3 machines you used to be reset with the CSC tutorial. This will help the next user of the lab to find a ready to use environment.

2 What Does The Original Tutorial Plan To Do?

The original tutorial was designed in 4 major steps:

1. Practical 1, 2 and 3 to perform basic tasks. Namely to design a panel from scratch, use a generic panel and instantiate it and finally use a component of the JCOP Framework.
2. Practical 4 builds a scattered system (`hcalProject`) with one server (PC0) and four clients (PC1-PC4). The server provides different data points so that each client can interact with a different one via different panels.
3. Practical 5 builds another scattered system (`muonProject`) with the same topology using PC5 as server and PC6-9 as clients.
4. Practical 6 joins the two 5-machine systems above in one distributed system and shows that one can interact with any data point from any machine.

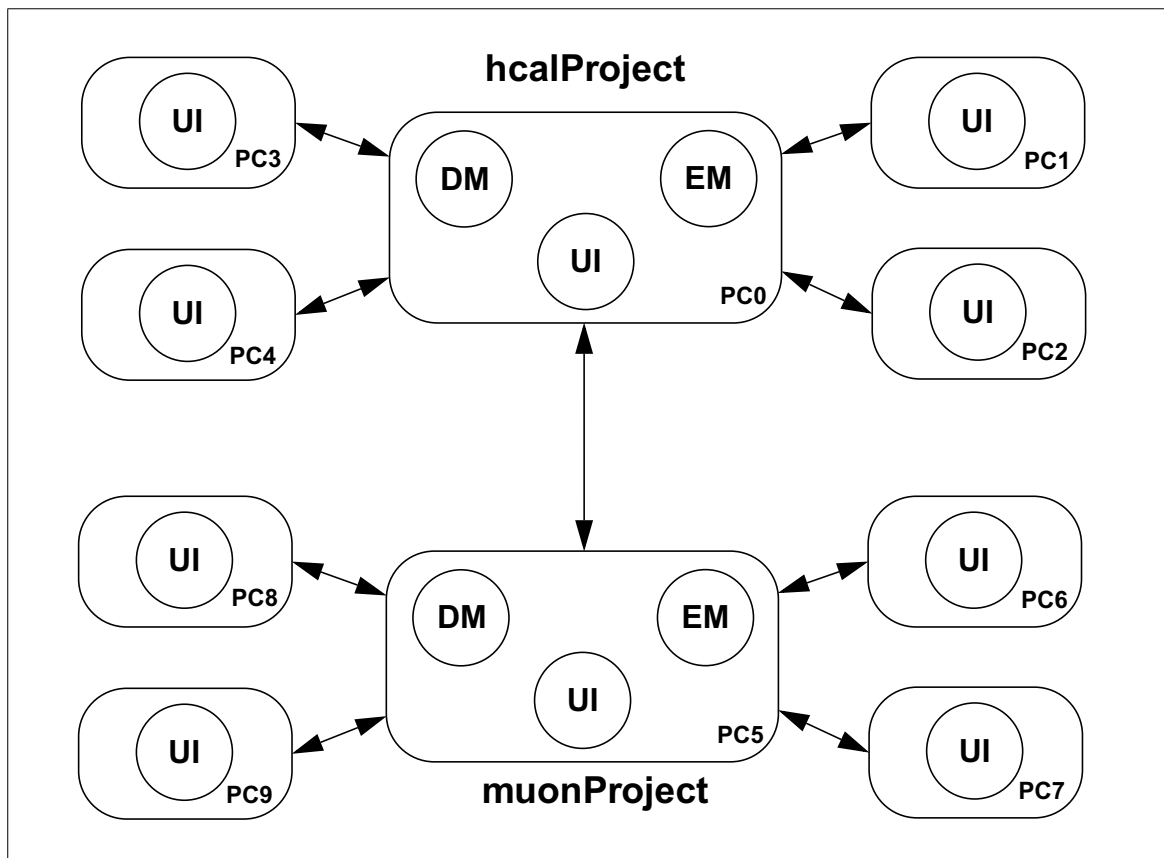


Figure 1 The final CSC tutorial topology.

3 What Will We Do In The SCADA Lab?

As in this lab we only have 3 PCs rather than 10, we scale down the CSC setup but in such a way that the points are still illustrated. The instructions included in this document explain how to adapt the school instructions to achieve this.

The tutorial you will run here is divided in 4 major steps:

1. The same as Practical 1, 2 and 3 documented in the CSC instructions.
2. A scaled down version of Practical 4 with 2 PCs, for example PC0 and PC1.
3. Practical 5 reduced only to the server PC5 with no clients.
4. Practical 6 joins the two systems above in one distributed system and shows that one can interact with any data point from any machine.

In the lab we use the 3 machines dedicated for User Demonstration with the following mapping:

- PC0 is pcitco57
- PC1 is pcitco58
- PC5 is pcitco46

If you notice that the machines available have changed, please write down here the exact mapping:

- PC0 is
- PC1 is
- PC5 is

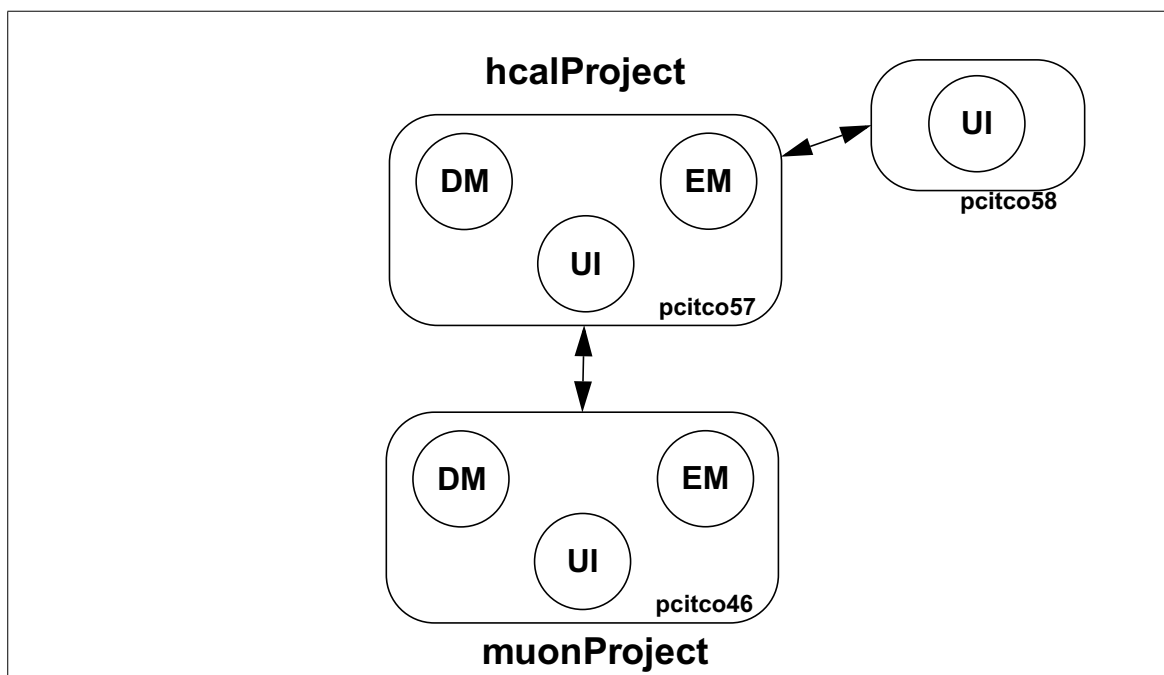


Figure 2 The final lab tutorial topology.

4 Prepare To Run

Log on `pcitco57`, `pcitco58` and `pcitco46` with your Windows 2000 account.

5 Notes To Run Practical 1

Perform the CSC instructions on `pcitco57` considering it is PC0. This means that you will follow the instructions exactly as they appear, making data points and panels for `cryoTemperature` control.



To start PVSS, use `Programs > PVSS II 2.11.1 > Shortcut to PVSSAsAdmin.exe`. Otherwise PVSS does not start as you do not have administrator right on these machines.

6 Notes To Run Practical 2

Continue to perform this practical on `pcitco57` considering it is PC0. Remember to use the shortcut to start PVSS. And choose a different panel to build for example `roomTemperature`.

7 Notes To Run Practical 3

Continue to perform this practical on `pcitco57` considering it is PC0. Remember to use the shortcut to start PVSS.

8 Notes To Run Practical 4

As in Practical 1, 2 and 3 you only did part of the panels, to perform Practical 4, we use a pre-prepared project as starting point. At the end of this practical we will have the following scattered system.

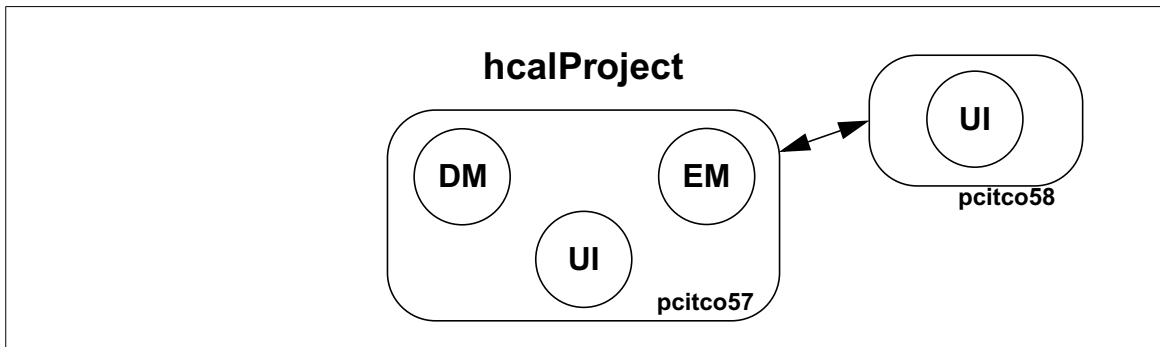


Figure 3 Practical 4 final topology in lab.

Perform the CSC instructions with `hcalProject` using only 2 machines: `pcitco57` as PC0 also called server, and `pcitco58` as PC1 also called client.



Before starting the Practical perform the following check on each of the 2 machines:

- In PVSS PARA Module, show the Internal Data Points.
- Check on `pcitco57` that the `_Ui_57` data point exists under the `_Ui` data point type. If not declare it.
- Check on `pcitco57` that the `_Error_ui_57` data point exists under the `_Error` data point type. If not declare it.
- Check on `pcitco58` that the `_Ui_58` data point exists under the `_Ui` data point type. If not declare it.
- Check on `pcitco58` that the `_Error_ui_58` data point exists under the `_Error` data point type. If not declare it.

Steps of 4.6.1 are to be performed on `pcitco57/PC0/server`.

First steps of 4.6.2 are to be performed on the 2 machines. Use 57 as UIM identifier on `pcitco57` and 58 on `pcitco58`.

Steps of 4.6.2.1 are to be performed on `pcitco57/PC0/server`. Set the machine name to `pcitco57.cern.ch`.

Steps of 4.6.2.2 are to be performed on `pcitco58/PC1/client`. Set the machine name to `pcitco57.cern.ch` the PC0 server.

9 Notes To Run Practical 5

This is similar to the previous Practical with no client. We also use here a pre-prepared project. At the end of this practical we will have the following scattered system.

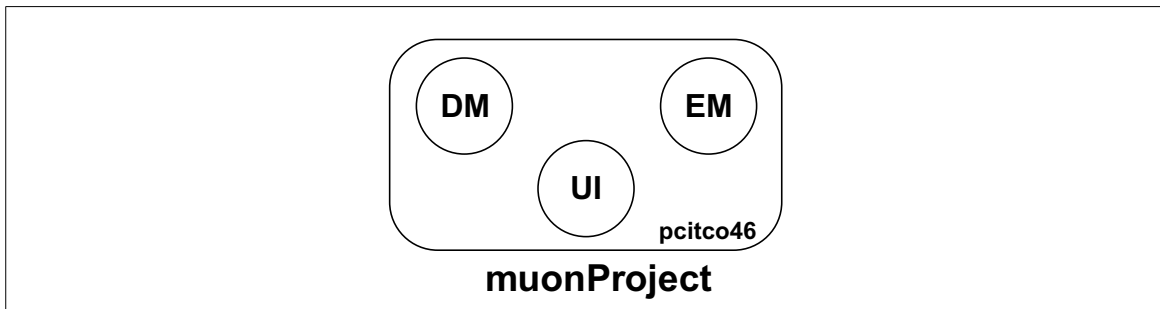


Figure 4 Practical 5 final topology in lab.

Perform the CSC instructions with `muonProject` using only 1 machine: `pcitco46` as PC5 which will be a server with no clients.



Before starting the Practical perform the following check on each of the machine:

- In PVSS PARA Module, show the Internal Data Points.
- Check on `pcitco46` that the `_Ui_46` data point exists under the `_Ui` data point type. If not declare it.
- Check on `pcitco46` that the `_Error_ui_46` data point exists under the `_Error` data point type. If not declare it.

Steps of 4.6.1 are to be performed on `pcitco46/PC5/server`.

First steps of 4.6.2 are to be performed on `pcitco46/PC5/server`. Use 46 as UIM identifier on `pcitco46`.

Steps of 4.6.2.1 are to be performed on `pcitco46/PC5/server`. Set the machine name to `pcitco46.cern.ch`.

You do not perform steps of 4.6.2.2.

10 Notes To Run Practical 6

Here we connect the 2 scattered systems we build in Practical 4 on `pcitco57/PC0/server` and `pcitco58/PC1/client` (Figure 3) and in Practical 5 on `pcitco46/PC5/server` (Figure 4) to form the distributed system of Figure 2.

You can play with the final system as explained in the instructions. Notice that in this system, any machine can access information from any other machine. For example, PC1 is not restricted to PC0 information and can also access PC5 information. Similarly PC0 can access PC5 information and vice versa.

11 What To Do When You Are Done?

When you are done with the tutorial, please e-mail to pvss.support@cern.ch and ask them to arrange for the 3 machines you used to be reset with the CSC tutorial. This will help the next user of the lab to find a ready to use environment.

Table 1 Document Status Sheet

Title: SCADA Lab Instructions Series CSC 2001 Tutorial			
ID:			
Version	Issue	Date	Reason for change
1.0	0	30 Jan 02	Started
1.1	0	31 Jan 02	Completed with sections 4 to 10.

This document has been prepared using the SDLT Single File Template that have been prepared by the IPT Group (Information, Process and Technology), IT Division, CERN (The European Laboratory for Particle Physics). For more information, go to <http://framemaker.cern.ch/>.

