

SLS Control System Software Management

R. Krempaská, A. Bertrand, M.Dach, D.Vermeulen, D.Zimoch

SLS Computing and Controls



Paul Scherrer Institute, Swiss Light Source

- 1. Application and installation directory structure**
- 2. IOCs and projects - conflicts and our solution**
- 3. Common installation procedure and tools for installation and software maintenance**

Application directory structure

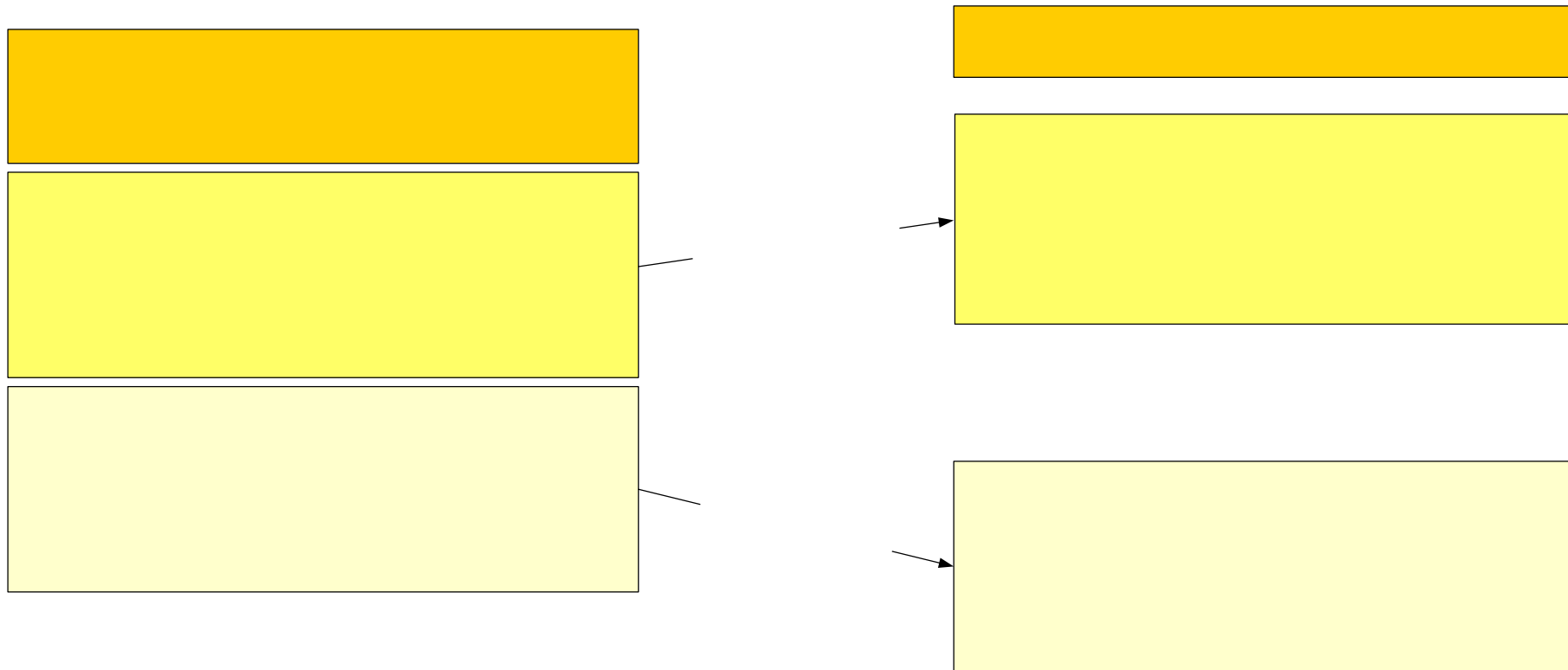
- **general structure for all applications**
- **based on EPICS IOC application structure**
- **keep together all configuration files, code, documentation**
=> server and client part are kept together
- **the structure is mapped in the CVS repository**

```
CVSROOT/  
    <domain>/  
        <project>/  
            [subproject]/  
                <application structure>
```

Example of an IOC Application

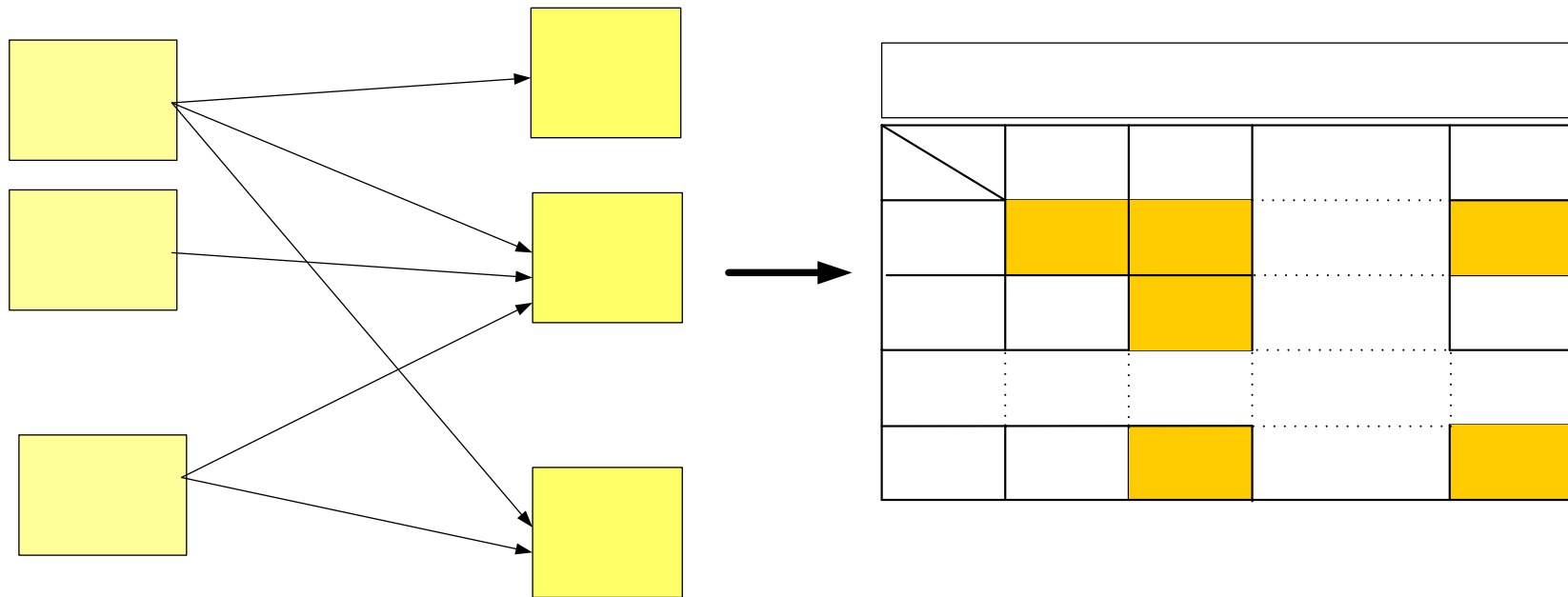
```
A/  
  VA/  
    GNUMakefile  
    gauge.template  
    fastValve.template  
    ARIVA-VME-1_gauge.subs  
    ...  
  cfg/  
    <ioc_name>_<pos/set>.req  
  src/  
    prog1.c  
  snl/  
    prog2.st  
  
  App/  
    config/  
      launcher/  
        A_VA_pump-current.config  
        ...  
      panel/  
        A_VA_all_temps.prc  
        A_VA_ARIVA_TC.bar  
        ...  
    scripts/  
      A_VA_LinVac.tcl
```

Installation of an IOC application



IOCs and Projects

- one or more projects can be installed in one or more IOCs
- each project could require a different version of software
=> conflicts may arise



- only IOC responsible can choose underlying software version
- projects installed on this IOC use them
- the information is stored in the Oracle DB and accessible through the Web

The screenshot shows a web browser window titled "SLS Hosts - Modify Relations - Mozilla". The address bar contains the URL: `http://sls.web.psi.ch/goto.php/testplan/hosts_relations_update.php?HOST_NAME=ARIVA-VME-1`. The page header includes the PSI logo and the text "Digital User Office". Below the header, there are navigation tabs for "SLS", "SINO", "SpS", "LTP", and "User Office". The main content area is titled "ARIVA-VME-1" and "Werner Portmann". It contains two main sections: "Port server" and "Architecture Information".

Port server configuration:

- Port server: -> 01
- Port No: N8
- Boot PC: -> pc3004
- Save and restore server: -> pc3004
- Enable: Yes
- Library: [empty]
- Connected To: -> bsismi17

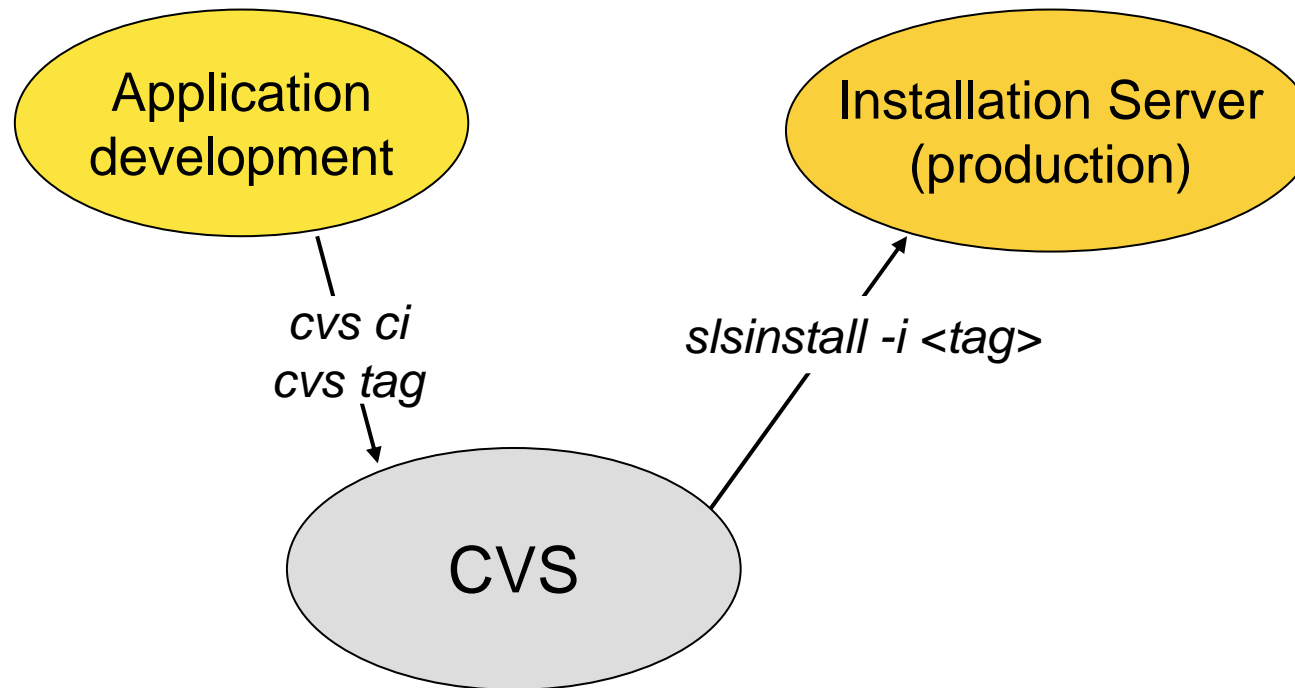
Architecture Information:

- Board Architecture: -> mv2300
- VxWorks Version: -> vxWorks5.3.1-Tornado1.0.1 (T1)
- EPICS Version: -> R3.13.9

At the bottom of the form, there are buttons for "[Save]", "[Cancel]", and "[Hosts List]". A left sidebar contains a menu of navigation options such as "DUO Home", "Function selection", "SLS-Controls Tools", "SLS Hosts Home", "SLS Hosts List", "Boot PCs", "Save&Restore Servers", "Port Servers", "Switches", "Advanced Search", "IOC Architecture", "Add host-beamlines", "Add host-machine", "Add host-DHCP", "Add host-static on PSI", "Generate Hosts Files", "Generate VME_cabling", and "Hosts history".

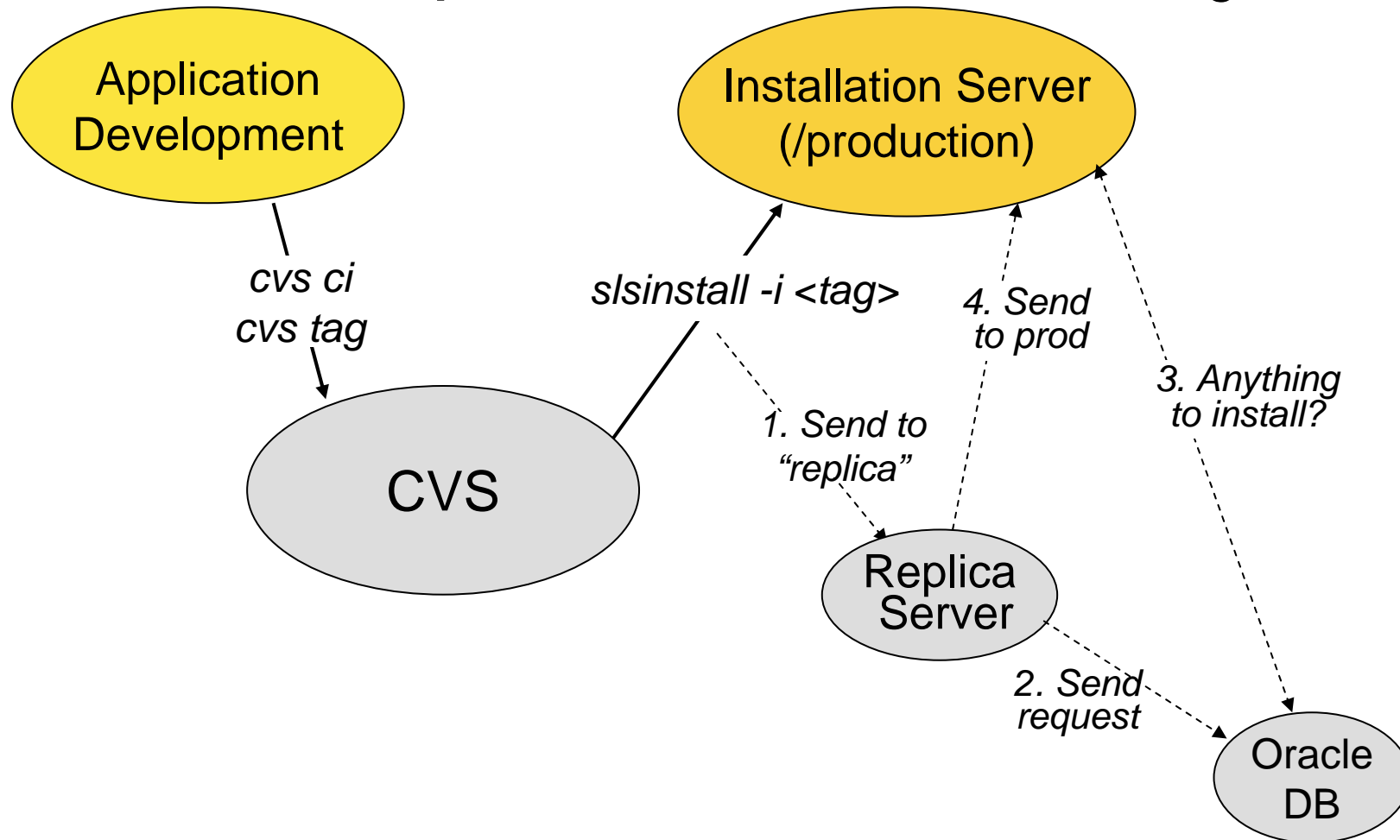
Common installation procedure

Installation to production: *slsinstall -i <cvstag>*



Common installation procedure - cont.

Installation to production - `slsinstall -i <cvstag>`



Projects installed by *slsinstall*

[Details] link shows a IOC's to which a project has been installed and a project's installation history.

Search
A/

Clear

Search

Next

	Project	CVS Tag	User	SLSBASE	Installation Date
[Details]	XX02DA/FE	X_X02DA_FE_1_1	isenegger	/devl	23-09-2005 17:20:43
[Details]	A/DI/DBPMCAL	A_DI_DBPMCAL_2_3	schilcher	/prod	23-09-2005 10:08:43
[Details]	A/DI/DBPM_NCO	A_DI_DBPM_NCO_1_22	krepaska	/devl	22-09-2005 16:38:57
[Details]	A/DI/DBPM	A_DI_DBPM_4_3	schilcher	/prod	20-09-2005 20:23:20
[Details]	A/DI/DBPM-BO	A_DI_DBPM-BO_2_4	schilcher	/prod	20-09-2005 17:21:09
[Details]	A/RF/HV-MOD	A_RF_HV-MOD_2_23	portmann	/prod	20-09-2005 15:52:51
[Details]	A/SA/VCS	A_SA_VCS_1_45	gaiffi	/prod	20-09-2005 14:29:52
[Details]	A/MA/ky	A_MA_ky_1_8	luedeke	/prod	19-09-2005 15:23:13
[Details]	A/RF/3HC	A_RF_3HC_2_4	portmann	/prod	19-09-2005 13:30:26
[Details]	A/DI/scrapper	A_DI_scrapper_1_16	armstrong	/prod	19-09-2005 11:56:39
[Details]	A/AL/HPS	A_AL_HPS_1_6	armstrong	/prod	19-09-2005 11:11:00
[Details]	A/AL/POMSSW	A_AL_POMSSW_1_4	armstrong	/prod	19-09-2005 11:09:30
[Details]	A/AL/POMS	A_AL_POMS_1_11	armstrong	/prod	19-09-2005 11:08:26
[Details]	A/AL/GM2	A_AL_GM2_1_13	armstrong	/prod	19-09-2005 11:07:27
[Details]	A/AL/ENCODER	A_AL_ENCODER_1_15	armstrong	/prod	19-09-2005 11:03:26
[Details]	A/SA/MPS	A_SA_MPS_1_7	speckert	/prod	16-09-2005 16:20:21
[Details]	A/SA/MIS	A_SA_MIS_2_5	speckert	/prod	16-09-2005 13:55:17
[Details]	A/DI/PCT-NEW	A_DI_PCT-NEW_3_3	dach	/prod	15-09-2005 16:53:37
[Details]	A/VA	A_VA_3_8	portmann	/prod	12-09-2005 14:54:38
[Details]	A/RF/B	A_RF_B_1_3	portmann	/prod	08-09-2005 16:31:20

slsinstall logger - cont.

Project **A/DI/DBPM-BO**
CVS Version **A_DI_DBPM-BO_2_4**
Installed on **20-09-2005 17:21:09**
SLSBASE **/prod**

List of IOCs installed

ABODI-PC-BPM
ABODI-VME-BPM1
ABODI-VME-BPM10
ABODI-VME-BPM11
ABODI-VME-BPM12
ABODI-VME-BPM2
ABODI-VME-BPM3
ABODI-VME-BPM4
ABODI-VME-BPM5
ABODI-VME-BPM6
ABODI-VME-BPM7
ABODI-VME-BPM8
ABODI-VME-BPM9
MBODI-VME-BPM1
MBODI-VME-BPM5
MBODI-VME-BPM9

Project Installation History

	CVS Tag	Username	\$SLSBASE	Install Date
[IOCs installed]	A_DI_DBPM-BO_2_4	schilcher	/prod	20-09-2005 17:21:09
[IOCs installed]	A_DI_DBPM-BO_2_3	schilcher	/prod	13-07-2005 10:39:06
[IOCs installed]	A_DI_DBPM-BO_2_2	schilcher	/prod	21-06-2005 16:35:37
[IOCs installed]	A_DI_DBPM-BO_2_2	schilcher	/prod	21-06-2005 15:01:35
[IOCs installed]	A_DI_DBPM-BO_2_2	schilcher	/prod	21-06-2005 13:47:14
[IOCs installed]	A_DI_DBPM-BO_2_1	schilcher	/prod	24-05-2005 14:36:48
[IOCs installed]	A_DI_DBPM-BO_2_1	krempaska	/devl	24-05-2005 12:16:32

Conclusion

- **Install all SLS application by a unique script**
- **Fast and easy distribution of the software on SLS computers**
- **IOCs use various versions of underlying OS (VxWorks), EPICS, BSP and application libraries**
- **Trace all the changes of the software running in production**
- **Rollback possibility**
- **Based on a previous installation script, rewritten, officially used since May/05 to install IOC applications**

Many thanks to SLS Controls group members and other SLS developers for their inputs, testing, ideas and discussions.