

Toolchain Setup

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Hardware/Software Co-Design
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FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG
TECHNISCHE FAKULTÄT

Outline

- Access to our Submin repository manager
- GIT Setup
- Checkout
- Compiling SysteMoC and Maestro

Submin Account Information for Repository Access

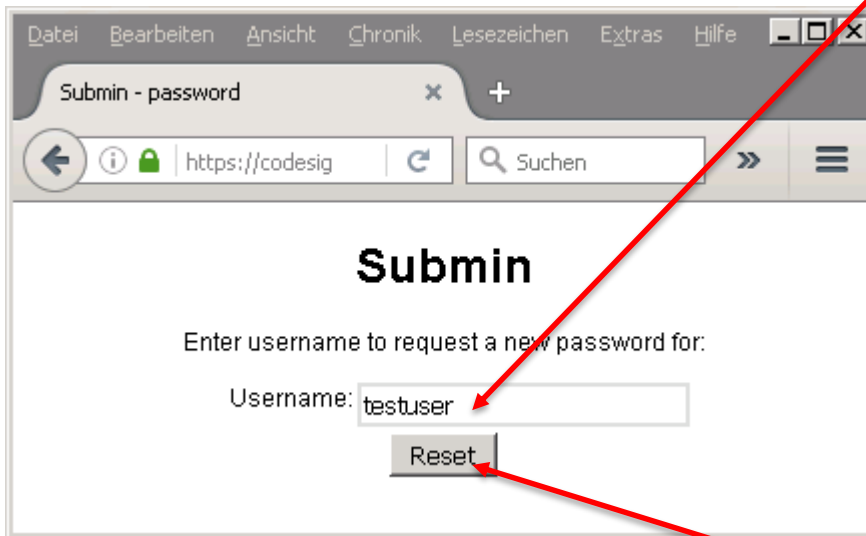
- Your accounts should be as follows:

Name	E-Mail	Username
Joachim Falk	joachim.falk@fau.de	falk
Michael Glass	michael.glass@fau.de	glass
Tobias Schwarzer	tobias.schwarzer@fau.de	schwarzer
Rafael Rosales	rafael.rosales@fau.de	rosales

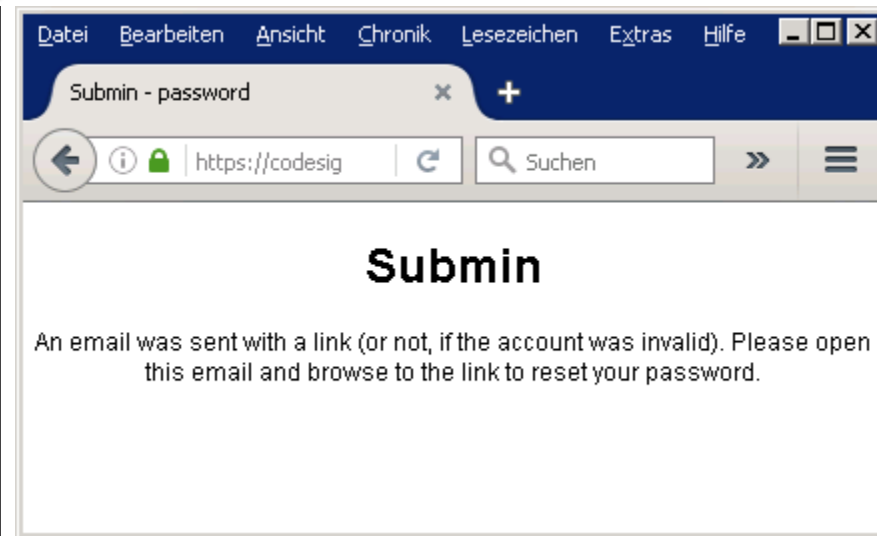
- You should already have setup your passwords. To validate your access, you can login into the repository manager with the URL <https://codesignrev.informatik.uni-erlangen.de/submin> and your above provided account name and the password you already provided. Otherwise, follow the steps provided on the next slides.

Password Setup for Your Account

- Visit the following URL:
<https://codesignrev.informatik.uni-erlangen.de/submin/password/>
- Enter your username, i.e., replace testuser with the username provided in the previous slide.



The screenshot shows a web browser window titled "Submin - password". The address bar displays "https://codesig". The main content area has the heading "Submin" and the instruction "Enter username to request a new password for:". Below this, there is a text input field labeled "Username:" containing the text "testuser". A "Reset" button is located below the input field. Two red arrows originate from the second bullet point of the list above: one points to the "testuser" text in the input field, and the other points to the "Reset" button.



The screenshot shows the same web browser window after clicking the "Reset" button. The main content area now displays the message: "An email was sent with a link (or not, if the account was invalid). Please open this email and browse to the link to reset your password."

- Trigger the reset by clicking the button.

Password Setup for Your Account

- To email send to the address provided in the table presented previously will contain an URL that starts the password reset procedure.

```
=====
You are receiving this email because someone requested a password reset for your account.
If you don't know what this is about, you can safely ignore it, the reset request will expire
automatically.

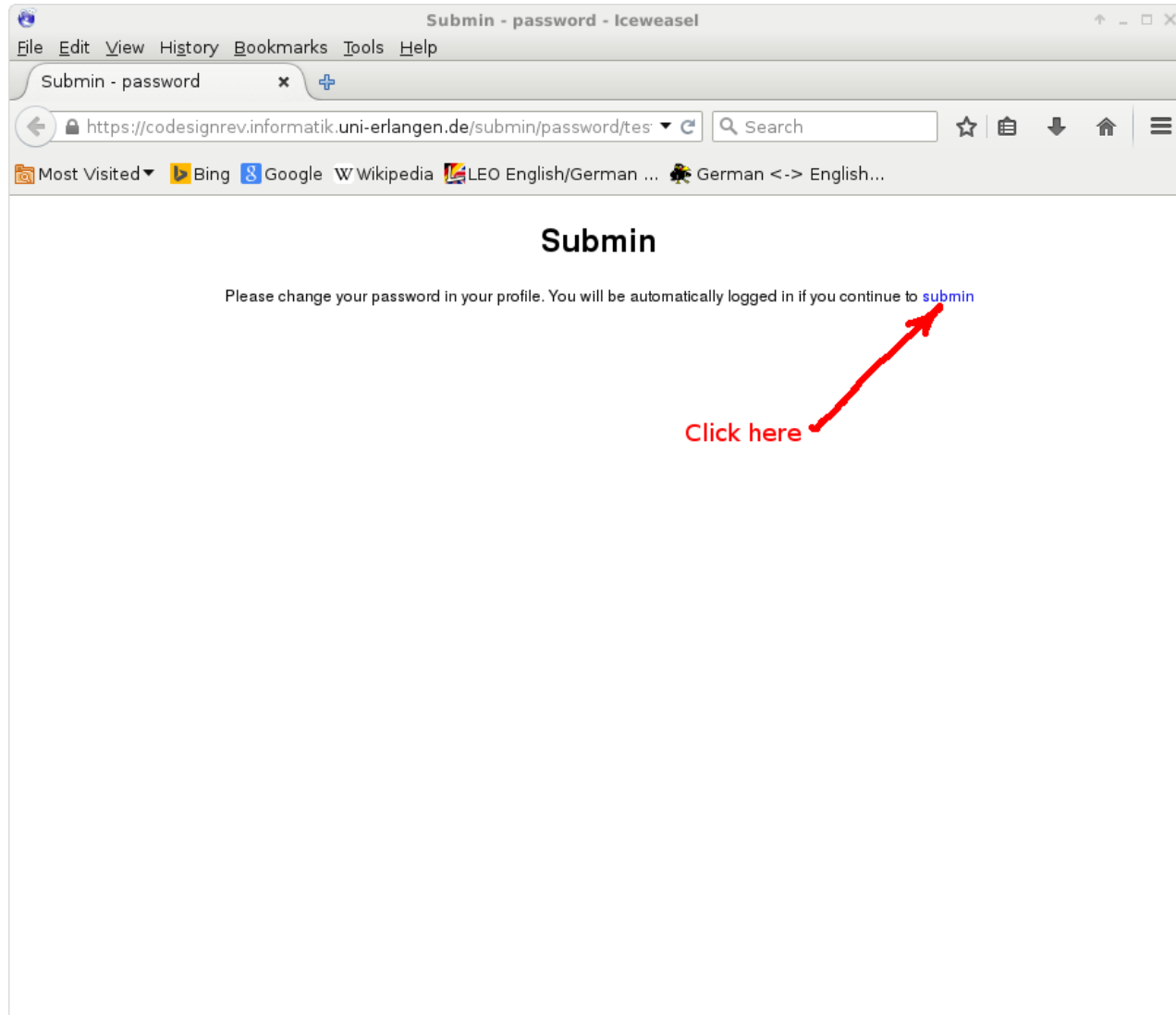
If you requested this password reset, you can reset your password by going to the following URL:

http://codesignrev.informatik.uni-erlangen.de/submin/password/<username>/JZ8vp...

Kind regards,
Submin

PS. The request was sent from 131.188.51.30
=====
```

Password Setup for Your Account



Password Setup for Your Account

The screenshot shows a web browser window titled "Submin - Main screen turn on - Iceweasel". The address bar shows the URL "https://codesignrev.informatik.uni-erlangen.de/submin/users/show/te...". The page has a sidebar on the left with the "Submin" logo and navigation links for "Logout (testuser)", "USERS", "GROUPS", and "REPOSITORIES". The main content area is titled "User testuser" and has a red heading "Set your password". Below this, there are three input fields: "Name" (John Doe), "Email" (john.doe@company.invalid), and "Password" (masked with dots). Each field has a "save" button. A red arrow points to the "Password" field. Below the input fields is a yellow box with the text "Hint: don't forget to change your password!". There is also an "Administrator" checkbox and a "Member of" section with a list of groups: "cognipower", "extern", "smoc-imc-rw", and "smoc-ro". Below this is an "SSH Keys" section with an "Add SSH Key" link. At the bottom is an "Access to repositories" section with a table of repositories and checkboxes for "Receive commit e-mails".

Submin - Main screen turn on - Iceweasel

File Edit View History Bookmarks Tools Help

Submin - password x Submin - Main screen tur... x

https://codesignrev.informatik.uni-erlangen.de/submin/users/show/te... Search

Most Visited Bing Google Wikipedia LEO English/German ... German <-> English...

Submin

Logout (testuser)

USERS

testuser

GROUPS

cognipower
extern
smoc-imc-rw
smoc-ro

REPOSITORIES

scd/2010-common-intern/BuildSystem
scd/2010-common-intern/HscdSupport
scd/2010-common-intern/HscdTeXRes
scd/2010-common-intern/PrebuiltLibraries
scd/2010-common-intern/Scripts
scd/2010-common-intern/Support
scd/2010-common-intern/Tools
scd/2010-examples-intern/ActorLibrary
scd/2010-examples-intern/BCS
scd/2010-examples-intern/BrakeByWire
scd/2010-examples-intern/Examples-top
scd/2010-examples-intern/Fake-MP3
scd/2010-examples-intern/HEVC-Decoder
scd/2010-examples-intern/lcdt2d
scd/2010-examples-intern/Jpeg-Decoder
scd/2010-examples-intern/MIMOApplication
scd/2010-examples-intern/MP3-Decoder
scd/2010-examples-intern/PCle
scd/2010-examples-intern/SysteMoC-Tutorial

User testuser

Set your password

Name John Doe save name

Email john.doe@company.invalid save email

Password ●●●●●● save password

Hint: don't forget to change your password!

Administrator ☐

Member of

cognipower
extern
smoc-imc-rw
smoc-ro

SSH Keys

Add SSH Key

Access to repositories

	Receive commit e-mails
scd/2010-common-intern/BuildSystem	<input type="checkbox"/>
scd/2010-common-intern/HscdSupport	<input type="checkbox"/>
scd/2010-common-intern/HscdTeXRes	<input type="checkbox"/>
scd/2010-examples-intern/ActorLibrary	<input type="checkbox"/>

Password Setup for Your Account

Submin - Main screen turn on - Iceweasel

File Edit View History Bookmarks Tools Help

Submin - Main screen tur... x

https://codesignrev.informatik.uni-erlangen.de/submin/users/show/te Search

Most Visited Bing Google Wikipedia LEO English/German ... German <-> English...

Submin

Logout (testuser)

- USERS
 - testuser
- GROUPS
 - cognipower
 - extern
 - smoc-lmc-rw
 - smoc-ro
- REPOSITORIES
 - scd/2010-common-intern/BuildSystem
 - scd/2010-common-intern/HscdSupport
 - scd/2010-common-intern/HscdTeXRes
 - scd/2010-common-intern/PrebuiltLibraries
 - scd/2010-common-intern/Scripts
 - scd/2010-common-intern/Support
 - scd/2010-common-intern/Tools
 - scd/2010-examples-intern/ActorLibrary
 - scd/2010-examples-intern/BCS
 - scd/2010-examples-intern/BrakeByWire
 - scd/2010-examples-intern/Examples-top
 - scd/2010-examples-intern/Fake-MP3
 - scd/2010-examples-intern/HEVC-Decoder
 - scd/2010-examples-intern/Idct2d
 - scd/2010-examples-intern/Jpeg-Decoder
 - scd/2010-examples-intern/MIMOApplication
 - scd/2010-examples-intern/MP3-Decoder
 - scd/2010-examples-intern/PCle
 - scd/2010-examples-intern/SysteMoC-Tutorial

Please verify your password [Click to close](#) and enter again to verify

Name

Email

Verify

Hint: don't forget to change your password!

Administrator ☐

Member of

- cognipower
- extern
- smoc-lmc-rw
- smoc-ro

SSH Keys

[Add SSH Key](#)

Access to repositories

Receive commit e-mails

- scd/2010-common-intern/BuildSystem ☐
- scd/2010-common-intern/HscdSupport ☐
- scd/2010-common-intern/HscdTeXRes ☐
- scd/2010-common-intern/PrebuiltLibraries ☐

Password Setup for Your Account

The screenshot shows a web browser window titled "Submin - Main screen turn on - Iceweasel". The address bar displays the URL <https://codesignrev.informatik.uni-erlangen.de/submin/users/show/testuser>. The page content is divided into a left sidebar and a main content area.

Left Sidebar:

- Logout (testuser)
- USERS**
 - testuser
- GROUPS**
 - cognipower
 - extern
 - smoc-imc-rw
 - smoc-ro
- REPOSITORIES**
 - scd/2010-common-intern/BuildSystem
 - scd/2010-common-intern/HscdSupport
 - scd/2010-common-intern/HscdTeXRes
 - scd/2010-common-intern/PrebuiltLibraries
 - scd/2010-common-intern/Scripts
 - scd/2010-common-intern/Support
 - scd/2010-common-intern/Tools
 - scd/2010-examples-intern/ActorLibrary
 - scd/2010-examples-intern/BCS
 - scd/2010-examples-intern/BrakeByWire
 - scd/2010-examples-intern/Examples-top
 - scd/2010-examples-intern/Fake-MP3
 - scd/2010-examples-intern/HEVC-Decoder
 - scd/2010-examples-intern/Idct2d
 - scd/2010-examples-intern/Jpeg-Decoder
 - scd/2010-examples-intern/MIMOApplication
 - scd/2010-examples-intern/MP3-Decoder
 - scd/2010-examples-intern/PCle
 - scd/2010-examples-intern/SysteMoC-Tutorial

Main Content Area:

- A green notification box at the top states: "Changed password for user testuser".
- A red notification box on the right states: "Indicates success re-setting your password".
- User Information:**
 - Name: John Doe (with "save name" button)
 - Email: john.doe@company.invalid (with "save email" button)
 - Password: (empty field with "save password" button)
 - Administrator: ☐
- Member of:**
 - [cognipower](#)
 - [extern](#)
 - [smoc-imc-rw](#)
 - [smoc-ro](#)
- SSH Keys:**
 - [Add SSH Key](#)
- Access to repositories:**

	Receive commit e-mails
scd/2010-common-intern/BuildSystem	<input type="checkbox"/>
scd/2010-common-intern/HscdSupport	<input type="checkbox"/>
scd/2010-common-intern/HscdTeXRes	<input type="checkbox"/>
scd/2010-common-intern/PrebuiltLibraries	<input type="checkbox"/>
scd/2010-common-intern/Scripts	<input type="checkbox"/>
scd/2010-common-intern/Support	<input type="checkbox"/>
scd/2010-common-intern/Tools	<input type="checkbox"/>

Outline

- Access to our Submin repository manager
- GIT Setup
- Checkout
- Compiling SysteMoC and Maestro

Git Setup

- First ensure that git is present on your linux machine.

```
[bash falk@codesign30:~]$ git --version  
git version 1.9.1
```

- If it is missing,

```
[bash falk@codesign30:~]$ git --version  
git: command not found
```

install it as follows on your debian based distribution:

```
[bash falk@codesign30:~]$ sudo apt-get install git  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
...  
Need to get 6,019 kB of archives.  
After this operation, 31.4 MB of additional disk space will be used.  
Do you want to continue? [Y/n] Y  
...
```

GIT Setup

- Next, you have to create two files `$HOME/.gitconfig` and `$HOME/.gitconfig.d/info/exclude`
- `$HOME/.gitconfig` as follows:

```
[user]
  name = Jon Doe
  email = jon.doe@invalid

[push]
  default = matching

[core]
  excludesfile = ~/.gitconfig.d/info/exclude

[url "https://testuser@codesignrev.informatik.uni-erlangen.de/git/"]
  insteadOf = codesign:
```

- Update the provided URL with your username

GIT Setup

- You have to create two files `$HOME/.gitconfig` and `$HOME/.gitconfig.d/info/exclude`
- `$HOME/.gitconfig.d/info/exclude` as follows:

```
*~
*.[oa]
*.so
*.bak
*.tex-dep
*.tex-dep-enable
*.tex-stamp
*.aux
*.aux-dep
*.aux-dep-enable
*-fig.tex
*-tex.pdf
*.bbl
*.blg
```

```
*.log
,,*
++log.*
*.sw*
*.kate-swp
.*#*
.DS_Store
.*_
obj
obj-*
tags
aclocal.m4
autom4te.cache
.gdb_history
```

GIT Setup via SSH

- **Modify** \$HOME/.gitconfig as follows:

```
[user]
  name = Jon Doe
  email = jon.doe@invalid

[push]
  default = matching

[core]
  excludesfile = ~/.gitconfig.d/info/exclude

[url "ssh://git@codesignrev.informatik.uni-erlangen.de/"]
  insteadOf = codesign:
```

- Then, generate an SSH key by executing the following **command**:

```
[bash testuser@codesign30:~]$ ssh-keygen -t rsa -b 4096
Generating public/private rsa key pair.
Enter file in which to save the key (/home/testuser/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
...
[bash testuser@codesign30:~]$
```

- Finally, register the public part (id_rsa.pub) of the generated key with Submin by following the steps given in the next slides.

Submin Account Setup (Only for Access via SSH)

The screenshot shows a web browser window titled "Submin - Main screen turn on - Iceweasel". The address bar shows the URL `https://codesignrev.informatik.uni-erlangen.de/submin/users/show/testuser`. The page has a sidebar on the left with the "Submin" logo and a "Logout (testuser)" link. The sidebar contains three main sections: "USERS" (with "testuser" selected), "GROUPS" (listing "cognipower", "extern", "smoc-imc-rw", and "smoc-ro"), and "REPOSITORIES" (listing various paths like "scd/2010-common-intern/BuildSystem" and "scd/2010-examples-intern/ActorLibrary"). The main content area is titled "User testuser" and contains several sections: "Name" (John Doe, with a "save name" button), "Email" (john.doe@company.invalid, with a "save email" button), "Password" (empty, with a "save password" button), and "Administrator" (unchecked checkbox). Below these is a "Member of" section with a list of groups: "cognipower", "extern", "smoc-imc-rw", and "smoc-ro". The "SSH Keys" section has a link "Add SSH Key" with a red arrow pointing to it and the text "Click here". The "Access to repositories" section has a table with repository paths and checkboxes for "Receive commit e-mails".

Submin

Logout (testuser)

USERS

- testuser

GROUPS

- cognipower
- extern
- smoc-imc-rw
- smoc-ro

REPOSITORIES

- scd/2010-common-intern/BuildSystem
- scd/2010-common-intern/HscdSupport
- scd/2010-common-intern/HscdTeXRes
- scd/2010-common-intern/PrebuiltLibraries
- scd/2010-common-intern/Scripts
- scd/2010-common-intern/Support
- scd/2010-common-intern/Tools
- scd/2010-examples-intern/ActorLibrary
- scd/2010-examples-intern/BCS
- scd/2010-examples-intern/BrakeByWire
- scd/2010-examples-intern/Examples-top
- scd/2010-examples-intern/Fake-MP3
- scd/2010-examples-intern/HEVC-Decoder
- scd/2010-examples-intern/Idct2d
- scd/2010-examples-intern/Jpeg-Decoder
- scd/2010-examples-intern/MIMOApplication
- scd/2010-examples-intern/MP3-Decoder
- scd/2010-examples-intern/PCle
- scd/2010-examples-intern/SysteMoC-Tutorial

User testuser

Name: John Doe

Email: john.doe@company.invalid


Password:

Administrator: ☐

Member of

- cognipower
- extern
- smoc-imc-rw
- smoc-ro

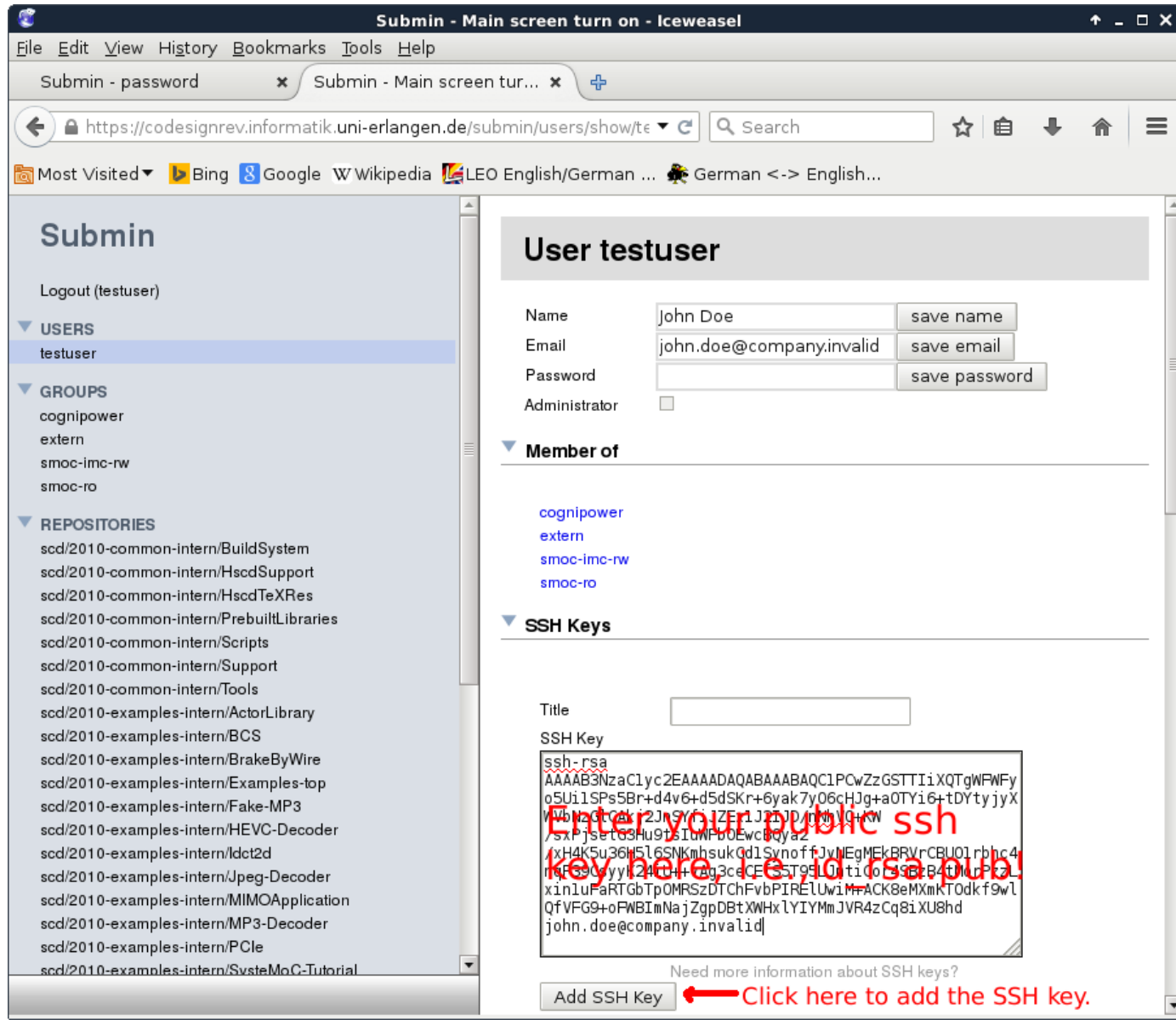
SSH Keys

Add SSH Key  Click here

Access to repositories

	Receive commit e-mails
scd/2010-common-intern/BuildSystem	<input type="checkbox"/>
scd/2010-common-intern/HscdSupport	<input type="checkbox"/>
scd/2010-common-intern/HscdTeXRes	<input type="checkbox"/>
scd/2010-common-intern/PrebuiltLibraries	<input type="checkbox"/>
scd/2010-common-intern/Scripts	<input type="checkbox"/>
scd/2010-common-intern/Support	<input type="checkbox"/>
scd/2010-common-intern/Tools	<input type="checkbox"/>

Submin Account Setup (Only for Access via SSH)



Submin Account Setup (Only for Access via SSH)

The screenshot shows a web browser window titled "Submin - Main screen turn on - Iceweasel". The address bar shows the URL `https://codesignrev.informatik.uni-erlangen.de/submin/users/show/testuser`. The page has a sidebar on the left with the "Submin" logo and a "Logout (testuser)" link. The sidebar contains three main sections: "USERS" with a link to "testuser", "GROUPS" with links to "cognipower", "extern", "smoc-imc-rw", and "smoc-ro", and "REPOSITORIES" with a long list of repository names. The main content area shows the profile for "testuser". At the top of this area is a green notification box that says "SSH Key successfully added.". Below this is a form with fields for "Name" (John Doe), "Email" (john.doe@company.invalid), "Password", and "Administrator" (unchecked). Each field has a "save" button. Below the form is a "Member of" section with links to "cognipower", "extern", "smoc-imc-rw", and "smoc-ro". Below that is an "SSH Keys" section showing the email "john.doe@company.invalid" with a close button and a link to "Add SSH Key". Below the SSH Keys section is an "Access to repositories" section with a table of repositories and checkboxes for "Receive commit e-mails".

Submin

Logout (testuser)

USERS

- testuser

GROUPS

- cognipower
- extern
- smoc-imc-rw
- smoc-ro

REPOSITORIES

- scd/2010-common-intern/BuildSystem
- scd/2010-common-intern/HscdSupport
- scd/2010-common-intern/HscdTeXRes
- scd/2010-common-intern/PrebuiltLibraries
- scd/2010-common-intern/Scripts
- scd/2010-common-intern/Support
- scd/2010-common-intern/Tools
- scd/2010-examples-intern/ActorLibrary
- scd/2010-examples-intern/BCS
- scd/2010-examples-intern/BrakeByWire
- scd/2010-examples-intern/Examples-top
- scd/2010-examples-intern/Fake-MP3
- scd/2010-examples-intern/HEVC-Decoder
- scd/2010-examples-intern/ldct2d
- scd/2010-examples-intern/Jpeg-Decoder
- scd/2010-examples-intern/MIMOApplication
- scd/2010-examples-intern/MP3-Decoder
- scd/2010-examples-intern/PCle
- scd/2010-examples-intern/SysteMoC-Tutorial

SSH Key successfully added.

Name: John Doe [save name]
Email: john.doe@company.invalid [save email]
Password: [save password]
Administrator: ☐

Member of

- cognipower
- extern
- smoc-imc-rw
- smoc-ro

SSH Keys

john.doe@company.invalid [x] Add SSH Key

SSH key successfully added

Access to repositories

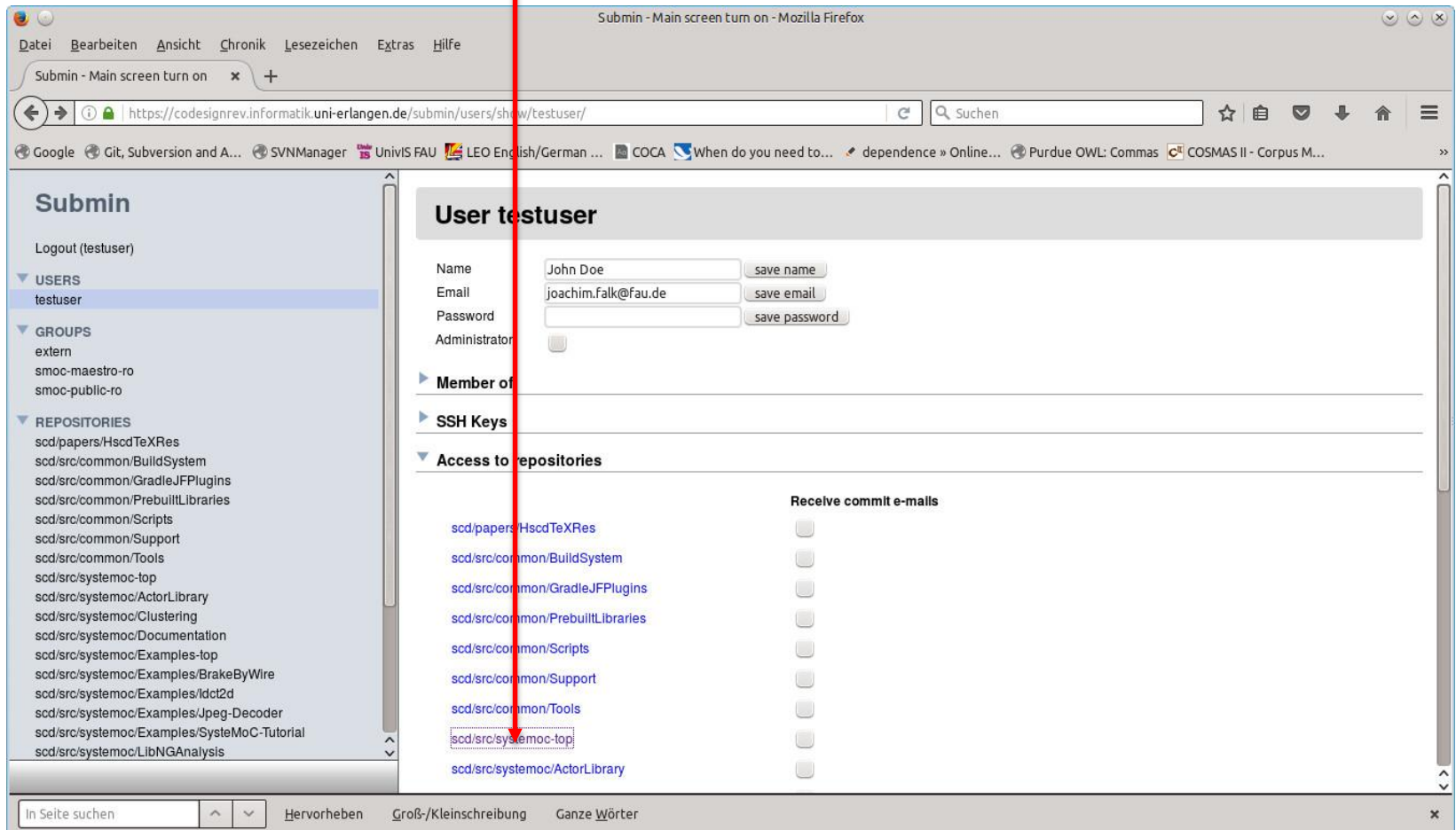
	Receive commit e-mails
scd/2010-common-intern/BuildSystem	<input type="checkbox"/>
scd/2010-common-intern/HscdSupport	<input type="checkbox"/>
scd/2010-common-intern/HscdTeXRes	<input type="checkbox"/>
scd/2010-common-intern/PrebuiltLibraries	<input type="checkbox"/>
scd/2010-common-intern/Scripts	<input type="checkbox"/>
scd/2010-common-intern/Support	<input type="checkbox"/>
scd/2010-common-intern/Tools	<input type="checkbox"/>

Outline

- Access to our Submin repository manager
- GIT Setup
- Checkout
- Compiling SysteMoC and Maestro

Checkout

- First, login to Submin by using the following URL:
<https://codesignrev.informatik.uni-erlangen.de/submin>
- Then, select the **repository** scd/src/systemoc-top



Submin - Main screen turn on - Mozilla Firefox

Submin - Main screen turn on x +

https://codesignrev.informatik.uni-erlangen.de/submin/users/show/testuser/

Google Git, Subversion and A... SVNManager UnivIS FAU LEO English/German ... COCA When do you need to... dependence » Online... Purdue OWL: Commas COSMAS II - Corpus M...

Submin

Logout (testuser)

- USERS
 - testuser
- GROUPS
 - extern
 - smoc-maestro-ro
 - smoc-public-ro
- REPOSITORIES
 - scd/papers/HscdTeXRes
 - scd/src/common/BuildSystem
 - scd/src/common/GradleJFPlugins
 - scd/src/common/PrebuiltLibraries
 - scd/src/common/Scripts
 - scd/src/common/Support
 - scd/src/common/Tools
 - scd/src/systemoc-top
 - scd/src/systemoc/ActorLibrary
 - scd/src/systemoc/Clustering
 - scd/src/systemoc/Documentation
 - scd/src/systemoc/Examples-top
 - scd/src/systemoc/Examples/BrakeByWire
 - scd/src/systemoc/Examples/Idct2d
 - scd/src/systemoc/Examples/Jpeg-Decoder
 - scd/src/systemoc/Examples/SysteMoC-Tutorial
 - scd/src/systemoc/LibNGAnalysis

User testuser

Name: John Doe

Email: joachim.falk@fau.de

Password:

Administrator: ☐

Member of

SSH Keys

Access to repositories

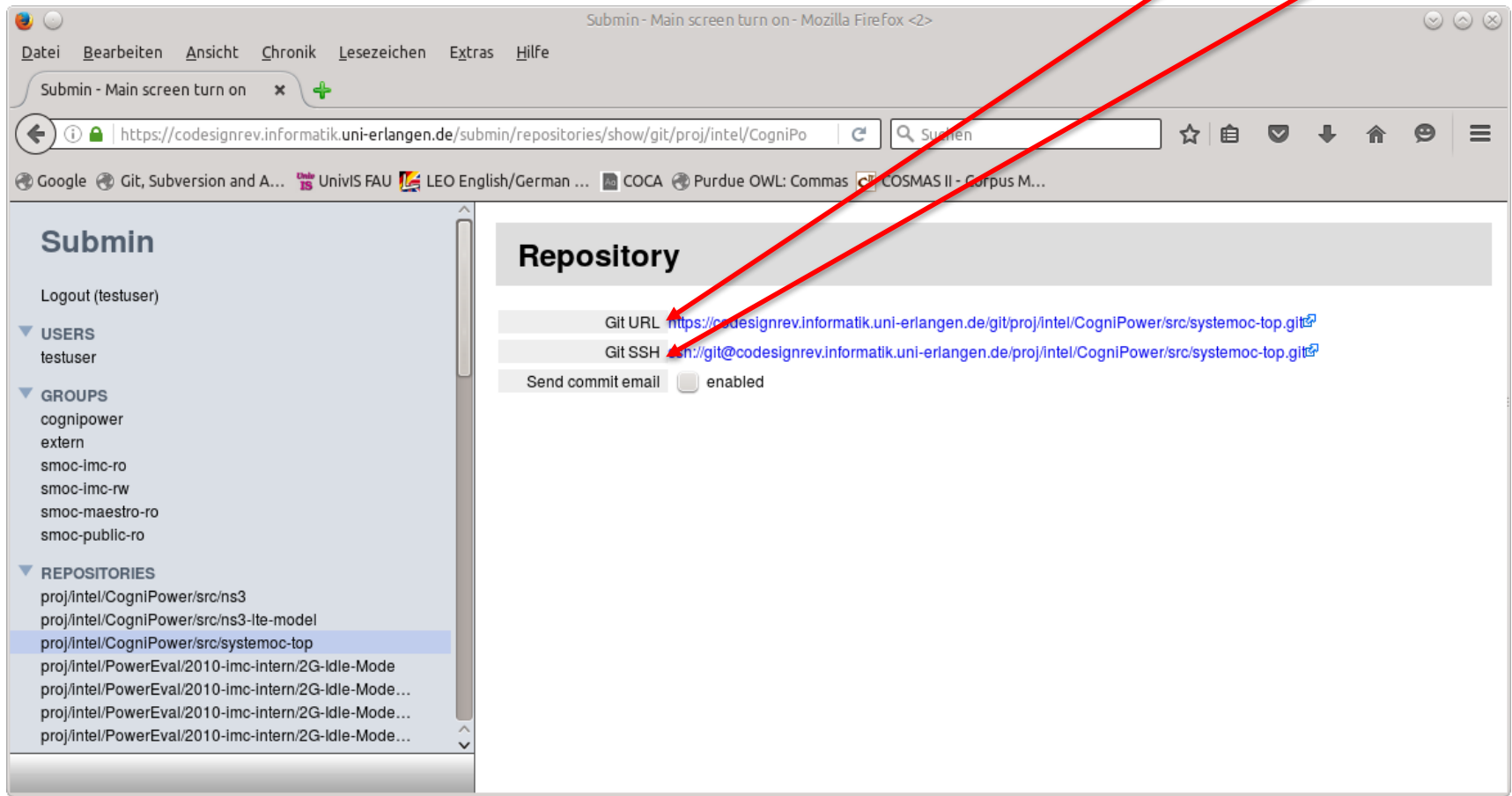
Receive commit e-mails

Repository	Receive commit e-mails
scd/papers/HscdTeXRes	<input type="checkbox"/>
scd/src/common/BuildSystem	<input type="checkbox"/>
scd/src/common/GradleJFPlugins	<input type="checkbox"/>
scd/src/common/PrebuiltLibraries	<input type="checkbox"/>
scd/src/common/Scripts	<input type="checkbox"/>
scd/src/common/Support	<input type="checkbox"/>
scd/src/common/Tools	<input type="checkbox"/>
scd/src/systemoc-top	<input checked="" type="checkbox"/>
scd/src/systemoc/ActorLibrary	<input type="checkbox"/>

In Seite suchen ^ v Hervorheben Groß/Kleinschreibung Ganze Wörter

Checkout

- Next, **copy** the appropriate URL for a clone via either https or ssh.



Submin - Main screen turn on - Mozilla FireFox <2>

Submin - Main screen turn on

https://codesignrev.informatik.uni-erlangen.de/submin/repositories/show/git/proj/intel/CogniPo

Submin

Logout (testuser)

USERS

testuser

GROUPS

cognipower

extern

smoc-imc-ro

smoc-imc-rw

smoc-maestro-ro

smoc-public-ro

REPOSITORIES

proj/intel/CogniPower/src/ns3

proj/intel/CogniPower/src/ns3-lte-model

proj/intel/CogniPower/src/systemoc-top

proj/intel/PowerEval/2010-lmc-Intern/2G-Idle-Mode

proj/intel/PowerEval/2010-lmc-Intern/2G-Idle-Mode...

proj/intel/PowerEval/2010-lmc-Intern/2G-Idle-Mode...

proj/intel/PowerEval/2010-lmc-Intern/2G-Idle-Mode...

Repository


Git URL <https://codesignrev.informatik.uni-erlangen.de/git/proj/intel/CogniPower/src/systemoc-top.git>

Git SSH <ssh://git@codesignrev.informatik.uni-erlangen.de/proj/intel/CogniPower/src/systemoc-top.git>

Send commit email ☐ enabled

Checkout

- Next, **copy** the appropriate URL for a clone via either https or ssh.
- Subsequently, insert your **username** into the provided URL
- Finally, clone the repository by executing the following **command**:



```
[bash testuser@codesign30:tmp]$ git clone https://testuser@codesignrev.informatik.uni-erlangen.de/git/scd/src/systemoc-top.git systemoc-top--devel--1.0
Nach »systemoc-top--devel--1.0« wird geklont
Username for 'https://codesignrev.informatik.uni-erlangen.de': testuser
Password for 'https://testuser@codesignrev.informatik.uni-erlangen.de':
remote: Counting objects: 537, done.
remote: Compressing objects: 100% (304/304), done.
remote: Total 537 (delta 192), reused 511 (delta 179)
Objekte werden empfangen: 100% (537/537), 150.38 KiB | 0 bytes/s, done.
Unterschiede werden aufgelöst: 100% (192/192), done.
Verbundenheit wird überprüft ... Fertig.
[bash testuser@codesign30:tmp]$ cd systemoc-top--devel--1.0
[bash testuser@codesign30:systemoc-top--devel--1.0]$
```

- The resulting checkout in **systemoc-top--devel--1.0** is still incomplete as the appropriate subprojects are missing.

Checkout Subprojects

- The missing subprojects are listed in the file `.gitmodules`, i.e., the following **command** will show them:

```
[bash testuser@codesign30:systemoc-top--devel--1.0]$ cat .gitmodules
[submodule "HscdTeXRes"]
    path = HscdTeXRes
    url = codesign:scd/papers/HscdTeXRes.git
[submodule "Documentation"]
    path = Documentation
    url = codesign:scd/src/systemoc/Documentation.git
[submodule "Scripts"]
    path = Scripts
    url = codesign:scd/src/common/Scripts.git
[submodule "BuildSystem"]
    path = BuildSystem
    url = codesign:scd/src/common/BuildSystem.git
[submodule "Support"]
    path = Support
    url = codesign:scd/src/common/Support.git
...
```

- Note that in the url string the **codesign:** placeholder is used. For the following steps to succeed, the placeholder must be defined appropriately (see the slides GIT Setup and GIT Setup via SSH) for either https or ssh access in your GIT configuration file `~/.gitconfig`.

Checkout Subprojects

- To clone the missing subprojects, execute the following **command**:

```
[bash testuser@codesign30:systemoc-top--devel--1.0]$ git submodule update --init -  
recursive  
Submodul 'ActorLibrary' (codesign:scd/src/systemoc/ActorLibrary.git) für Pfad 'ActorLibrary' in die Konfiguration  
eingetragen.  
Submodul 'BuildSystem' (codesign:scd/src/common/BuildSystem.git) für Pfad 'BuildSystem' in die Konfiguration  
...  
Nach »ns3« wird geklont  
Username for 'https://codesignrev.informatik.uni-erlangen.de': testuser  
Password for 'https://testuser@codesignrev.informatik.uni-erlangen.de':  
remote: Counting objects: 3791, done.  
remote: Compressing objects: 100% (2679/2679), done.  
remote: Total 3791 (delta 1072), reused 3754 (delta 1055)  
Objekte werden empfangen: 100% (3791/3791), 26.60 MiB | 29.31 MiB/s, done.  
Unterschiede werden aufgelöst: 100% (1072/1072), done.  
Verbundenheit wird überprüft ... Fertig.  
Submodul-Pfad: 'ns3': 'aa3ad70607be0320f4a56ed9c6e6e68dcb5d129a' ausgecheckt  
Nach »ns3-lte-model« wird geklont  
Username for 'https://codesignrev.informatik.uni-erlangen.de': testuser  
Password for 'https://testuser@codesignrev.informatik.uni-erlangen.de':  
remote: Counting objects: 79, done.  
remote: Compressing objects: 100% (75/75), done.  
remote: Total 79 (delta 37), reused 0 (delta 0)  
Unpacking objects: 100% (79/79), done.  
Verbundenheit wird überprüft ... Fertig.  
Submodul-Pfad: 'ns3-lte-model': '8b0cd5bce84d0282d3a89e71785224ce532bf702' ausgecheckt  
[bash testuser@codesign30:systemoc-top--devel--1.0]$
```

Outline

- Access to our Submin repository manager
- GIT Setup
- Checkout
- Compiling SysteMoC and Maestro

Compiling SystemMoC and Maestro

- Before building, the build system has to be generated via the following tools:
 - autoconf (Tested versions: 2.64, 2.68, 2.69)
 - automake (Tested versions: 1.10.3, 1.11.2, 1.14.1)
 - libtool (Tested versions: 1.5.26, 2.4.2)
- First check for presence of these tools, i.e.,

```
[bash falk@codesign30:systemoc-top--devel--1.0]$ autoconf --version
autoconf (GNU Autoconf) 2.69
Copyright (C) 2012 Free Software Foundation, Inc.
...
[bash falk@codesign30:systemoc-top--devel--1.0]$ automake --version
automake (GNU automake) 1.14.1
Copyright (C) 2013 Free Software Foundation, Inc.
...
[bash falk@codesign30:systemoc-top--devel--1.0]$ libtool --version
libtool (GNU libtool) 2.4.2
Written by Gordon Matzigkeit <gord@gnu.ai.mit.edu>, 1996
...
```

Compiling SystemoC and Maestro

- If one of these is missing, install them as follows on your debian based distribution:

```
[bash falk@codesign30:~]$ sudo apt-get install autoconf automake libtool
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
...
Need to get 2,523 kB of archives.
After this operation, 6,900 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
...
```

- To generate the build, system execute the following command in the checkout:

```
[bash falk@codesign30:systemoc-top--devel--1.0]$ ./autoreconf.sh
autoreconf: Entering directory `.'
autoreconf: configure.ac: not using Gettext
autoreconf: running: aclocal -I BuildSystem/m4
autoreconf: configure.ac: tracing
autoreconf: configure.ac: adding subdirectory Support to autoreconf
autoreconf: Entering directory `Support'
...
autoreconf: Leaving directory `Examples'
autoreconf: Leaving directory `.'
[bash falk@codesign30:systemoc-top--devel--1.0]$
```

- The above step should have generated for each `configure.ac` and each `Makefile.am` a corresponding `configure` and `Makefile.in` file.

Compiling SystemMoC and Maestro

- To compile, g++ is required. We tested versions 4.5, 4.7, and 4.9.
- Moreover, the following libraries must be available:
 - libboost-* (Tested versions: 1.54, 1.55, 1.56) Might also work with 1.48
 - libxerces-c (Tested versions: 3.1.1) Might also work with 2.8.0
 - libsystemc (Tested versions: 2.2.0, 2.3.1)
- First check for presence or absence of these libraries, i.e.,

```
...]$ ls -lad /usr/include/boost /usr/lib/x86_64-linux-gnu/libboost*.so
drwxr-xr-x 96 root root 12288 Aug 10 2015 /usr/include/boostlrwxrwxrwx 1 root root 25 Jun 21 2014 /usr/lib/x86_64-linux-
gnu/libboost_atomic.so -> libboost_atomic.so.1.54.0
...
lrwxrwxrwx 1 root root 24 Jun 21 2014 /usr/lib/x86_64-linux-gnu/libboost_timer.so -> libboost_timer.so.1.54.0
...
...]$ ls -lad /usr/include/xercesc /usr/lib/x86_64-linux-gnu/libxerces-c.so
drwxr-xr-x 11 root root 4096 Feb 18 2016 /usr/include/xercesc
lrwxrwxrwx 1 root root 18 Jul 1 21:15 /usr/lib/x86_64-linux-gnu/libxerces-c.so -> libxerces-c-3.1.so
...]$ ls -lad /usr/include/sysc /usr/lib/x86_64-linux-gnu/libsystemc*.so
drwxr-xr-x 8 root root 4096 Jun 11 2015 /usr/include/sysc
lrwxrwxrwx 1 root root 29 Jun 6 2015 /usr/lib/x86_64-linux-gnu/libsystemc-pthread.so -> libsystemc-pthread-2.so.3.1.0
lrwxrwxrwx 1 root root 21 Jun 6 2015 /usr/lib/x86_64-linux-gnu/libsystemc.so -> libsystemc-2.so.3.1.0
```

Compiling SystemMoC and Maestro

- If one of libboost-* or libxerces-c is missing, install them as follows on your debian based distribution:

```
[bash falk@codesign30:~]$ sudo apt-get install libboost-all-dev libxerces-c-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
...
Need to get 2,523 kB of archives.
After this operation, 6,900 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
...
```

- However, libsystemc is not provided by Ubuntu or Debian. Please use the prebuild debs we have provided in the Sharepoint!

```
[bash falk@codesign30:~]$ unzip libsystemc-2.3.1-3-binaries-ubuntu-14.04-amd64-debs.zip
Archive:  libsystemc-2.3.1-3-binaries-ubuntu-14.04-amd64-debs.zip
  extracting: libsystemc-2.3_2.3.1-3_amd64.deb
  extracting: libsystemc-dev_2.3.1-3_amd64.deb
[bash falk@codesign30:~]$ sudo dpkg --install libsystemc-2.3_2.3.1-3_amd64.deb \
    libsystemc-dev_2.3.1-3_amd64.deb
Selecting previously unselected package libsystemc-2.3.
Preparing to unpack libsystemc-2.3_2.3.1-3_amd64.deb ...
Unpacking libsystemc-2.3 (2.3.1-3) ...
Selecting previously unselected package libsystemc-dev.
Preparing to unpack libsystemc-dev_2.3.1-3_amd64.deb ...
Unpacking libsystemc-dev (2.3.1-3) ...
Setting up libsystemc-2.3 (2.3.1-3) ...
Setting up libsystemc-dev (2.3.1-3) ...
```

Compiling SystemMoC and Maestro

- In case some of the required libraries are not in the compiler standard include and linker path, you might specify their location via appropriate `--with-<libname>` options to configure
- To get help, call the following command:

```
[bash falk@codesign30:systemoc-top--devel--1.0]$ ./configure --help=recursive
```

```
...
```

```
--with-boost           prefix or extern to use an installed library (default), no to disable  
--with-boost-include   include path for boost  
--with-boost-lib       library path for boost  
--with-systemc         prefix or extern to use an installed library (default), no to disable  
--with-systemc-include include path for SystemC  
--with-systemc-lib     library path for SystemC  
--with-xerces          prefix or extern to use an installed library (default), no to disable  
--with-xerces-include  include path for xerces  
--with-xerces-lib      library path for xerces
```

```
...
```

Compiling SystemMoC and Maestro

- To generate the makefiles for subsequent build, execute the following command in the object directory `systemoc-top--devel--1.0/obj`:

```
[bash falk@codesign30:systemoc-top--devel--1.0]$ mkdir obj; cd obj
[bash falk@codesign30:obj]$ ../configure -C --without-systemc-vpc --with-maestro
configure: creating cache config.cache
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
...
=== configuring in Support (../systemoc-top--devel--1.0/obj/Support)
...
=== configuring in Maestro/MetaMap (../systemoc-top--devel--1.0/obj/Maestro/MetaMap)
...
=== configuring in SystemMoC (../systemoc-top--devel--1.0/obj/SystemMoC)
...
=== configuring in Maestro/ModelLibrary (../systemoc-top--devel--1.0/obj/Maestro/ModelLibrary)
...
=== configuring in ActorLibrary (../systemoc-top--devel--1.0/obj/ActorLibrary)
...
=== configuring in Testcases (../systemoc-top--devel--1.0/obj/Testcases)
...
=== configuring in maestro (../systemoc-top--devel--1.0/obj/Testcases/maestro)
...
=== configuring in ...some more testcases and examples
...
configure: creating ./config.status
config.status: creating Makefile
config.status: creating config.h
config.status: executing depfiles commands
config.status: executing libtool commands
[bash falk@codesign30:obj]$
```

- The above step generates for each `Makefile.in` in the source directory `systemoc-top--devel--1.0` a `Makefile` in the object directory.

Compiling SystemoC and Maestro

- Finally, to compile SystemoC and Maestro, execute the following command in the object directory `systemoc-top--devel--1.0/obj`:

```
[bash falk@codesign30:obj]$ make -j4
make all-recursive
make[1]: Verzeichnis ».../systemoc-top--devel--1.0/obj« wird betreten
Making all in Support
make[2]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Support« wird betreten
...
Making all in Maestro/MetaMap
make[2]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Maestro/MetaMap« wird betreten
...
Making all in SystemoC
make[2]: Verzeichnis ».../systemoc-top--devel--1.0/obj/SystemoC« wird betreten
...
Making all in Maestro/ModelLibrary
make[2]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Maestro/ModelLibrary« wird betreten
...
Making all in Testcases
make[2]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Testcases« wird betreten
make all-recursive
make[3]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Testcases« wird betreten
Making all in maestro
make[4]: Verzeichnis ».../systemoc-top--devel--1.0/obj/Testcases/maestro« wird betreten
...
Some more Testcase and Examples
[bash falk@codesign30:obj]$
```

- The above step will generate the SystemoC and Maestro libraries in their respective directories as well as compile an example starter project in `obj/Testcases/maestro`.