

T.O.M.A.S Team







#### Now it is a right time for some theory

 We will present basic information about version control systems SVN and GIT within SW4STM32 to share the projects within the team



### Goal of this part 3

Demonstrate SNV and GIT mechanisms implemented within SW4STM32 tool

Gain knowledge about SVN and GIT repositories creation

Gain knowledge about manipulating on files between local project and its repository

Gain knowledge about importing projects from SVN and GIT repositories





### Sharing projects with the team (SVN)





### Benefits of using project sharing tools

- Registering of all changes
  - Possibility to compare all previous changes
  - Get recent version at anytime later
  - Automatic log changes description
- Sharing the source code among developers
  - Several developers can work on the same project and sharing their changes
  - In case of conflict (i.e. two developers working on the same file) you are warned and merging options are available
- Branching of software versions





#### Let's try first SubVersion (SVN)





#### SubVersion (SVN) general points

- SubVersion is a GNU project, Server-Client type
- It requires:
  - Installation of SVN server application on the PC which would contain the projects repository
  - Installation of SVN client application on each PC which would like to use the projects repository:
    - It can be a standalone application, like TurtoiseSVN: <u>www.tortoisesvn.net</u>
    - Or it can be a build in Eclipse plugin (like present in SW4STM32)





### Sharing projects with the team - SVN

- In order to send your project to SVN repository, click the right button on mouse on project name
- 2. From menu select *Team->Share Project(s)*
- 3. From pop-up window select SVN
- 4. Click Next

Share Project	
Share Project Select the repository plug-in that will be used to share the selected project.	$\Leftrightarrow$
Select a repository type:	
4	
? < Back Next > Finish	Cancel



*	Run C/C++ Code Analysis		
	Team	۱.	Apply Patch
	Compare With	•	Share Project 2
	Properties	Alt+Enter	Share Projects
_			Upgrade Projects

# Sharing projects with the team - SVN

- Next step would be selection of the SVN repository:
  - a. Create a new one
  - b. Use existing one
- 6. Press Next for further configuration

Share Project Wizard				
Share Project with SVN repository         Select an existing repository location or create a new location.				
This wizard will help you to share your files with the SVN repository for the first time. Your project will automatically be imported into the SVN repository.				
Use existing repository loc	ation:			
Label	Label URL			
TOMAS http://svn.tomasproj.codex.cro.st.com/svnroot/TOMASPROJ/				
? < Back Next > Finish Cancel				



**STM**32



#### Sharing projects with the team – SVN using existing repository location 10

- Select the project folder 7. location on the server
- **Press Finish** 8

Share Project Wizard	
Specify the project(s) location Specify the project(s) location in the SVN repository.	SVN
Simple Mode:	
URL: http://svn.tomasproj.codex.cro.st.com/svnroot/TOMASPROJ/LL_L4_DAC_ADC	Browse
O Advanced Mode:	
Name on Repository	
Our See project name	
O Use empty name	
O Use specified name:	
? < Back Next > Finish	Cancel





### Sharing projects with the team – SVN

#### creating a new repository location 11

#### 7. In *General* tab, please fill:

- a. URL address of SVN repository server
- b. Custom label of the repository (if any)
- c. User name and password for log-in
- d. Click Next
- 8. Follow instructions inline with your SVN repository configuration and at the end press **Finish**

	Share Project Wizard					
	Enter Repository Location Information	SVN				
	Define the SVN repository location information. You can specify additional settings for proxy and svn+ssh, https connections.	<b>—Ö</b> —				
	General Advanced SSH Settings SSL Settings					
a	URL: http://svn.oursvn.org/svnroot/TeamProjects/	▼ Browse				
	Label © Use the <u>r</u> epository URL as the label					
b	Our Use a <u>c</u> ustom label:					
	Team Projects					
	Authentication					
	User: John Smith	•				
	Password: ••••					
	Save authentication (could trigger secure storage login)					
	To manage your security data, please see <u>"Secure Storage"</u>					
	Show Credentials For: <a>Repository Location&gt;</a>	• 8				
	Validate Repository Location on finish     Reset Changes					
	? < <u>Back</u> <u>Next</u> > <u>Finish</u>	Cancel				



# Sharing projects with the team - SVN

- Enter project comment/description
- Select files to be copied
- Click **OK** to copy selected files to repository

Commit				K
Enter a commit comment				
You can specify a new message or choose the Empty comments are allowed, but filling a co help other people to understand the changes.	e previously e mment mess	entered one. sage would	SVI	N
Comment				
LED demo project for STM32L053 Nucleo boa	rd			•
Choose a previously entered comment or temp	late:			_
				•
Keep Locks		Paste s	elected nam	es
Resource	Content	Properties	Treat as	
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🔽 🗁 L0_LED/.metadata/.mylyn	New			
L0_LED/.metadata/.mylyn/contexts	New			
L0_LED/.metadata/.plugins	New			
L0_LED/.metadata/.plugins/org.eclipse	New			Ŧ
Select All Clear Selection Clear All		Sele	cted: 198 of :	198
?	0	<	Cancel	



# Sharing projects with the team - SVN

- 1. After sending to repository, all project files are marked differently and have added the version number (224 in this case)
  - IO\_LED 223 [TOMAS\_Proj: L0\_LED]
    - Binaries
    - 🖻 🔊 Includes
    - 🖻 🗁 Debug
    - Drivers 224
    - 🌢 📴 Inc 224
    - RemoteSystemsTempFiles 224
    - 🔺 📴 Src 224
      - Main.c 224
      - stm32l0xx\_hal\_msp.c 224
      - Image: Stm32I0xx\_it.c 224

Each file modified after this operation is marked as "modified" (using '>' symbol) like below:

#### A <a> > L0\_LED 223 [TOMAS\_Proj: L0\_LED]</a>

- Binaries
- Includes
- 🖻 🗁 Debug
- Drivers 224
- Þ 🝙 Inc 224
- RemoteSystemsTempFiles 224
- 🔺 🔄 > Src 224
  - ▷ Image: b 
    Image: b
  - stm32l0xx\_hal\_msp.c 224
  - Image: Stm32l0xx\_it.c 224

# Team Synchronizing perspective

- In case of synchronization with repository, Eclipse will switch to Team Synchronizing perspective
- Here we can track any conflicts, differences and control synchronization in both directions (from and to repository)

🗢 Team Synchronizing - L0_LED/Src/main.c - Eclipse 🛛 🗮 📾 Polish (Programmers) 💰 H	elp 📜 📃 🔲 🗶
File Edit Source Refactor Navigate Search Project Run Window Help	
≅ ▼ 🗄 🐘 🗣 ▼ 🧐 😂 🖋 ▼   ∄ ▼   ୬ ຈາ   2 ▼ 🖓 ▼ 🖓 ▼ 🖘 →	Quick Access 😰 🗟 C/C++ 🎋 Debug 🖶 SVN Repository Exploring 🗗 Team Synchronizing
\$* Synchronize S   \$* C I E • II II • II II • III   \$\$ Synchronize S   \$\$ Synchronize S   \$\$ UO_LED   \$\$ Stc     IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	<pre>B mainc B mainc (RevHEAD)</pre>
Image: Second secon	106      HAL_PWR_VOLTAGESCALING_CONFIG(PWR_REGULATOR_VOLTAGE_SCALE1);         107       RCC_OSCINIStruct.0scillatorType = RCC_OSCILLATORTYPE_HSI;         108       PCC_OSCINIStruct_USTStruct_DECONSTRUCT_ON:         Image: State of the state o



# Sharing projects with the team - SVN

- To synchronize modified files with repository:
- Either right-click selected file (single file synchronization)
  - Or right-click project itself (complete project synchronization)
- Select Team->Commit
- · Add a comment if any and select files to be synchronized
- Press OK -> files in repository will be updated







# Disconnecting project from SVN

- Right-click project name
  - Select Team->Disconnect
  - Select appropriate option concerning SVN meta-information



- All files are marked like before SVN connection
- The project is not automatically removed from the SVN repository





# Importing projects from SVN

Import	Checkout from SVN	Checkout from SVN	
Select Create a new project by checking out an existing project from SVN repository.	Select Resource Select a resource which will be checked out as project.	SVN Select an existing repository location or create a new	/ location.
Select an import source: type filter text	URL: http://svn.tomasproj.codex.cro.st.com/svnroot/TOMASPROJ/L0_LED Revision <ul> <li>Head Revision</li> <li>Date: 5/23/2016</li> <li>3:51:03 PM</li> <li>Revision: Browse</li> </ul>	Browse This wizard will help you to checkout a project from the project from	re SVN repository.
Image: State of the state o	? < <u>Back</u> <u>Next</u> > <u>Finish</u>	Cancel Select project to	

Select repository





# Importing projects from SVN

Check Out As	Cuerride Project/Data Folder
Check Out As SVN	
You can checkout the selected repository resource by different ways. Select the method of checkout	This project already exists in the workspace or there is a data folder in the checkout
Choose how to check out folder 'L0_LED' ('Checkout using New Project Wizard' and 'Find Projects' options are available only if there is no .project file in the resource) Check out as a project configured using the New Project Wizard	destination Select the project or data folder to overwrite. Please note, that all local data for the selected resource will be lost.
Check out as a folder into existing project	
Ocheck out as a project with the name specified:	L0_LED Eclipse project
L0_LED	
Depth: Recursively	
Revision	
Head Revision	
Date:         5/23/2016         3:52:42 PM           Revision:         Browse	Select All Clear Selection
	OK   Cancel
? < Back Next > Finish Cancel	

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Set additional project options

In case of adding existing project warning message would appear



#### Now we can try GIT





### Sharing projects with the team - GIT

- In order to send your project to Git repository, click the right button on mouse on project name
- 2. From menu select *Team->Share Project(s)*
- 3. From pop-up window select *Git*
- 4. Click Next

Share Project	
Share Project	
Select the repository plug-in that will be used to share the select project.	cted
Select a repository type:	
SVN 3	
(P) < <u>B</u> ack <u>Next</u> > <u>F</u> inish	Cancel



*	Run C/C++ Code Analysis		
	Team	+	Apply Patch
	Compare With	•	Share Project 2
	Properties	Alt+Enter	Share Projects
_			Upgrade Projects



# Sharing projects with the team – GIT creation of new repository 1/4

- Next step would be selection of GIT repository:
  - a. Create a new one
  - b. Use existing one
- 6. Press **Finish** for further configuration

Configure Git Reposi	tory		
Configure Git Repo	GIT		
Use or create reposit	ory in parent folder of project	:	ba
<u>R</u> epository:			▼ Create
Working tree:	No repository selected		
Path within repository:			Br <u>o</u> wse
Project Curren	t Location	Target Location	
✓	ork/GIT/L4_Blinky		
		6	
?	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish	Cancel





### Sharing projects with the team – GIT creation of new repository 2/4

#### 1. Click Create button

- 2. Specify the location of the repository
- 3. Click Finish



Configure Git Repository				
Configure Git Repository Select an existing repository or create a new one				
Use or create reposit	tory in parent folder of project		1	
Repository:	_GIT - C:\_Work\_GIT\.git		▼ Create	
Working tree:	C:\_Work\_GIT			
Path within repository: Brow			Browse	
Project Curren	ject Current Location Target Location			
C:/_Work/_GIT/L4_Blinky C:/_Work/_GIT/L4_Blinky				
?	< Back	Next > Finish	Cancel	



### Sharing projects with the team – GIT creation of new repository 3/4

- 4. Further we need to "commit" the project files to the repository
- 5. It is done by right mouse button on project name, *Team->Commit*

#### ବ Project Explorer 🛛

- ▲ ♣ > L4\_Blinky [\_GIT NO-HEAD]
  - 🖻 👫 Binaries
  - 🖻 🗊 Includes
  - Drivers
  - ⊳ 🙋 > Inc
  - ⊳ 🛃 > Src
  - ▷ 🔄 > Debug
    - L4\_Blinky.ioc
    - 🕞 STM32L476RGTx\_FLASH.Id

•					
₄ 🚉 > L4_Blink	v [ 6	GIT NO-HEADI			
Binarie:		New	•	L .	
🖻 🗊 Include		Go Into			
▷ 🖉 > Drive		Open in New Window		L .	
<ul> <li>▷ @? &gt; Inc</li> <li>▷ @? &gt; Src</li> <li>▷ @? &gt; Debu</li> <li>□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□</li></ul>		Copy Paste Delete	Ctrl+C Ctrl+V Delete		
B STM32I ■ L4_DAC_A ■ LL_L4_DAC	\$.	Remove from Context Source Move Rename	Ctrl+Alt+Shift+Down		Commit Ctrl+# Stashes > Push to Upstream Fetch from Upstream
	24 24	Import Export		<b>~</b>	Push Branch 'master' Pull
	ନ୍ତି	Build Project Clean Project	F5	\$\$	Remote Switch To Advanced
		Close Project		- 🌧	Synchronize Workspace
		Close Unrelated Projects		÷	Merge Tool <b>Merge</b>
	Index Build Configurations	, , ,	ļļ Š	Rebase Reset	
		Show in Remote Systems view Profiling Tools	Þ		Create Patch Apply Patch
	Run Deb Prot	Run As Debug As Profile As	k k	+ (~) (*)	Add to Index Remove from Index Ignore
	C 🍋 C++	Restore from Local History Convert to C++		1 (1)	Show in History Show in Repositories View
	₩ 200	Target	•		Upgrade Projects
	AY	Team	Þ	9.4	Disconnect
		roant		• 1	Disconnect



### Sharing projects with the team – GIT creation of new repository 4/4

- 6. Before sending the project to the repository it is necessary to identify ourselves by giving
  - a. Full name, i.e. John Smith
  - b. Email address: i.e. john.smith@smith.org
- 7. Press OK







# Sharing projects with the team – GIT using existing repository location 1/2

- 1. Select repository from the list
- 2. Press Finish

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Configure Cit	Bapasitan			
Configure Git	Repository			
Configure Gi	GIT			
Select an exist	ing repository or create a new one		=0=	
Use or create	repository in parent folder of project			
Repository:			Create	
Working tree:	Working tree: GIT - C:\_Work\GIT\.git			
Path within rep	ository:		Browse	
Project	Current Location	Target Location		
🔽 🗁 L4_Blin	C:/_Work/GIT/L4_Blinky			
(?)	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish	Cancel	



# Sharing projects with the team – GIT using existing repository location 2/2

- 3. Further we need to "commit" the project files to the repository
- 4. It is done by right mouse button on project name, *Team->Commit*

#### 눱 Project Explorer 🛛

- ▲ 🔄 > L4\_Blinky [\_GIT NO-HEAD]
  - Binaries
  - Includes
  - Drivers
  - ▷ 🖉 > Inc
  - ⊳ 🛃 > Src
  - ▷ 🔄 > Debug
    - L4\_Blinky.ioc
    - STM32L476RGTx\_FLASH.Id

a I A Dlink						
Binaries	VIC	New	•	1		
🔊 Include		Go Into		L .		
> Drive		Open in New Window		L		
<ul> <li>∠? &gt; Inc</li> <li>∠? &gt; Src</li> <li>∠? &gt; Debu</li> <li>□ L4_Blinl</li> <li>□ STM32I</li> <li>□ L4_DAC_A</li> <li>□ LL_L4_DAC</li> </ul>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Copy Paste Delete Remove from Context Source Move Rename	Ctrl+C Ctrl+V Delete Ctrl+Alt+Shift+Down		Commit Ctrl+ Stashes Push to Upstream Fetch from Upstream	•# •
	24 24	Import Export		<b>~</b>	Push Branch 'master' Pull	
	8	Build Project Clean Project Refresh	F5	÷	Remote Switch To Advanced	+ + +
		Close Project		₩	Synchronize Workspace	
	Close Unrelated Projects Make Targets	•	₽ ₩	Merge Tool Merge		
		Index Build Configurations	> >	ţ,	Rebase Reset	
		Show in Remote Systems view Profiling Tools	۶.		Create Patch Apply Patch	
		Run As Debug As Profile As	k k	+ ** *	Add to Index Remove from Index Ignore	
Co.	с. С.	Restore from Local History Convert to C++ Target	Þ	1 (1)	Show in History Show in Repositories View	
	*	Run C/C++ Code Analysis			Upgrade Projects	
		Team	+	14	Disconnect	



# Sharing projects with the team - GIT

1. After sending to repository, all project files are marked differently



 Each file modified after this operation is marked as "modified" (using '>' symbol) like below:

Project Explorer 🖾
A A State of the second sec
Binaries
Includes
Drivers
🖻 🚰 Inc
⊿ 🚰 > Src
Imain.c
Image: Stm32l4xx_hal_msp.c
Image: Stm32l4xx_it.c
Debug
🔒 L4_Blinky.ioc
STM32L476RGTx_FLASH.Id

# Team Synchronizing perspective

- In case of synchronization with repository, Eclipse will switch to Team Synchronizing perspective
- Here we can track any conflicts, differences and control synchronization in both directions (from and to repository)

🗢 Team Synchronizing - L0_LED/Src/main.c - Eclipse 👘 📾 Polish (Programmers) 🔅 H	elp 📜 📃 🗖 🗙
File Edit Source Refactor Navigate Search Project Run Window Help	
➡ ▼	Quick Access 🛛 😰 🛛 🗟 C/C++ 🎋 Debug 🖶 SVN Repository Exploring 🗃 Team Synchronizing
Image: Section is the section is the section in the section is th	Quick Access : B* Pac/C++ * Debug & SVN Repository Exploring & Team Synchronizing @ mainc CRevHEAD] A fail (1) A fail (2) A fai
a Local a Bugs B Eclipse.org	100     PCC OccToitState - DCC UST ON:



# Sharing projects with the team - GIT

- To synchronize modified files with repository:
  - Either right-click selected file (single file synchronization)
  - Or right-click project itself (complete project synchronization)
- Select Team->Commit
- Add commit message
- Press Commit -> files in repository will be updated

Commit C	hanges	X
Commit C ① Enter cor	hanges to Git Repository nmit message.	GIT
Commit m	essage	
0		
Author:	John Smith <john.smith@smith.org></john.smith@smith.org>	
Committer:	John Smith <john.smith@smith.org></john.smith@smith.org>	
Files (1/1)		2
type filter	text	
Status	Path	
C.	L4_Blinky/Src/main.c	
Open <u>Git S</u>	Commit and Push Commit	Cancel





# Disconnecting project from GIT

- Right-click project name
- Select Team->Disconnect



## Importing projects from GIT

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Import	Import Projects from Git	Import Projects from Git
Select Import one or more projects from a Git Repository.	Select Repository Source Select a location of Git Repositories	Select a Git Repository You can also clone a repository or add local repositories to the list
Select an import source: type filter text	type filter text ■ Existing local repository ■ Clone URI	type filter text
(?) < Back Next > Finish Cancel	? < <u>Back Next &gt; Einish</u> Cancel	?     < Back

From already opened workspace select Import->Git->Project from Git

Select repository





# Importing projects from GIT

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Import Projects from Git	Import Projects from Git
Select a wizard to use for importing projects	Import Projects
Depending on the wizard, you may select a directory to determine the wizard's scope	
Wizard for project import	Projects:
Import <u>existing Eclipse projects</u>	type filter text to filter unselected projects         Select All
Import using the New Project wizard	✓ ← L4_Blinky (C:\_Work\GIT\L4_Blinky)    Deselect All
Import as general project	
🔺 🗁 Working Tree - C:\_Work\GIT	Search for nested projects
⊳ 🗁 .git	Working sets
▷ 🗁 L4_Blinky	Add project to working sets
	Working sets: Select
? < <u>Back</u> <u>Next</u> > <u>Finish</u> Cancel	? < Back Next > Finish Cancel



In case of adding existing project warning message would appear

### What have we learnt? 34



✓ Demonstrate SNV and GIT mechanisms implemented within SW4STM32 tool

✓ Gain knowledge about SVN and GIT repositories creation

Gain knowledge about manipulating on files between local project and its repository

Gain knowledge about importing projects from SVN and GIT repositories







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