



# IEEE Embedded Systems Workshop

## Embedded Software Development Configuration Management Using Mercurial Hg

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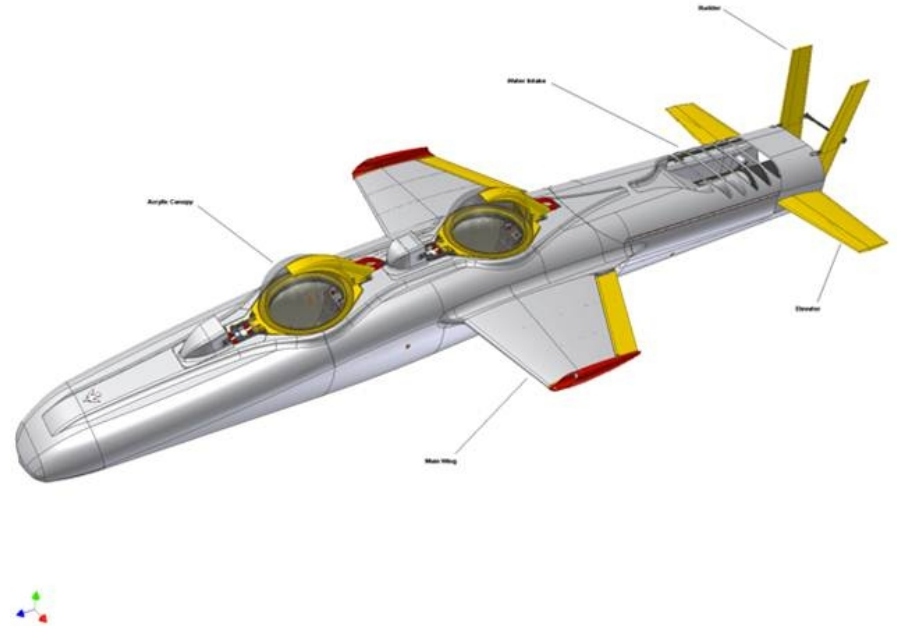
# Contents



- Advertisement
- What and *Why this is important to you*
- What is Mercurial and Tortoise Hg
- A high-level introduction to Hg
  - No Hg experience, have CM experience
- Compared to older source control systems
  - RCS, CVS, SourceSafe
- (Audience survey)

# Fall Section Conference

Keynote: "Unique Vehicles: Submarines that Fly", Graham Hawkes



Wednesday, November 14, 2012 5pm-9pm at  
Fairlane Center, University of Michigan-Dearborn  
[www.ieee-sem.org/fall](http://www.ieee-sem.org/fall)

# What and Why This Is Important to You

- Configuration Management
  - “...identifying the configuration of a system at distinct points in time for the purpose of systematically controlling changes to the configuration...”
- “Source control” and release tracking (not change control)

# Why This Is Important to You (cont.)



Good CM is *your* professional *responsibility*

*“It is **our job** as professionals to get better at what we do.”*

*-- Dr. Chris Wagner*

# Why This Is Important to You (cont.)

- **You** can run Hg on your PC
  - Part of your PSP, personal productively tool
- CM is KPA in **CMM Level-2**
  - My background using SCCS, RCS in UNIX/Linux
- CM is major section in SWEBOK (Chapter 7)
  - (convinced about CM)
- Hg is Modern, Distributed CM System
- I have using Hg for 2 years, replaced RCS

# What is Mercurial



- Configuration management system
- Open source (“free software” GNU GPL v2)
- Runs on Windows, Linux, MAC
- Modern, Distributed CM System

# Features



- Small, simple command set
  - (compared to git)
- Mercurial stores *changesets* to entire project, not individual files
  - A list of changes between one checkin and next
    - Supports merging
  - You don't check in *files*
    - Check in the whole repository
  - Advantage with \*.h and \*.c or \*.cpp files



# Features



- Distributed - no central repository
- Network-able - ssh built, clone across net
- Branching and merging
  - full command set
- Tortoise Hg is the Windows program

web\_new - TortoiseHg Workbench

File View Repository Help

Graph	Rev	Branch	Description	Author	Age	Tags
	37+	default	★ Working Directory ★	Mark Ciechanowski, P.E.	now	
	37	default	default tip changed flyer	Mark Ciechanowski, P.E.	3 days	tip
	36	default	Subra updates for topics, flyer. published.	Mark Ciechanowski, P.E.	7 days	
	35	default	added vector logo to flyer img on web page	Mark Ciechanowski, P.E.	8 days	
	34	default	added img	Mark Ciechanowski, P.E.	8 days	
	33	default	added vector logo	Mark Ciechanowski, P.E.	8 days	
	32	default	Correction for Salvador	Mark Ciechanowski, P.E.	9 days	
	31	default	Changed orange title to "Systems"	Mark Ciechanowski, P.E.	9 days	
	30	default	Changed to Embedded "Systems"	Mark Ciechanowski, P.E.	2 weeks	

### filter text ###

Branch: default Copy message Options

Commit

Parent: 37 (11f8bf5e6ae4) changed flyer

Filename	Diff
M meetings_archive.html	
? .hgignore	
? email_encoder.src.pl	
? ieee_email_encoder.txt	
? ieee_template_flyer_a.doc	
? ieee_template_flyer_b.doc	
? ieee_template_flyer_c.doc	
? ieee_template_flyer_d.doc	
? images/Embedded_System_Workshop-2012-V3-3.doc	
? images/Embedded_System_Workshop-2012-V3-4.doc	
? images/Embedded_System_Workshop-2012-V6.doc	
? images/Embedded_System_Workshop-2012-V6.pdf	

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+                                <table border="0">

```

Output Log

web\_new%

# Linux Commands

- hg init
- hg commit
- hg status
- hg log



```
$ hg heads
changeset: 6:e8a57efee3b2
tag: tip
parent: 4:2278160e78d4
user: Bryan O'Sullivan <bos@serpentine.com>
date: Mon Nov 01 23:58:46 2010 +0000
summary: Added an extra line of output

changeset: 5:fa74432c4d29
user: Bryan O'Sullivan <bos@serpentine.com>
date: Mon Nov 01 23:58:54 2010 +0000
summary: A new hello for a new day.
```

# Online Tutorial

80

**Hg**  
**Init**

200.59

**Hg Init: a Mercurial tutorial**

[www.hginit.com](http://www.hginit.com)

# Conclusions

- This is *your* responsibility
- Keep up with technology
- Get, Learn, and Use Mercurial or git



# References



- References
  - **HgInit** <http://www.hginit.com>
  - **SWEBOK** **IEEE Computer Society 2004**  
<http://www.swebok.org>
    - Configuration Management
- Further Information on Technology and Careers
  - **IEEE Computer Society** <http://www.computer.org>
  - **IEEE** <http://www.ieee.org>
  - **IEEE-USA** <http://www.ieeeusa.org>

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