YANG Module Revision Control Examples (v2)

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Continuation of Discussion

- New material starts at slide 8

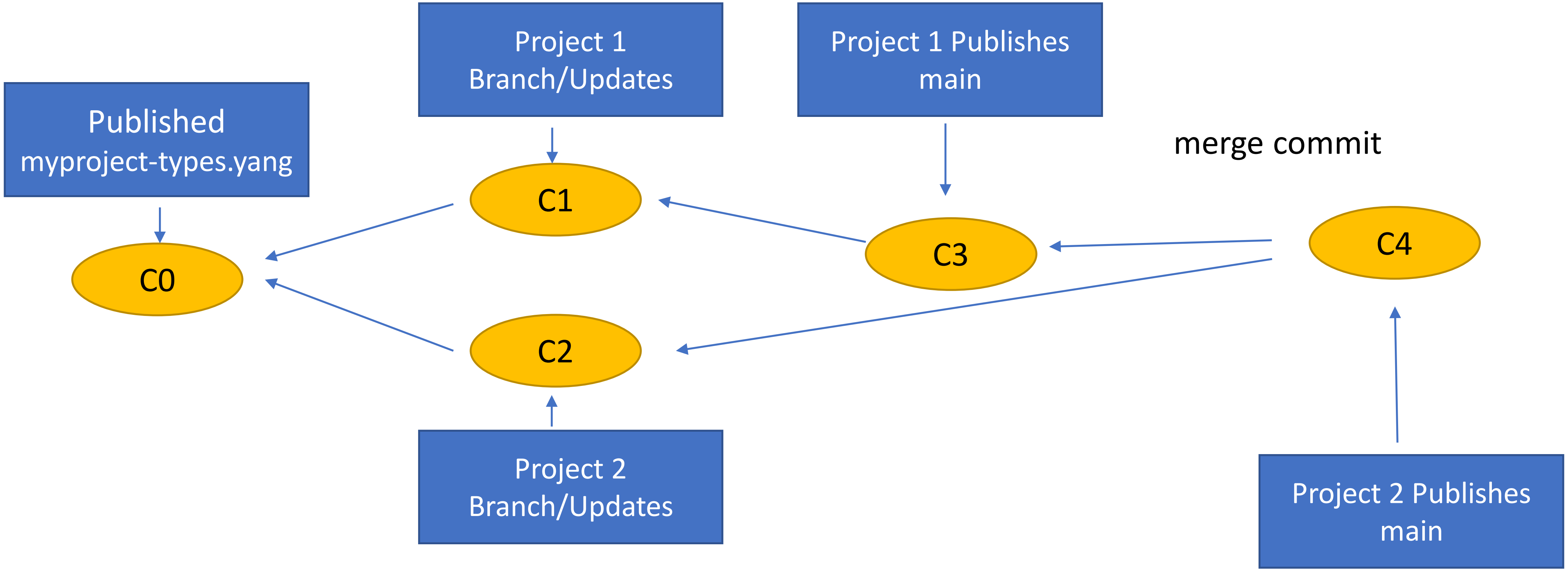
YANG Module revisions

- Published modules can be updated by multiple projects at a time.
- We currently do not have a git repository setup for this (A discussion for another time)
- This presentation provides examples on how module revisions are handled until we get an IEEE git system in place

- Reference
  - https://git-scm.com/book/en/v2/Git-Branching-Basic-Branching-and-Merging

Example in Pictures

- C = Commit (accept changes)
- C# = The lower the number the older the commit



Example using files

- C0
  - myproject-types.yang
    ```
    revision 2021-09-01 {
        description “published as part of myProject-2021-09";
        reference “2021-09-rollup";
      }
    ```
- C1
  - myproject-types.yang
    ```
    revision 2021-11-01 {
        description “draft Project 1";
        reference “project1-v1";
      }
    ```
- C2
  - myproject-types.yang
    ```
    revision 2021-12-01 {
        description “draft Project 2";
        reference “project2-v1";
      }
    ```
- C3
  - myproject-types.yang
    ```
    revision 2022-01-01 {
        description “published as part of amendment 1 to myProject-2021-09";
        reference “myProject Amd 1";
      }
    ```
- C4
  - myproject-types.yang
    ```
    revision 2022-02-01 {
        description “published as part of amendment 2 to myProject-2021-09";
        reference “myProject Amd 2";
      }
    ```

- C0 has myproject-types.yang
  - revision 2021-09-01
- C1 is based on C0
  - adds types for Project 1
- C2 is based on C0
  - adds types for Project 2
- C3 is based on C1 which is based on C0
  - other modifications needed for Project 1
  - publishes and is now the “latest” version of myproject-types.yang
  - myproject-types.yang
    - revision 2022-01-01
- In order to publish Project 2 a “merge commit” needs to be done
  - So that all the changes from Project 1 and Project 2 are merged and conflicts (if any) are resolved.
- C4 is a merge commit
  - myproject-types.yang
    - revision 2022-02-01
- Further amendments or roll-ups will start from “main” at C4.

Example in words

- Published Module
  - myproject-types.yang
    - contains a type called mytype
- Project 1 and Project 2 are running concurrently
- Project 1 adds a type called newtype1
- Project 2 adds a type called newtype2
- Project 1 finishes first so the new version of myproject-types.yang contains mytype and newtype1
- When Project 2 finishes, Project 2 needs to “rebase” from the newest version of myproject-types.yang so that the “main” version contains mytype, newtype1, and newtype2

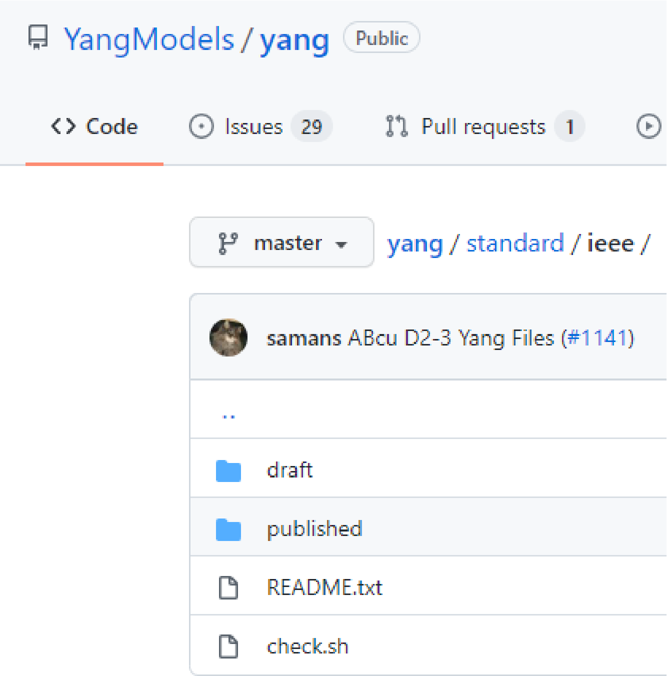
Practical Example

- CBcv and CBdb are both amending CB at the same time
- CBcv is producing YANG for CB
    - Introduces ieee802-dot1cb-stream-identification-types.yang
- CBdb is adding the mask and match feature to CB
    - Needs to add types for mask and match to ieee802-dot1cb-stream-identification-types.yang
- CBcv will publish a ieee802-dot1cb-stream-identification-types.yang file with a revision date of 2021-12-08
- CBdb will publish a ieee802-dot1cb-stream-identification-types.yang file with a revision date of 2021-12-09
    - based on CBcv 2021-12-08 with the mask/match types added
- In the IEEE802 YANG repository the CBdb version will be the latest version

- If we used git with a branch per project per draft, the merging and conflict resolution would be less error prone, but would require the editors to use a common set of tooling and repositories.
    - tagging and release management TDB
    - connection to remote repositories also TDB

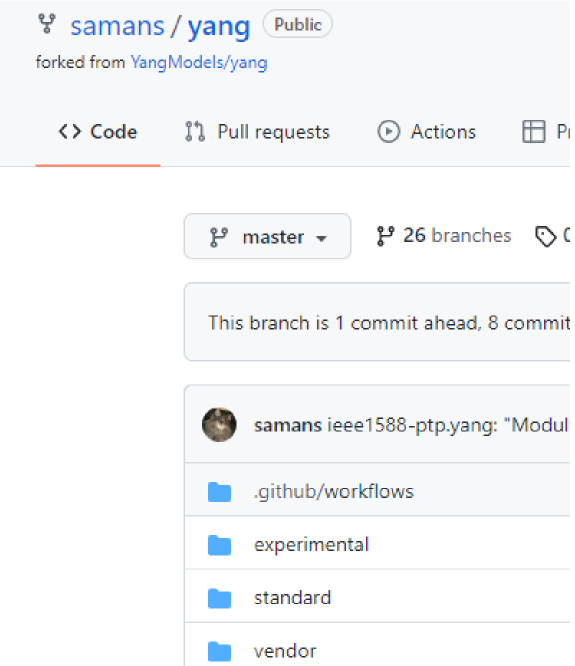
Where the code live?

- The IETF's YANG Catalog github repository is on github's website
- I create a "fork" of that github in my personal github on github's website
- I then create a clone of my fork on my local Ubuntu VM running on my Windows 10 PC.



samans ABcu D2-3 Yang Files (#1141)

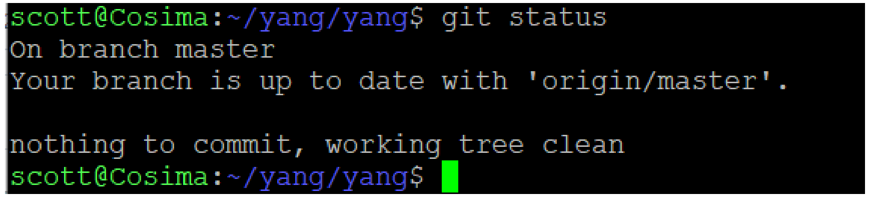
IETF's YANG Catalog github Repository
https://github.com/YangModels/yang
on GitHub



This branch is 1 commit ahead, 8 commit

samans ieee1588-ptp.yang: "Modul

My Fork of YangModels/yang
https://github.com/samans/yang
on GitHub



```
scott@Cosima:~/yang/yang$ git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean
scott@Cosima:~/yang/yang$ 
```

My Fork of YangModels/yang
https://github.com/samans/yang
on my Ubuntu VM

Git terminology

- From the perspective of my clone.
    - “origin” is the name of my remote repository
        - Points to my samans/yang repository
    - “upstream” is the name of the remote repository I forked from
        - Points to the YangModels/yang repository
- branch
    - A collection of files/modifications that are tracked together so they can be committed
- commit
    - stores the current contents
- merge
    - resolve conflicts when committing
- main (or master)
    - refers to the default branch of a repository (main is the current, master is deprecated terminology)

IEEE Perspective

- We have some choices
- We could create an IEEE repository that everyone treats as the main remote repository
    - Everyone could either fork or clone the main branch of the IEEE repository.
    - The only difference is what git commands you need to use to get your changes reviewed and merged into the main repository.
- Benefit is we could have a repository owner and set up our own validation checks and have control over when branches are merged.
- From an IEEE editor’s perspective, this would also alleviate the complexity of dealing with the IETF’s repository, the IEEE YANG repository owner could deal with that.

Options available

- If the IEEE YANG editors want to have their own environment
  - and
- There are people willing to serve as repository managers
  - We could setup a yang repository on https://opensource.ieee.org/users/sign_in
    - We would need to have a way to refer to YANG that is not stored in the IEEE repository
    - The repository manager would need to monitor and service
      - Merge requests
      - Determine when files get moved to the IETF Repository
      - Support updating IEEE yang file repository on dot1 website
- Otherwise, we could create a github repository and setup a "sub-module" like the BBF has done.
  - IEEE YANG repository manager would maintain the sub-module
  - Support when to update the IETF github repository
  - Support updating IEEE yang file repository on dot1 website