



# ALMA Common Software Basic Track

Software Engineering Basics





- ✧ Set of related files grouped together in a directory structure
- ✧ Includes
  - ✧ Makefile
  - ✧ Implementation files (classes)
  - ✧ Unit tests
- ✧ Usually, a single component is stored in a single software module



# Directory Structure



- ✧ `<module>/idl` Generic interface definition
- ✧ `<module>/include` Language specific header files (C++)
- ✧ `<module>/src` Source code
- ✧ `<module>/lib` Application/test code libs\*
- ✧ `<module>/bin` Executables\*
- ✧ `<module>/test` Test code (separated from app. code)

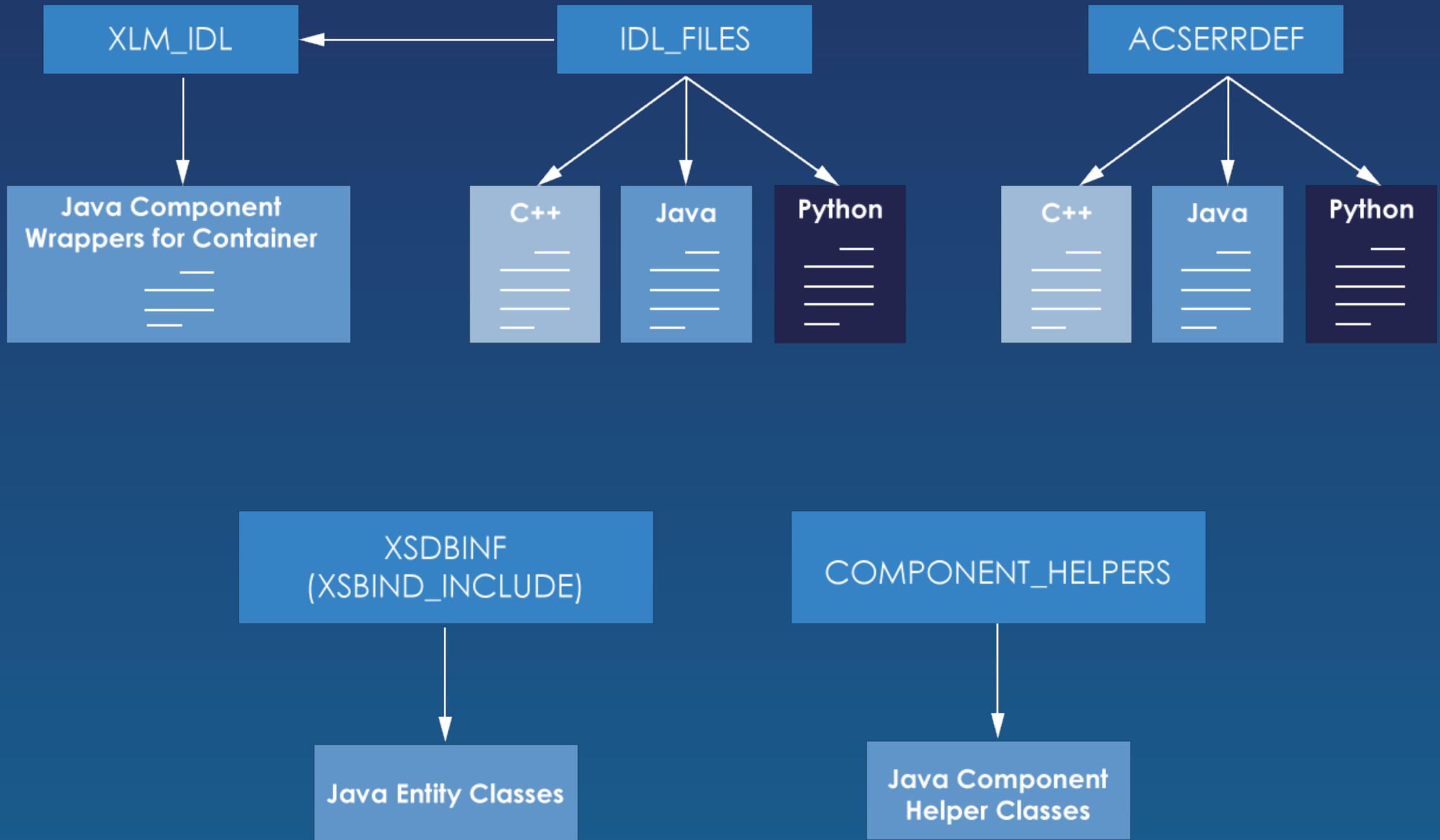
(\*) Populated by the `Makefile`



# ACS Makefile

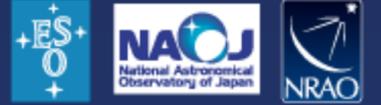


- ✧ Project wide set of rules, centrally managed: `$ACSR00T/include/acsMakefile`
- ✧ Each developer has to add only the module specific part → file names
- ✧ Based on a normal `Makefile`
- ✧ Strictly correlated to the environment variables and software module standards





## Test directory



- ✧ Place for all module specific test files
- ✧ Contains its own `Makefile`
- ✧ Usually contains a small CDB for component testing (deployment example)



ACSR00T



- ✧ Default location of installed ACS binaries and libraries
- ✧ Directory structure similar to module structure
- ✧ Reference through the `$ACSR00T` environment variable
- ✧ Populated during build, if no `INTR00T` defined
- ✧ Convention: **do not overwrite it**, use an `INTR00T` instead (next slide)



# INTROOT



- ✧ Location for binaries and libraries for system parts under development
- ✧ Directory structure almost identical to `ACSRROOT`
- ✧ Reference through the `$INTROOT` environment variable
- ✧ Populated through `Makefile` build (`make install`)

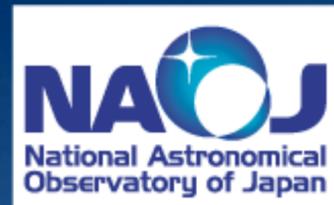


## getTemplate utility



- ✧ Tool to create ACS directory structures
- ✧ Also provides templates for files according to SE standards
  - ✧ Makefile
  - ✧ C++ headers and sources
  - ✧ ...
- ✧ Executables: `getTemplate`, `getTemplateForDirectory`

# Questions?



## Acknowledgements

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