

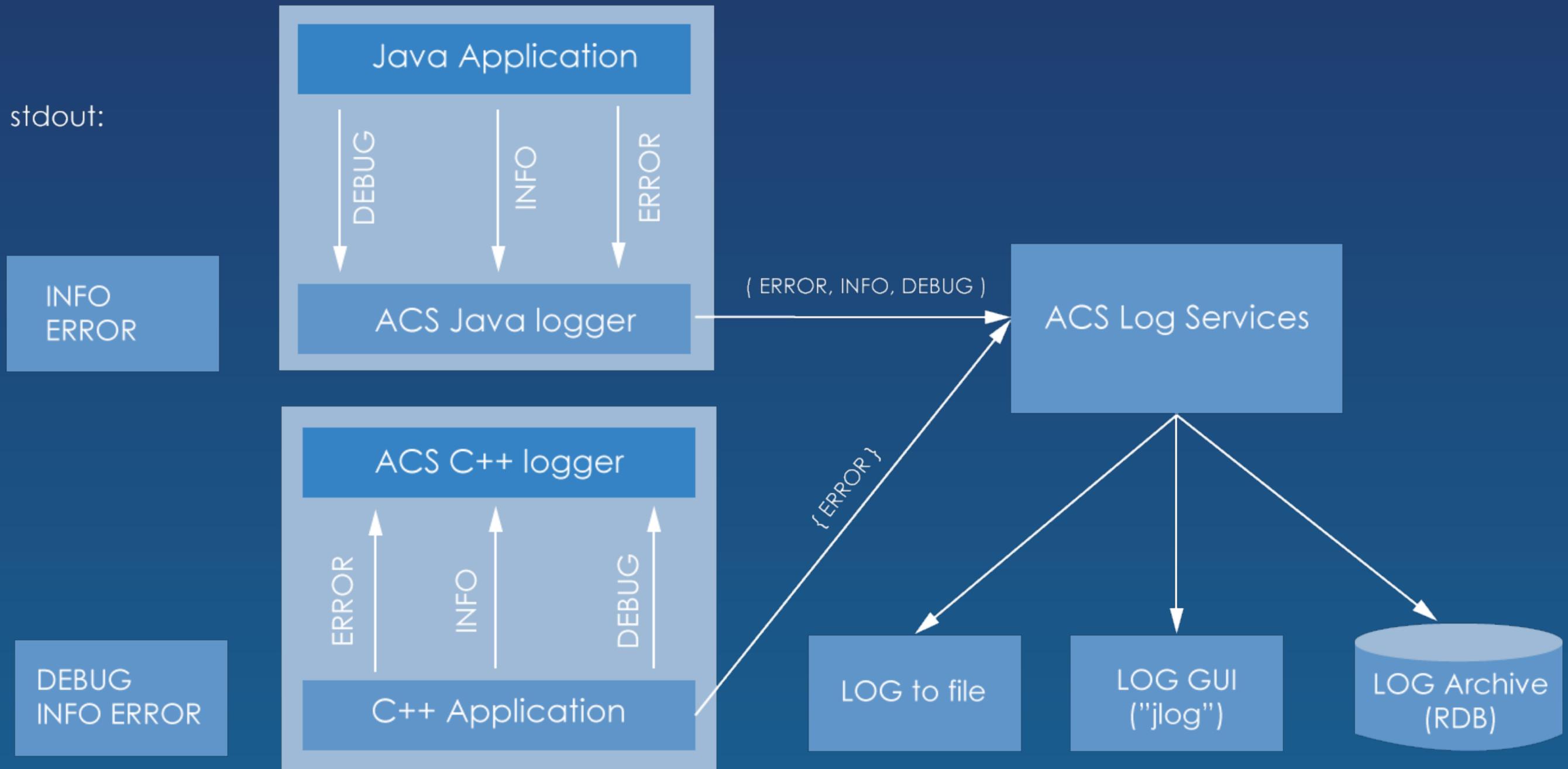


# ALMA Common Software

## Basic Track

Logging and Error Systems







# Logging system



- ✧ The logging system provide
  - ✧ status and diagnostic information
  - ✧ historical archive
  - ✧ filtering capabilities by level/audience
- ✧ Several logging levels:
  - ✧ Trace (1), Delouse (2), Debug (3), Info (4), Notice (5), Warning (6) , Error (8), Critical (9), Alert (10), Emergency (11), Off (99)
- ✧ Three logging audiences (orthogonal to log levels):
  - ✧ ENGINEER, OPERATOR, SCIOLOG
- ✧ They are essential for post-mortem analysis
- ✧ They are normally intended for developers and operators



# Logging system



- ✧ Logging service:
  - ✧ Transport through a notification channel
  - ✧ Graphical user interface to visualize them in runtime or offline (jlog)
- ✧ For later processing can be:
  - ✧ written to file
  - ✧ stored in DB
- ✧ For high performance / robustness:
  - ✧ Transparent caching
  - ✧ Transfer asynchronously in batches
- ✧ Transparent insertion of additional data:
  - ✧ host / container names
  - ✧ thread name

Warning: Every logging client considerably slows down the logging system! Congestions can lead to a logging service crash

- ✧ Conveniently reduce number of executions of identical activity
  - ✧ e.g. Logging of same log message, e.g. “incident detected”, N times/s
  - ✧ Can be used for other activities, is wrapped around activity
- ✧ Configurable based on:
  - ✧ Number of executions
  - ✧ Time interval
  - ✧ Combinations of both



## Log entry example



<Debug

```
TimeStamp="2002-10-7T13:44:16.530"
```

```
Host="tel.hq.eso.org"
```

```
Process="baciTestServer"
```

```
Thread="main"
```

```
Context=""
```

```
File="baciTestClassImpl.cpp"
```

```
Line="205"
```

```
Routine="BaciTestClass::~~BaciTestClass
```

>



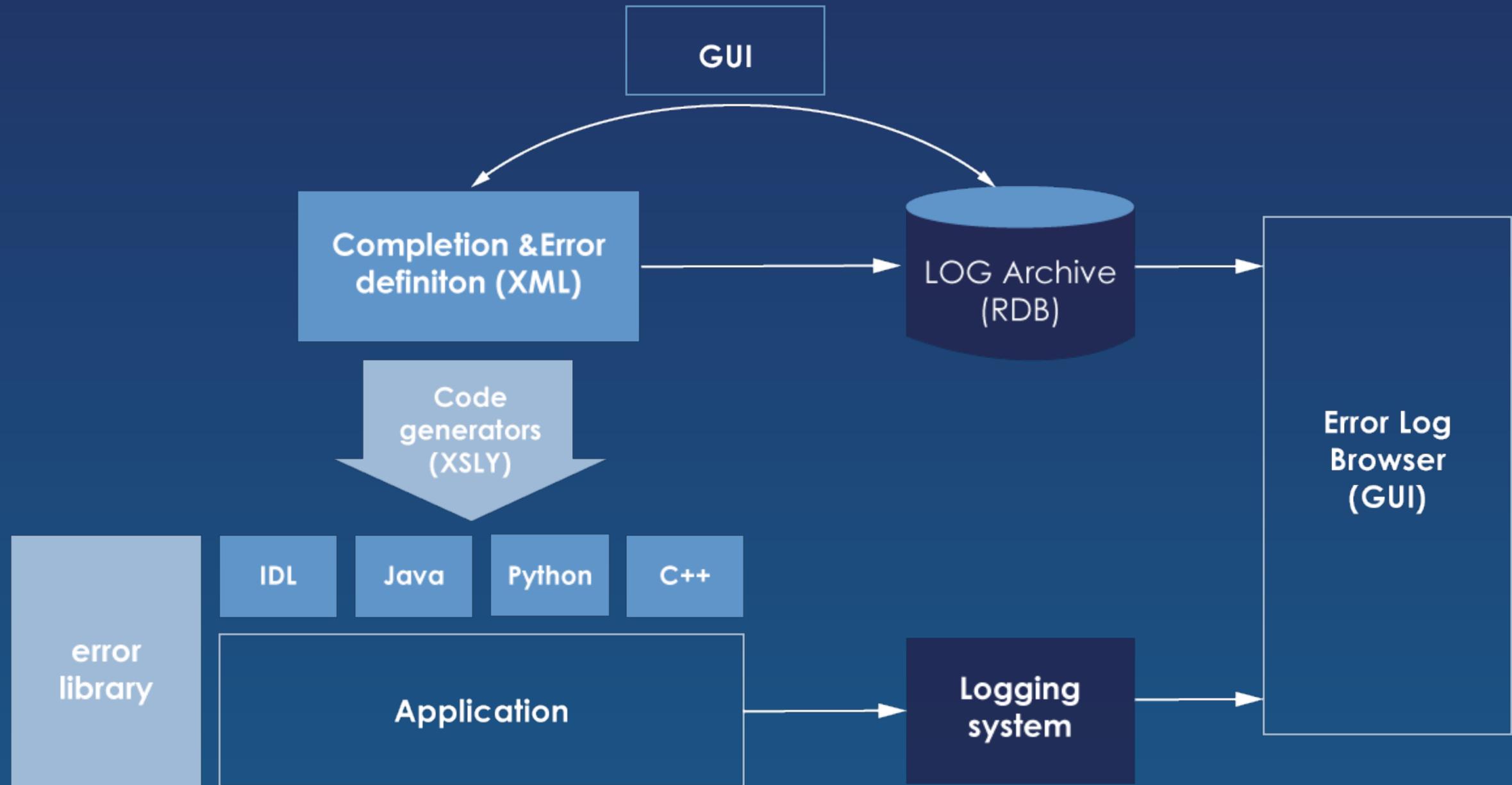
# Logging system configuration



- ✧ Default configuration
  - ✧ log TRACE and above levels
- ✧ Optional environment variables can set per-process log levels
- ✧ CDB can set per-process log levels / per-logger level
- ✧ Tools to dynamically change log levels in running system
- ✧ Environment variables:
  - ✧ Log level for console: `$ACS_LOG_STDOUT`
  - ✧ Central logging level: `$ACS_LOG_CENTRAL`
  - ✧ Log file name: `$ACS_LOG_FILE`



- ✧ ACS: faults or errors are a situation that requires handling
- ✧ Handled by developer
- ✧ Helpers (acserr.idl):
  - ✧ Completion
    - ✧ Not critically failed execution / execution OK
  - ✧ Errors
    - ✧ Critically failed execution
    - ✧ ACS (CORBA) exceptions predefined in XML  
(ACSErrTypeCommon.xml, ACSErrTypeCommon.idl)
- ✧ Error propagation → Error trace
  - ✧ Chaining of Completions
  - ✧ Chaining of errors / ACS exceptions
  - ✧ Possible across process boundaries



-  not yet available
-  not part of error



## ✧ Logging and Archiving:

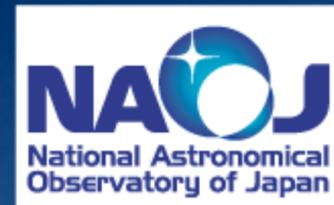
✧ [http://www.eso.org/projects/alma/develop/acs/OnlineDocs/Logging\\_and\\_Archiving.pdf](http://www.eso.org/projects/alma/develop/acs/OnlineDocs/Logging_and_Archiving.pdf)

## ✧ Definitive guide to logs and errors

✧ <http://almasw.hq.eso.org/almasw/bin/view/HLA/LoggingErrorAlarmsGuidelines>

## ✧ And of course, the source code

# Questions?



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