AUTOMATED COVERAGE TESTER FOR THE ORACLE ARCHIVER OF WINCC OA

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Introduction

Archiving is a critical component

- Online control system debugging.
- Conditions data for off-line physics analysis.
- Post-mortem investigation of failures.

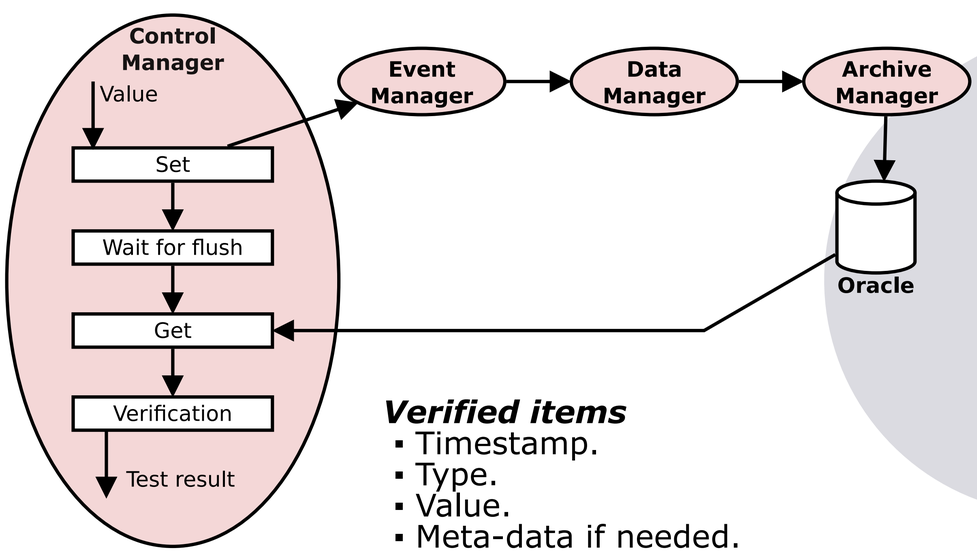
Challenges

- Cope with different versions of components (e.g. Oracle, OS, Win CC OA).
- Cover systematically all supported data types.
- Test of all query features of WinCC OA (e.g. API, trend, alarm history).
- Check alarm life-cycle.
- Deal with a large number of archiver parameters.

Approach

- Generic and adaptive tester.
- Generation based on templates.
- Parallel execution.
- Global reporting.

Single test process

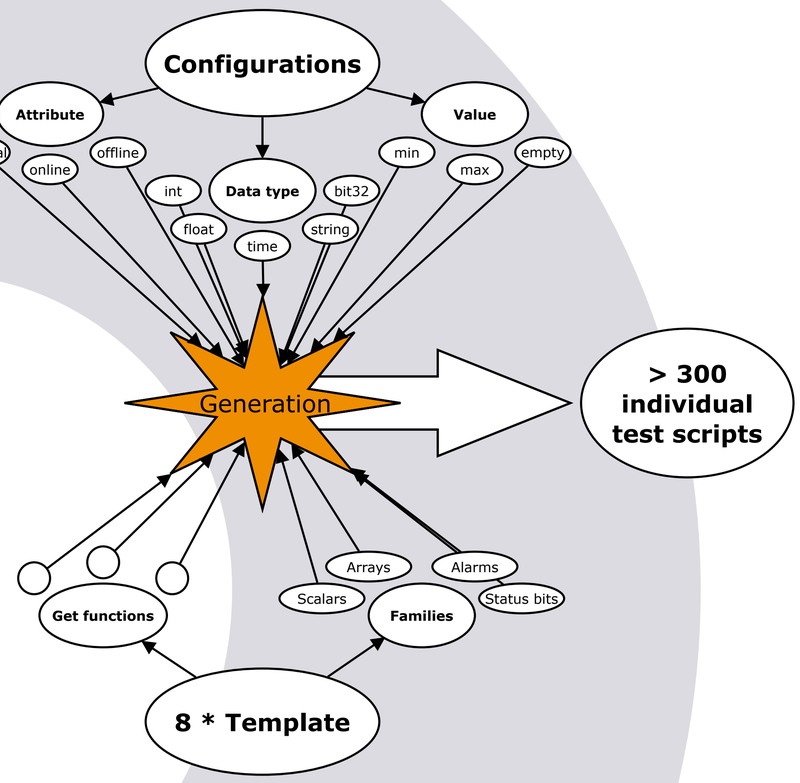


Verified items

- Timestamp.
- Type.
- Value.
- Meta-data if needed.

Test generation

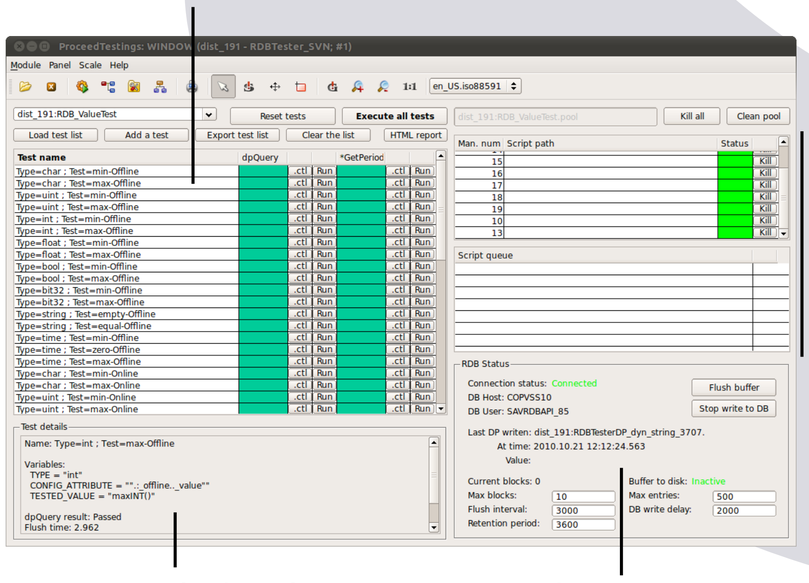
- Over 300 scripts produced from 8 templates.
- On the fly generation.
- Fast integration of new test cases.
- Full coverage of relevant test cases.



Test management

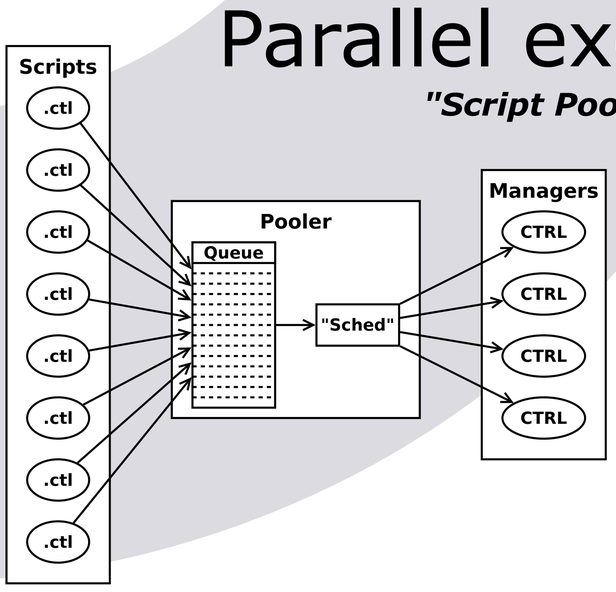
Overview panel

- New test creation.
- Test triggering (single and all).
- Execution monitoring.
- Reporting.



Parallel execution

"Script Pooler"



- Pool of managers.
- A manager = An OS process.
- A scheduler distribute test scripts.
- Use datapoints as inter-process communication.
- A panel allows for easy mass-reconfiguration of the pool.

Results

- An issue in flushing mechanism.
- *Scalar:* 7 issues detected, reported and fixed.
- *Array:* 9 issues detected.
- *Status bits and alarms:* No issue.

Conclusion

- 2009 run made smoother.
- Built-up our confidence in the archiver.
- This automatic coverage tester deemed to be the right approach for the problem.
- Components of this tester are reusable for other testing purpose.

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