

# Software Architecture and Design Specification

Kristoffer Nordström

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## Chapter 1

# Software Architecture Specification

The architecture in Fig. 1.1 defines the building blocks and encapsulates the volatility of the system.

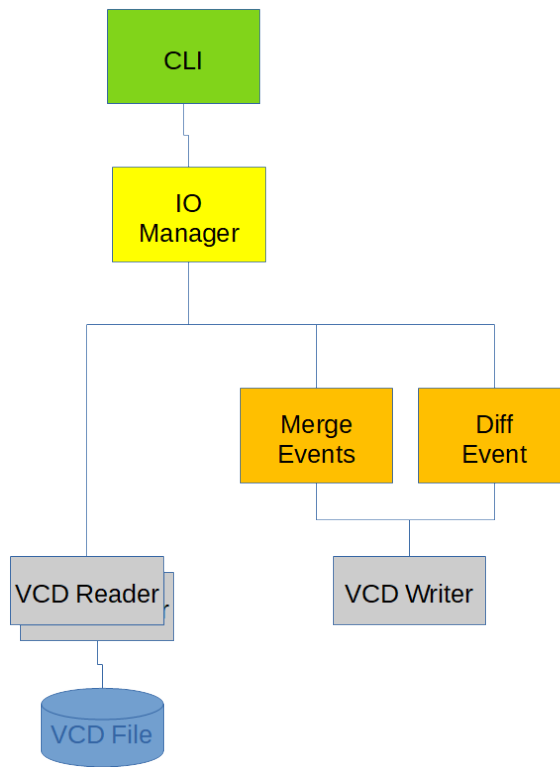


Figure 1.1: The Architecture

## Chapter 2

# Software Design Specification

This document describes the architecture for the VCD merge software

### VCD Merger SW-AS-1

Merge multiple files

**Rationale:** compare files visually

**Solved by:** [SW-AS-100](#) [SW-AS-101](#) [SW-AS-200](#) [SW-AS-300](#) [SW-AS-400](#) [SW-AS-500](#)

Id:	SW-AS-1	Priority:	0.0	Owner:	development
Invented on:	2020-05-03	Invented by:	default	Status:	passed
Class:	detailable	Hash:	7d6734f3		

### CLI Input Files SW-AS-100

List the files to be merged on the command line. Treat command-line arguments as files.

**Depends on:** [SW-AS-1](#)

Id:	SW-AS-100	Priority:	0.0	Owner:	development
Invented on:	2020-05-03	Invented by:	default	Status:	open
Class:	detailable	Hash:	46fb54ea		

### CLI Output SW-AS-101

Specify the file to write the merged output. Use `-o <filename>`.

**Solved by:** [SW-AS-102](#)

**Depends on:** [SW-AS-1](#)

Id:	SW-AS-101	Priority:	0.0	Owner:	development
Invented on:	2020-05-03	Invented by:	default	Status:	open
Class:	detailable	Hash:	1427e7d2		

### CLI Output Default Filename SW-AS-102

If no filename is given, use `out.vcd` as default.

**Rationale:** Sometimes you can't be bothered.

**Depends on:** [SW-AS-101](#)

Id:	SW-AS-102	Priority:	0.0	Owner:	development
Invented on:	2020-05-03	Invented by:	default	Status:	open
Class:	detailable	Hash:	ff72206e		

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### VCD Reader RA SW-AS-200

Implements `AggregatorInterface` interface.

**Solved by:** [SW-AS-201](#) [SW-AS-202](#)

**Depends on:** [SW-AS-1](#)

Id:	SW-AS-200	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	passed
Class:	detailable	Hash:	b85e5b1b		

### Reader Elements SW-AS-201

Convert VCD files into a stream of `VcdElements` objects.

**Depends on:** [SW-AS-200](#)

Id:	SW-AS-201	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	passed
Class:	detailable	Hash:	eb13fc0f		

### End-of-File Terminator SW-AS-202

Signal end-of-file with a `VcdEndOfFile` object. Treat empty or non-existing files equally.

**Depends on:** [SW-AS-200](#)

Id:	SW-AS-202	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	passed
Class:	detailable	Hash:	35354cd8		

### IO Manager SW-AS-300

Manage data streams from reader to transformation engines.

**Solved by:** [SW-AS-301](#) [SW-AS-302](#)

**Depends on:** [SW-AS-1](#)

Id:	SW-AS-300	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	passed
Class:	detailable	Hash:	7b2b2d9d		

### AggregatorInterface SW-AS-301

Defines `AggregatorInterface` interface.

**Depends on:** [SW-AS-300](#)

Id:	SW-AS-301	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	open
Class:	detailable	Hash:	ebf87bab		

### VcdElements SW-AS-302

Defines `VcdElements` interface.

**Depends on:** [SW-AS-300](#)

Id:	SW-AS-302	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	open
Class:	detailable	Hash:	f2651770		



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**VCD Writer RA** SW-AS-500

Write events into one VCD file

**Solved by:** [SW-AS-501](#)

**Depends on:** [SW-AS-1](#)

Id:	SW-AS-500	Priority:	0.0	Owner:	development
Invented on:	2020-05-04	Invented by:	default	Status:	passed
Class:	detaillable	Hash:	4c1a395a		

**VCD Writer Inputs** SW-AS-501

The output from *AggregatorInterface* can be fed into the *VCD Writer* to create an identical output file.

**Rationale:** Make the process as transparent as possible.

**Depends on:** [SW-AS-500](#)

Id:	SW-AS-501	Priority:	0.0	Owner:	development
Invented on:	2020-05-30	Invented by:	default	Status:	passed
Class:	detaillable	Hash:	f8d68d11		

# Appendix A

## Traceability Matrix

Table A.1: Traceability Matrix Table

Req. ID	Status	UT
SW-AS-1	passed	passed
SW-AS-100	open	open
SW-AS-101	open	open
SW-AS-102	open	open
SW-AS-200	passed	passed
SW-AS-201	passed	passed
SW-AS-202	passed	passed
SW-AS-300	passed	passed
SW-AS-301	open	open
SW-AS-302	open	open
SW-AS-500	passed	passed
SW-AS-501	passed	passed