

## The Ultimate ESD & SIS Logic Validation Package Test Compiler with Virtual Process Link™

Increasingly stringent standards for software validation in Safety Systems emphasize the need for a modern approach to testing and validation. In order to satisfy both test quality and cost, an integrated approach to logic certification must be implemented throughout the program development life cycle. Furthermore, initial testing efforts should give consideration to a streamlined process of periodical re-certification.

Industry accepted engineering practices rely on extensive test campaigns and documentation of your safety systems and more specifically on your application program before it can go on line. Those tests should be compliant with the following standards:

### Osha 29 CFR Part 1910

calls for complete documentation for each inspection and test for your ESD systems

*Test date*

*Name of test engineer/technician*

*Test results comprehensive description*

### ANSI/ISA-84.01

“ 9.7.1 Periodic Functional Test shall be conducted using a documented procedure ”

### IEC 61508

**Part 1, 7.18** Information on the verification activities shall be collected and documented as evidence that the phase being verified has, in all respects, been satisfactorily completed.

**Part 1,7.14** Documentation for validation shall include:

- Activities in chronological order
- Discrepancies between expected and actual results

### IEC 61511-1

Periodic proof test shall be conducted using a written procedure to reveal undetected faults.

### TÜV

Guidelines for Safety Related Software

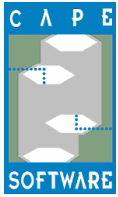
- All tests should be done by an automated procedure
- Tests must be reproducible

## APPLICATION PROGRAM TEST & VALIDATION



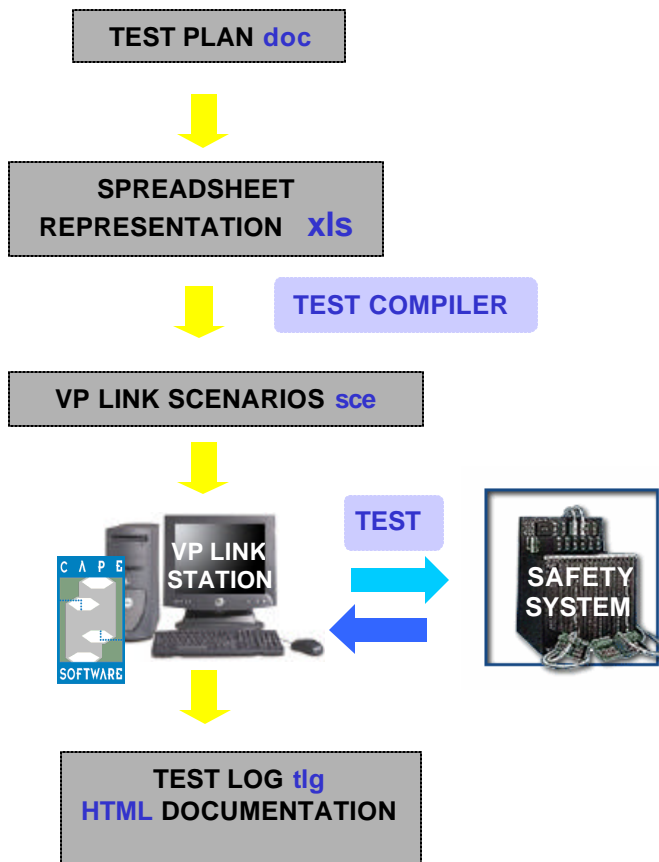
Testing a Safety System software application involves various phases, as follows:

- **Simulate** process inputs
- **Write** input values in your safety system
- **Execute** the application program
- **Read** safety system outputs
- **Verify** results
- **Identify** discrepancies
- **Document** the entire test campaign and results



At Cape Software we have over 12 years of experience in process simulation, and 6 years for safety and critical control logic validation. We specialized in the development of dedicated real time trending tool, dynamic process simulation packages and logic validation tools for ESD/SIS systems.

## APPLICATION PROGRAM TEST & VALIDATION USING VP LINK™

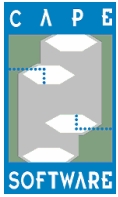


Our logic validation tool, VP Link™ Test Compiler features:

- Test plan integration - Cause & Effect Matrix, written procedures, etc.
- Automated test script generation
- I/O simulation and exhaustive logic testing
- Multiple system platform
- Multi task - simultaneous cross platform testing
- Automated and unattended testing environment
- Customized comprehensive test documentation and results - HTML, XML, text, etc.

Our customers involved with highly critical applications are extremely demanding when it comes to test their safety system application programs before they are used on line. In addition, the industry standards and authorities stipulate independent testing capability, reliable and reproducible tests, along with trustworthy thorough documentation reports.

Usually these highly demanding requirements are very tedious, manpower and time consuming, and support high costs.



Cape software VP Link Test compiler logic validation tools offers an innovative programmatic solution for testing software application programs without consuming additional resources such as equipment or expertise. VP Link™ solutions are

- **Specific** – matching individual test plan
- **Intuitive** environment – Windows based interface
- **Non-invasive** – no changes in the written software application program
- **Universal** – multiple interface capability to your ESD & SIS: Modbus, Ethernet, Real I/O points, etc.
- **Versatile** – support all technology and brand safety system platform
- **Cost Effective** – no additional hardware I/O points required
- **Independent** - Cape Software offers testing services as a reliable, independent third-party agency.

Using VP Link™ solutions bring you incomparable improvement in your overall system **maintainability** – application programs can be tested periodically at any time during program life cycle. Test scripts can be queued and run **unattended**, and consequently your schedule **flexibility** is increased. Also, test quality is improved and your **6 s** objectives are facilitated. Test process and extensive documentation reports ease **compliance** with software validation standards, IEC 61508, TÜV, etc. Furthermore, management of change is improved and facilitated. Finally, your plant **safety** is increased.

As a result you will experience reductions in many fields such as

- **Start-up time** due to thorough off-line testing of start-up logic.
- **Down time** due to on-going logic testing
- **Factory Acceptance Test Time**
- **Test Errors risk**
- **Equipment Damage risk**
- **Personnel Injury risk**
- **Wasted Product risk**
- **Environmental Release risk**

#### SUPPORTED SYSTEMS

- A-B PLC5/SLC500,CLX, Modicon,Siemens-TI 505
- ABB Mod300, Advant
- Emerson DeltaV,Provox
- ICS Triplex
- Foxboro I/A,Archestra
- GE Fanuc series 90
- Honeywell Experion/PKS, Plantscape,TPS
- Rockwell ProcessLogix
- Honeywell Safety Manager/PKS, FSC
- Siemens QuadLog
- Siemens APACS, PCS7, S7
- Triconex:Tricon/Trident
- Yokogawa 3000/R3/ProSafe *and much more*

#### CUSTOMERS REFERENCES

- Air Products & Chemicals
- BASF
- BP
- Dow Chemicals
- Eastman
- Exxon Mobil
- Honeywell
- Invensys Triconex
- Kerr McGee
- Lubrizol
- Murphy Oil
- Phillips Refining
- Shell *and much more*

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