

SSI new Configurator

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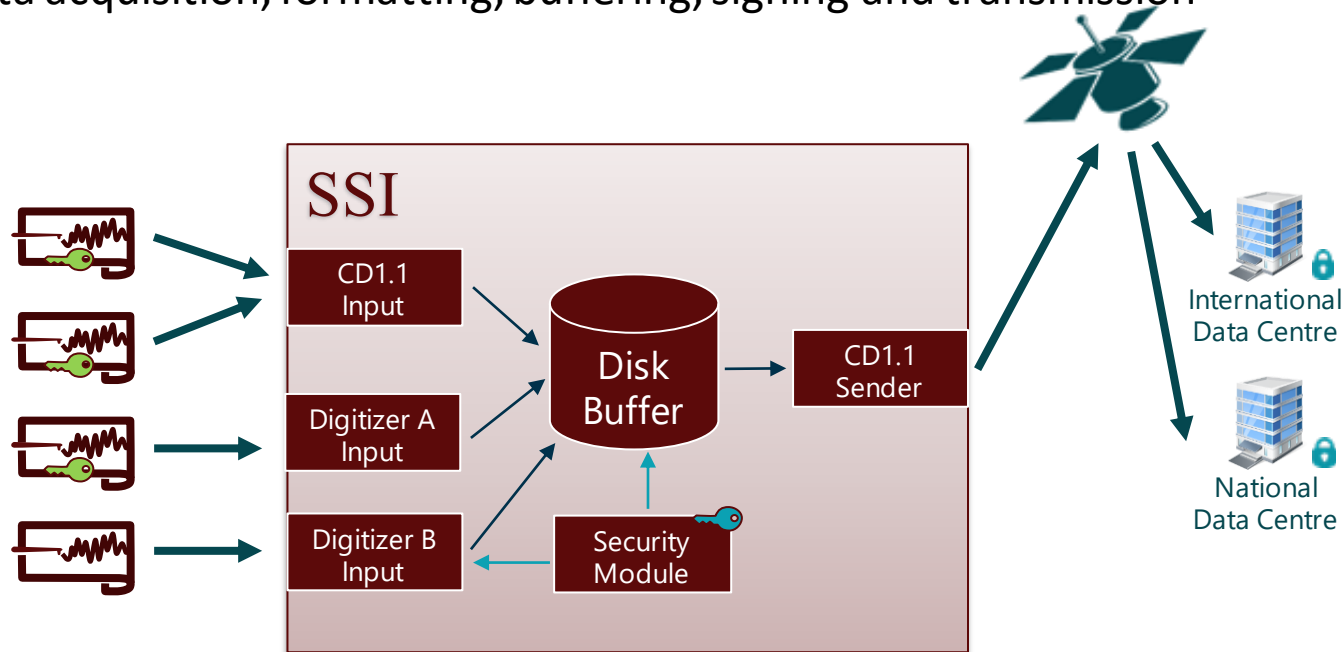
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- SSI: Station Standard Interface SSI is a software system for data acquisition designed and developed by CTBTO with the capacity to integrate a wide variety of equipment
- SSI supports the waveform IMS stations to collect, reformat, buffer, sign and transmit data using IDC formats and protocols
- SSI is used at more than 150 IMS stations in all waveform technologies as well as at several NDCs
- The Web configurator which appears as complex has been the main interface to configure and manage SSI
- A new configurator was then developed to fill the gaps and difficulties of the previous interface and compatible with CTBTO network infrastructure
- This new configurator is a fat client developed in Python running on both Linux and Windows

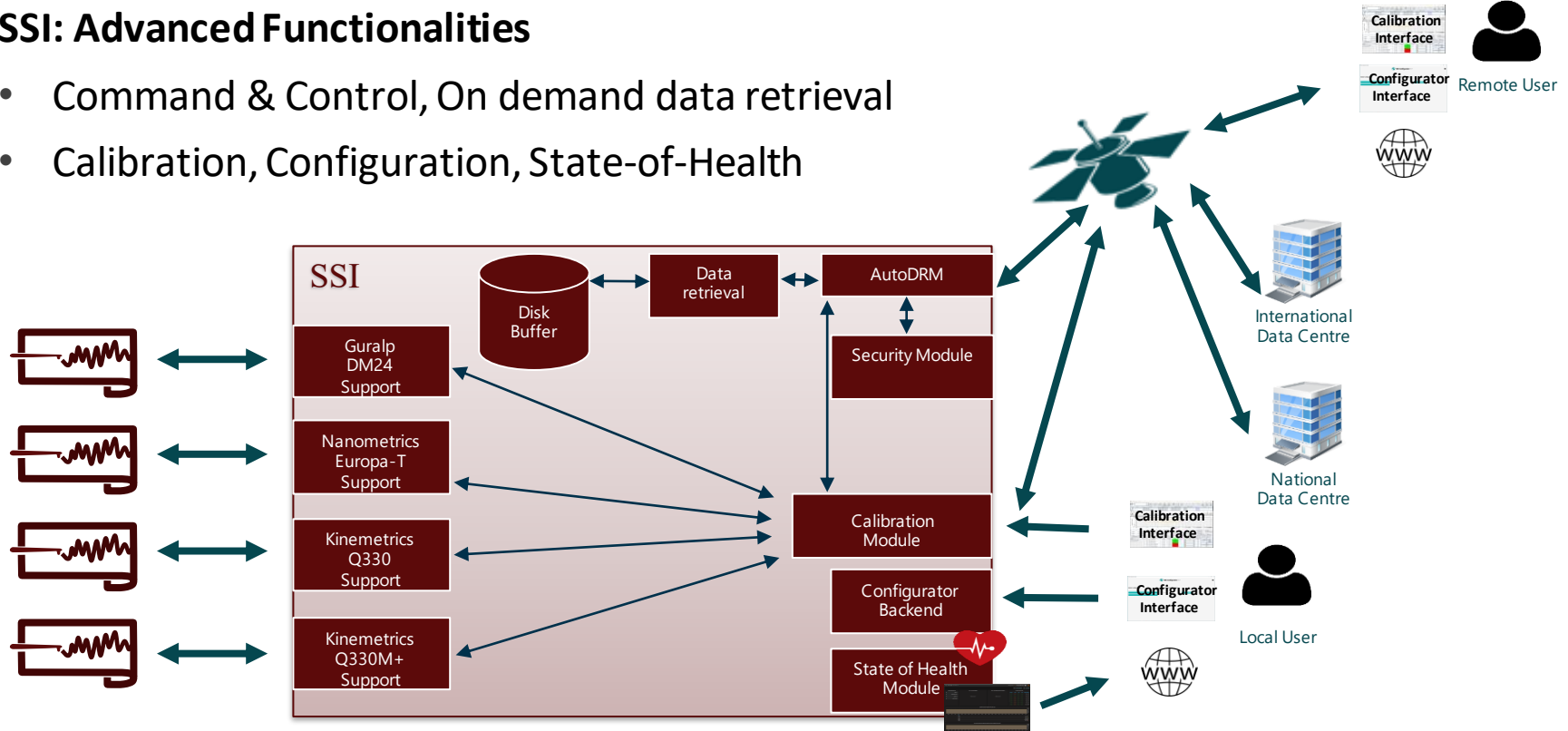
SSI: Basic Functionalities

- Data acquisition, formatting, buffering, signing and transmission



SSI: Advanced Functionalities

- Command & Control, On demand data retrieval
- Calibration, Configuration, State-of-Health

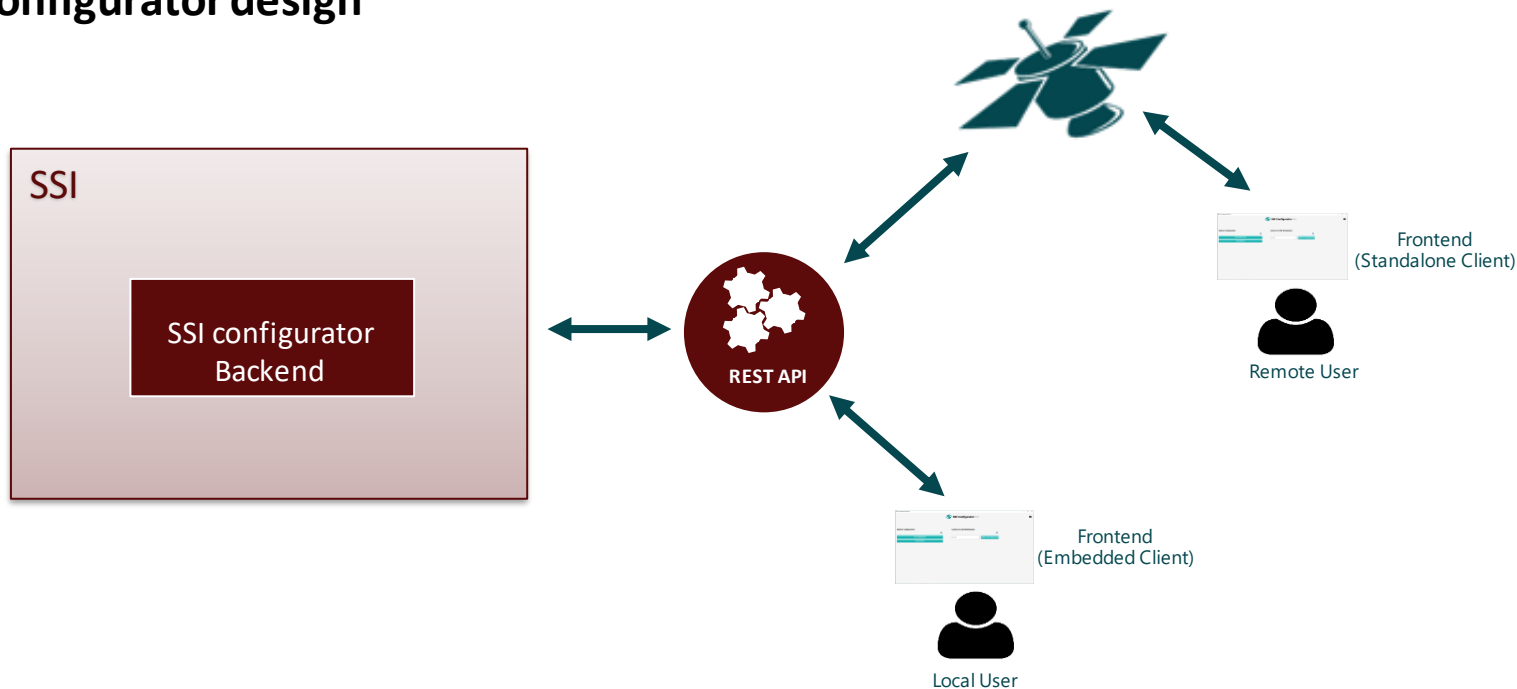


Disclaimer: The views expressed on this poster are those of the author and do not necessarily reflect the view of the CTBTO

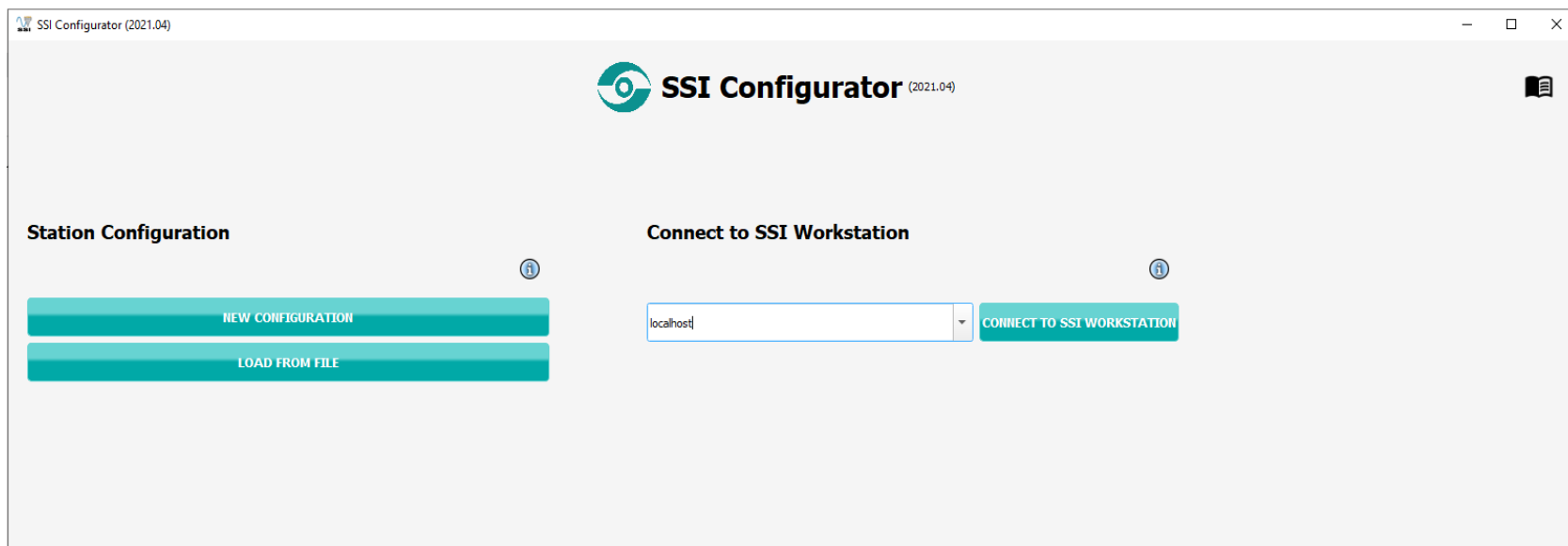
New configurator

- Graphical User Interface (GUI) tool used to configure and manage SSI.
- Replaces the older SSI Web Configurator.
- Improves the overall usability and responsiveness over the GCI bandwidth.
- Consists of a frontend and a backend which exchange data via REST-API
- Uses REST-API technology to not overload GCI and for a smooth user experience.
- Comes with SSI Release 2021.04 and later.
- The frontend is also available as a standalone version for Linux and Windows.
- Can be used on a separate computer to connect remotely to an SSI workstation.
- Tooltips and embedded documentation.

New configurator design

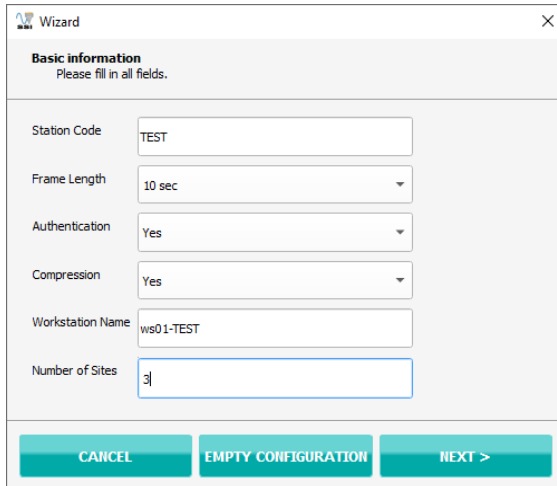


New configurator main page



The Wizard

- Asks for most important parameters.
- These parameters can be changed at a later stage.
- Option to start configuration from scratch.



Wizard

Basic information
Please fill in all fields.

Station Code: TEST

Frame Length: 10 sec

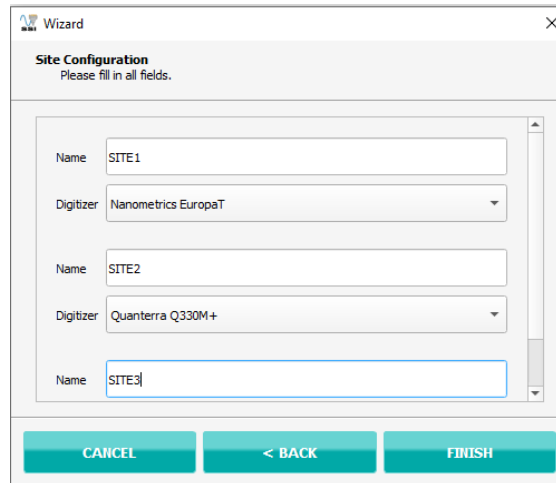
Authentication: Yes

Compression: Yes

Workstation Name: ws01-TEST

Number of Sites: 3

CANCEL EMPTY CONFIGURATION NEXT >



Wizard

Site Configuration
Please fill in all fields.

Name: SITE1
Digitizer: Nanometrics EuropaT

Name: SITE2
Digitizer: Quanterra Q330M+

Name: SITE3

CANCEL < BACK FINISH

Site structure

- Site/Digitizer/Sensor/Channel/Detailed settings.
- Channel's status.
- Advanced parameters.

You are currently in management mode and won't be able to edit. Switch to "Edit Config" to go into edit mode.

Site Station Control Key Management

Site	Digitizer	Sensor	Channel	Id
MMA0B	Quanterra Q330M+	Streckeisen-STS-2.5	BH2	DA 100.0% TDA 100.0% Delay 22.66
			BH1	DA 100.0% TDA 100.0% Delay 22.67
			BH2	DA 100.0% TDA 100.0% Delay 22.68
S2506	GeoTech Smart24	Geotech-KS54000	c1p	DA 100.0% TDA 100.0% Delay 11.09
			c3p	DA 100.0% TDA 100.0% Delay 11.11
			c2p	DA 100.0% TDA 100.0% Delay 11.10
MLR	Quanterra Q330	Streckeisen-STS-2	BH2	DA 100.0% TDA 100.0% Delay 13.61
			XOS	DA - TDA - Delay -

Quanterra Q330M+

Enabled ☒

Digitizer Name: MMA0B

CDevice Port: 8000

Check Data Format: No

Signature Verification: NONE

Strict Mode: No

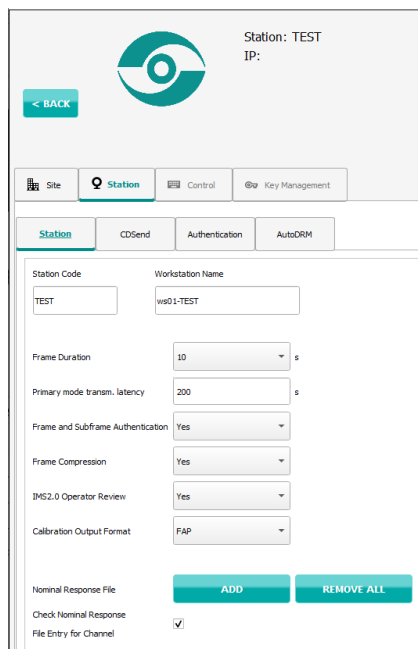
Debug Level: 0

Advanced Parameters

Calibration Parameters

Station parameters

- Station-wide SSI-specific configuration parameters



Station Identity

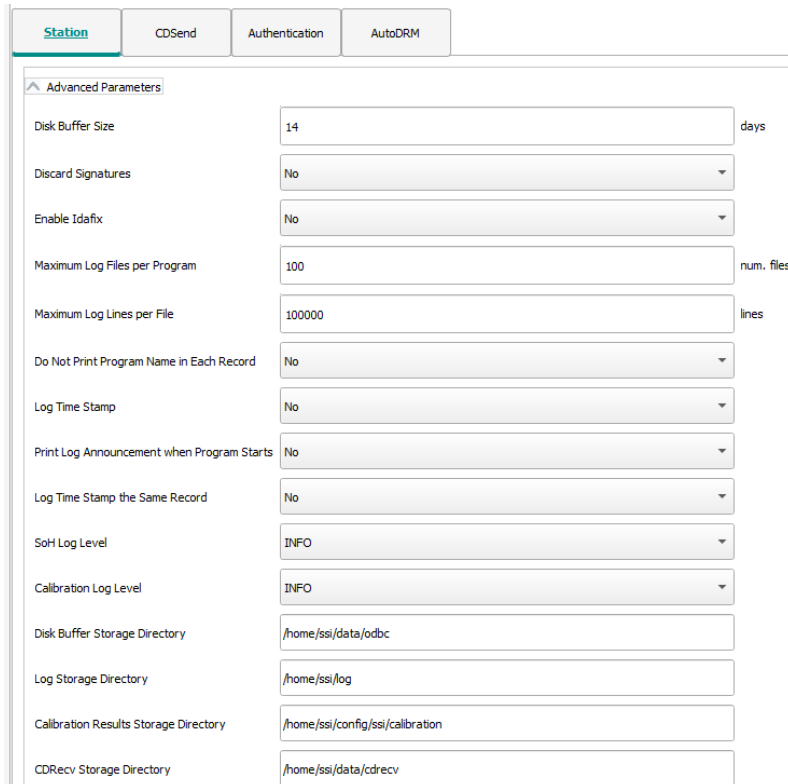
CN=ws01-TEST, L=TEST, OU=Data Authenticators, OU=IMS, O=CTBTO

Locality Name: TEST

Unit1 Name: Data Authenticators

Unit2 Name: IMS

Organization Name: CTBTO



Calibration configuration

- Calibration parameters specific to Digitizer/Sensor/Channels
- Add or remove calibration nominal response file

Calibration Parameters

Force Read	No
Host Address	127.0.0.1
Comm. Timeout	120
Read Start Period	60
Read End Period	600
Read Retry Period	10
Send Retry Count	0
Send Retry Interval	0
t_delay	0.00
t_on/t_settle	200.00
t_ramp	0.05
t_trailer	200.00
Default Pulse Width (random)	100

Sensor

Basic Settings

Sensor Model	Guralp-CMG-3TB
Serial No	XX-XX-XX-XX

Calibration Settings

Sensor Group	
Input Channel	DEFAULT
Input Gain Before Monitor	1.00
Input Gain After Monitor	1.00
Sensor Type	velocity
Coil Constant (X(all) Chan: B-HV, B-HC	1129.65 V/m/s ²
Coil Constant (Y) Chan: B-HE	1145.97 V/m/s ²
Coil Constant (Z) Chan: B-HZ	1338.24 V/m/s ²

Calibration Settings

Digitizer Sensitivity	3458490.57
Channel Mask Calculated value: 1	DEFAULT
Control Mask	DEFAULT
RMS Threshold for Fitted PAZ	10.00
Use FIR Values in Response?	No
Sensor Index	DEFAULT
Default Amplitude for Random Calibrations	10.00
Default Amplitude for Sine Calibrations	10.00
Default Amplitude for Step Calibrations	10.00

Data signing

- Clear step by step process
- Automatically retrieve certificate from PTS
- Automatically update PTS CRLs

CA Management
Data Signing
Initialize Token

Step 1:

- New Keypair
- Cert Signing Request

STEP 1

Step 2:

- Upload Cert

STEP 2

List of keys on the token

Index	State	Type	Usage	Creation date	Actions
1	Active	ECC-256	SSI	2020-11-27 18:14:23	<p>GET KEY</p> <p>GET CERT</p> <p>REQUEST</p> <p>DEACTIVATE</p>

Label: Spyns-Cent8

Cert Subject: L=CENT8, O=CTBTO, OU=Data Authenticators, OU=IMS, CN=WS01-CENT8

Cert Issuer: O=CTBTO, OU=IMS, OU=Test PKI, CN=Test CA

Cert Serial: 25

Step 2: Deploy Station Certificate
(after CTBTO has issued the certificate)

Configured Station Identity: CN=WS01-CENT8 L=CENT8 OU=Data Authenticators OU=IMS O=CTBTO

Configured Key Usage: SSI

Activate Certificate after deployment: ☐

Option 1: Automatically retrieve certificate from CTBTO
(from LDAP server)

RETRIEVE CERT AND DEPLOY

Option 2: Choose certificate from file

CHOOSE FILE

DEPLOY FILE

- Intuitive and user-friendly configurator adapted to the limited GCI bandwidth
- Simplify complex tasks for SO (calibration, authentication, ...)
- Load, save and archive the whole SSI configuration
- Simplify configuration process (good defaults, auto-config, drop-down list)
- Powerful tool for beginners and advanced users
- Configuration validator for less error prone