The TTEthernet development suite TTETools enables the seamless design, configuration, and data loading of TTEthernet-based networks. The set of tools is built around open, layered XML databases. The TTETools capture system-level communication requirements and automatically generate network and device configuration files, thus enabling the seamless integration with existing design processes. The TTETools development suite consists of the software tools TTEPlan, TTEBuild Network Configuration, TTEBuild Device Configuration and TTELoad. The TTETools come with Eclipse™-based GUI editors.

**KEY FEATURES/BENEFITS**

- Modeling of real-time communication requirements
- Modeling of network and topology
- Support for manual and automated design steps
- Based on open XML databases for flexible exchange with third-party tools
- Specialized editors for each design step
- Command line interface for scripting purposes

The TTETools development suite comprises:

- **TTEPlan** – The TTEthernet/AFDX® network design tool
- **TTEBuild Network Configuration** – The network configuration generation tool
- **TTEBuild Device Configuration** – The device configuration generation tool
- **TTELoad** – For downloading configuration files to switches

The figure below presents the data flow for configuring a network.

The TTETools use the following databases. All of them are implemented using the open XML standard.

**TTEPlan Network Description Database**

- Describes the high-level communication requirements for the system, e.g., physical and logical topology.
- Describes the Virtual Links (VLs), including their IDs, timing requirements, and possible frame sizes.
- Describes synchronization parameters and requirements, e.g., the SAE AS 6802 clock.

**TTEBuild Network Configuration Database**

- Implemented as a set of XML files.
- Contains the network schedule calculated by TTEPlan.
- The network configuration is hardware independent. It describes all details necessary to configure a network, including schedules, port assignments, and the buffer allocation for all devices in the network.
- Parts of or the entire network configuration may be created and/or modified by third-party tools.

**TTEBuild Device Configuration Database**

- One device configuration per device (switch or end system).
- The device configuration is available in both XML (for human readability) and different image formats (for direct download to the device).
- The device configuration is device-specific and describes every configuration parameter at bit level. Fine-tuning of configuration parameters is possible at this level.

**Verification Reports**

- Several reports show the results of the internal checking functions of the TTETools.
- The reports are generated in HTML format for easy readability.
Eclipse Integration

TTTech provides Eclipse plug-ins for TTEPlan and TTEBuild. With editors for all TTETools databases, as well as a schedule visualization feature, Eclipse then provides a convenient user interface for most TTETools use cases. Basic database validation and generation of validation reports is also possible from within Eclipse.