

# LIN Description File (LDF)

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The configuration of the Local Interconnect Network (LIN) network cluster, i.e. the specification of:

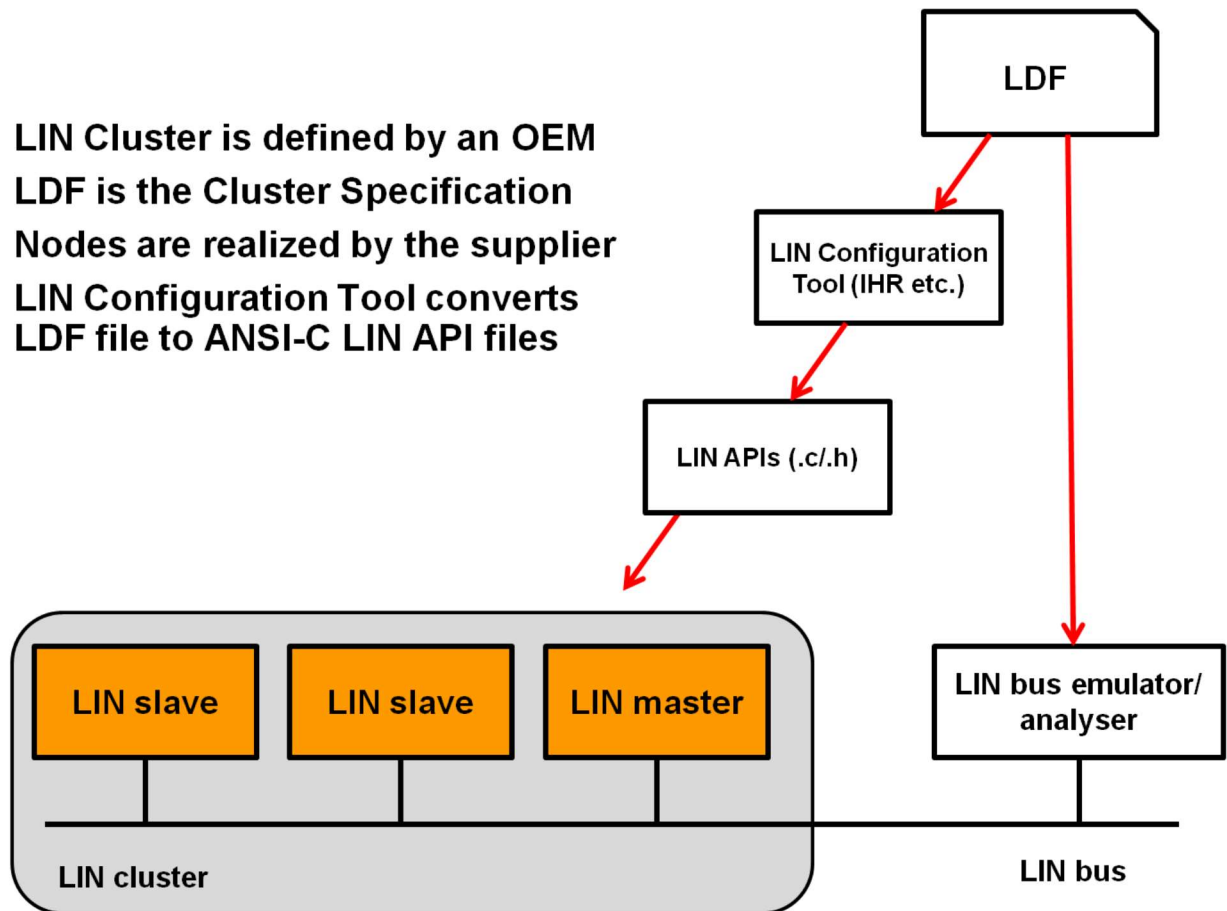
- Network publishers and subscribers
- Signals
- Frames

is managed in the LIN Description File (LDF). This is an ASCII-text file created by the network designer and provided to vendors who will be developing LIN Master/Slave node hardware/software.

From the LDF, ANSI-C driver code and header files are automatically generated using suitable tools, such as the IHR LIN Driver Configuration Tool (<https://www.ihr.de/index.php/en/88-produkte/lin-software-solutions/139-englisch>).

## Basic Workflow

- **LIN Cluster is defined by an OEM**
- **LDF is the Cluster Specification**
- **Nodes are realized by the supplier**
- **LIN Configuration Tool converts LDF file to ANSI-C LIN API files**



(//local--files/lin:workflow/lin-workflow.png)

## LDF

- Defined by consortium.
- Global description language:
  - One single file describes a complete LIN network.
  - Universal file for embedded software, test, validation, and analysis tools.
- Defines cluster information:
  - Protocol Version.
  - Language Version.
  - Bus Speed.
  - Node List.
  - Signals.
  - Frames.
  - Schedule Tables.

## LDF Header Section

- **Protocol version**
- **Language version**
- **Bus speed**
- **Nodes**
  - Master
    - **Node name**
    - **Timer base**
    - **Jitter**
  - Slave
    - **Involved nodes**



```
...  
  
LIN_description_file;  
LIN_protocol_version = "2.0";  
LIN_language_version = "2.0";  
LIN_speed = 10.4 Kbps;  
  
Nodes {  
    Master : Master, 10 ms, 0.1 ms;  
    Slaves : Slave1;  
}
```

(/local--files/lin:protocol-app-ldf/ldf-header.png)

## LDF Signal Definition Section

LDF Signals (/lin:protocol-dll-signals)

- **Signal name**
  - Unique names
- **Signal size**
  - Bit (0..7)
  - Byte (8)
  - Integer (16)
  - Array (16..64)
- **Initial Value**
  - After POR
- **Publisher**
  - Who sends the Response
  - Only one node
- **Subscriber**
  - Who read the Response
  - Multiple nodes possible
    - Inter slave operatibility

```

...

Signals{
    UP      : 1, 0, Master, Slave1;
    DOWN    : 1, 0, Master, Slave1;
    Window_error : 8, 0, Slave1, Master;
    WindowLiftStatus : 8, 0, Slave1, Master;
    WindowPanelInfo : 8, 0, Slave1, Master;
    WindowBusInfo  : 8, 0, Slave1, Master;
}

```

(//local--files/lin:protocol-app-ldf/ldf-signals.png)

## LDF Frame Definition Section

LDF Frames (/lin:protocol-dll-frame-types)

- **Frame name**

- Unique names

- **Identifier**

- Unprotected
- 0 to 64 integer

- **Publisher**

- Answers to this identifier

- **Response length**

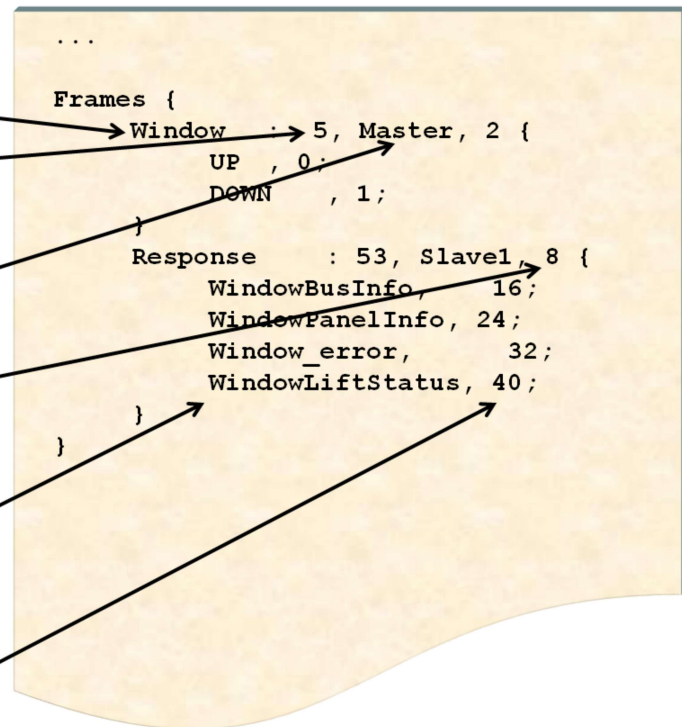
- Checksum byte excluded
- Max data response 8 bytes

- **Signals in Response**

- Defined in section „Signals“

- **Offset**

- Bit position where signal starts in response



(/local--files/lin:protocol-app-ldf/ldf-frames.png)

## Further Reading

A detailed description of the LIN Configuration Language is provided in Section 9 of the LIN v2.2A Specification (/local--files/lin:specification/LIN-Spec\_2.2\_Rev\_A.PDF).