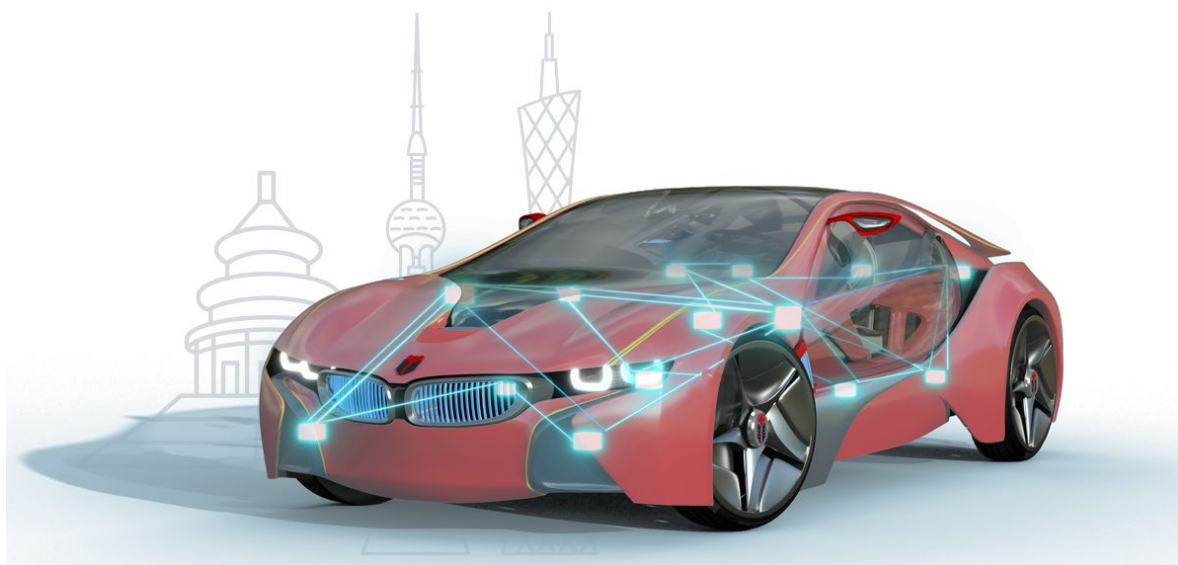


知从木牛配置工具 DBC 导入及配置 ZC.MUNIU DBC IMPORT AND CONFIGURATION

知从木牛基础软件平台
ZC.MuNiu Basic Software Platform



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1 概述 OVERVIEW

知从木牛配置工具支持导入 DBC 文件并生成通信模块的功能。DBC (Database CAN) 文件是描述 CAN 网络信号的标准格式，包含信号标识符、数据类型、长度、单位及其关系。这一功能很大程度上提高了基于 AUTOSAR 架构的通信系统的开发效率。

The ZC.MuNiu supports the function of importing DBC files and generating communication modules. DBC (Database CAN) file is a standard format for describing CAN network signals, including signal identifiers, data types, lengths, units, and their relationships. This feature greatly improves the development efficiency of communication systems based on AUTOSAR architecture.

用户可以直接将 DBC 文件导入知从木牛配置工具。工具内置高效的解析引擎，能够快速提取信号及消息定义，并将其转换为 AUTOSAR 标准的通信模块。这些模块符合 AUTOSAR 规范，支持基础软件 (BSW) 组件的配置，确保与 AUTOSAR 的互操作性。此外，生成的模块允许用户在可视化界面中对信号参数进行实时调整，提升了系统配置的灵活性。

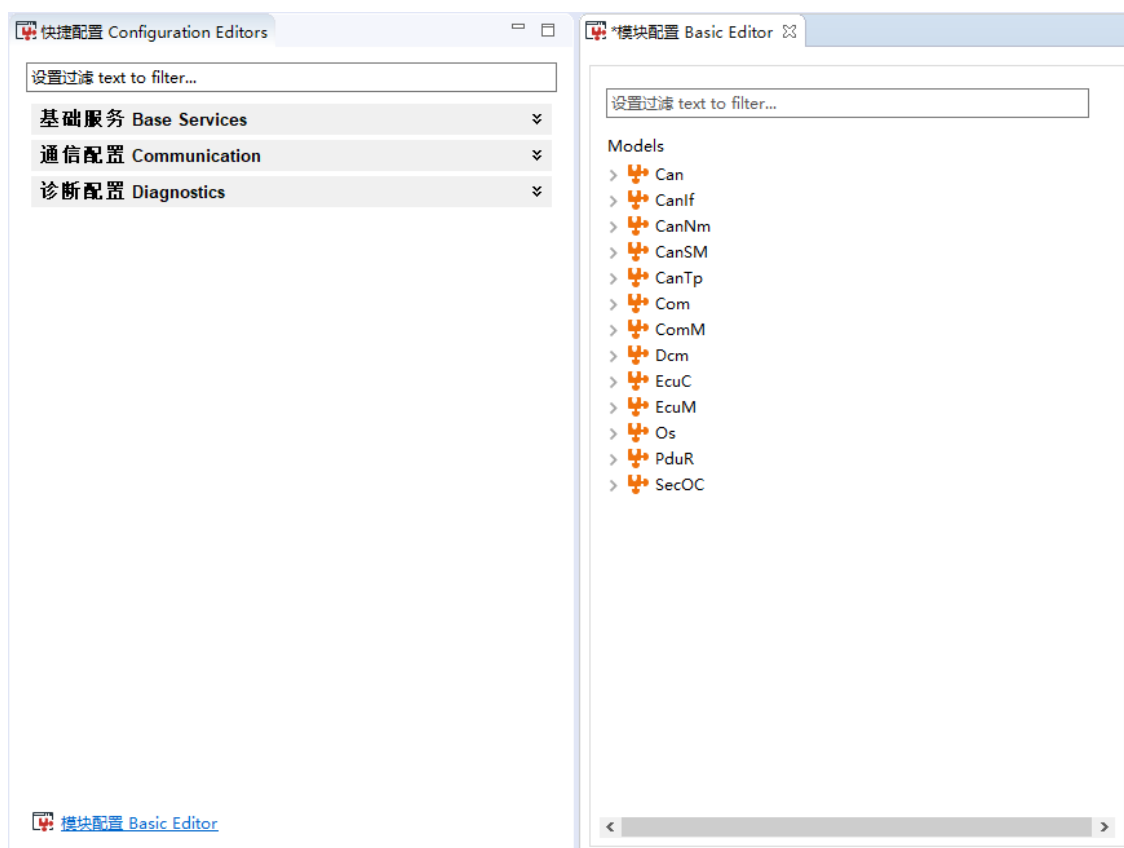
Users can directly import DBC files into the ZC.MuNiu. The tool is equipped with an efficient parsing engine that can quickly extract signals and message definitions, and convert them into AUTOSAR standard communication modules. These modules comply with the AUTOSAR specification, support the configuration of Basic Software (BSW) components, and ensure interoperability with AUTOSAR. In addition, the generated module allows users to make real-time adjustments to signal parameters in a visual interface, enhancing the flexibility of system configuration.

市面上大多数工具能够通过导入 DBC (Database CAN) 文件生成通信相关的模块，但这些工具往往无法导入全部的报文已经完整的链路关系。知从木牛配置工具不仅能够生成通信相关的模块如 COM, PduR, Canif, CanSM, COMM 等模块，还能从 DBC 中完整解析如 SecOC、DCM、CANNm 等模块，极大地拓展了功能覆盖面，提升了开发效率。

Most tools on the market can generate communication related modules by importing DBC (Database CAN) files, but these tools often cannot import all messages with complete link relationships. ZC.MuNiu is not only capable of generating communication related modules such as COM, PduR, Canif, CanSM, COMM, etc., but also can fully parse modules such as SecOC, DCM, CANNm, etc. from DBC, greatly expanding its functional coverage and improving development efficiency.

导入 DBC 文件后生成的模块如图：

The module generated after importing the DBC file is shown in the figure:



2 导入 DBC 步骤 IMPORT DBC STEPS

知从木牛配置工具支持导入 DBC 文件，用户需选择导入的节点和配置通道。导入后，工具会自动配置部分通信模块，其余信息需用户手动完成，具体步骤如下：

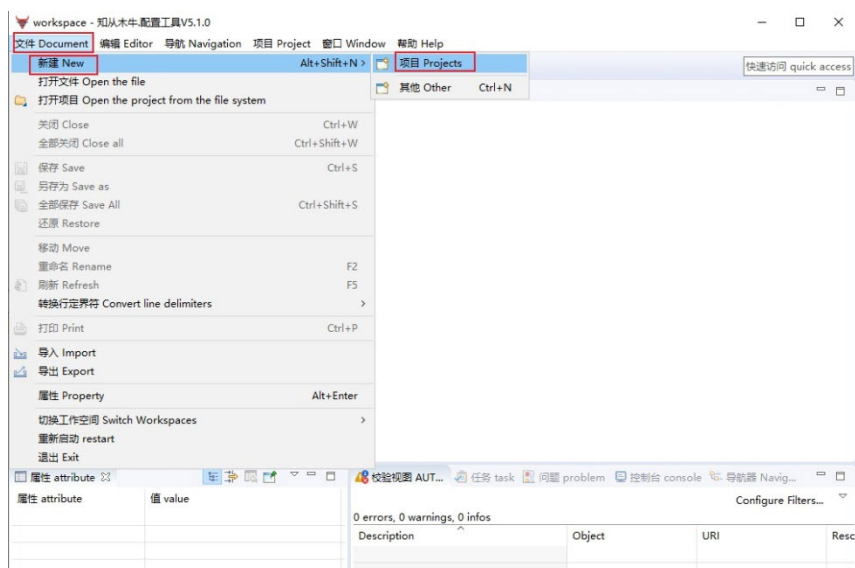
ZC.MuNiu supports importing DBC files, and users need to select the node and configuration channel to import. After import, the tool will automatically configure some communication modules, and the remaining information needs to be manually completed by the user. The specific steps are as follows:

➤ 工具操作流程 Tool operation process

1 新建工程 New construction project

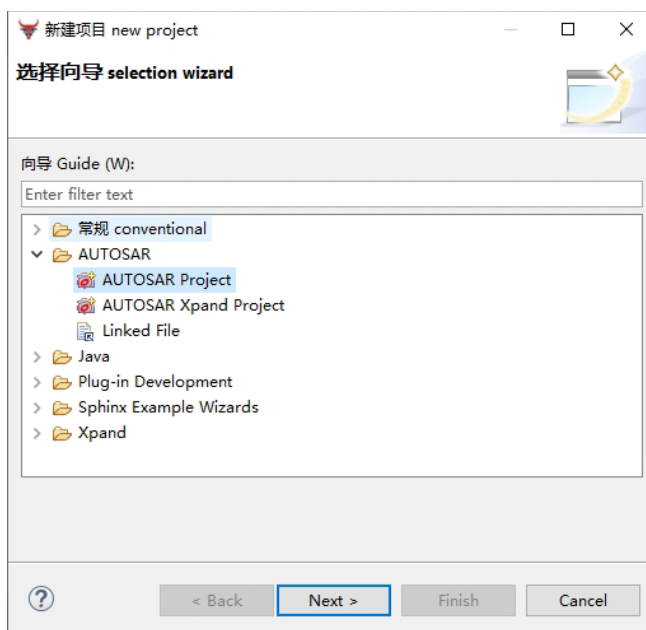
1.1 在木牛工具主页面的菜单中依次选择 File->New->Project

Select File ->New ->Project from the menu on the main page of the ZC.MuNiu Configuration Tool



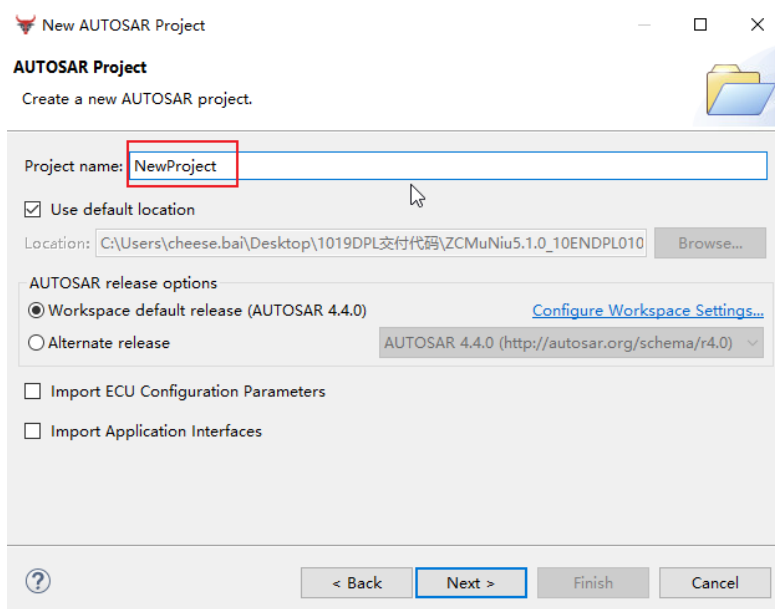
1.2 在弹出的 Project 窗口中依次选择 AUTOSAR->AUTOSAR Project, 并点击 Next

Select AUTOSAR ->AUTOSAR Project in the pop-up Project window and click Next



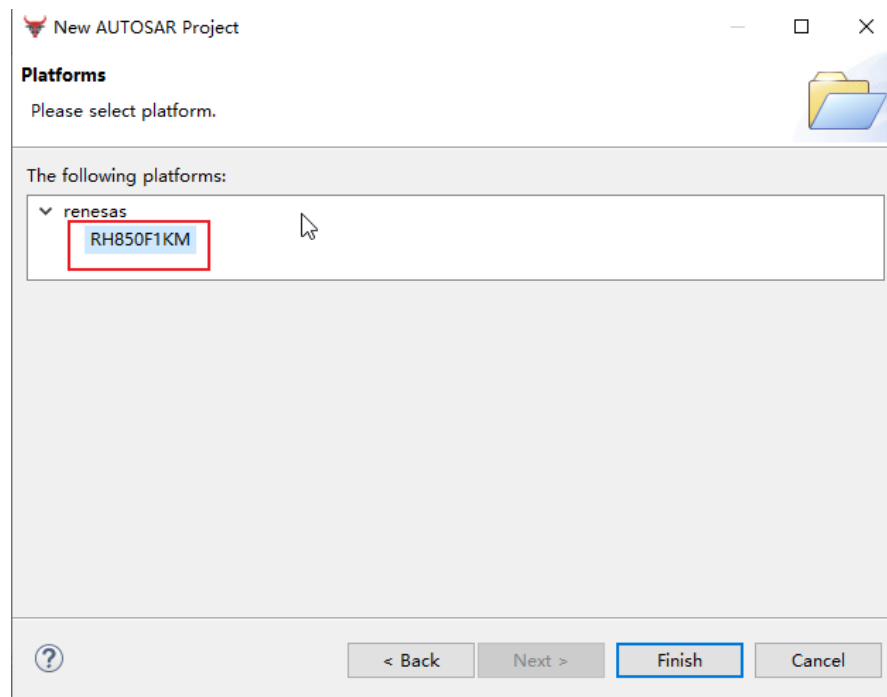
1.3 在下一步的窗口中给工程命名并点击 Next, 图中以名称 NewProject 为例

Name the project in this window and click Next, using the name NewProject as an example in the figure



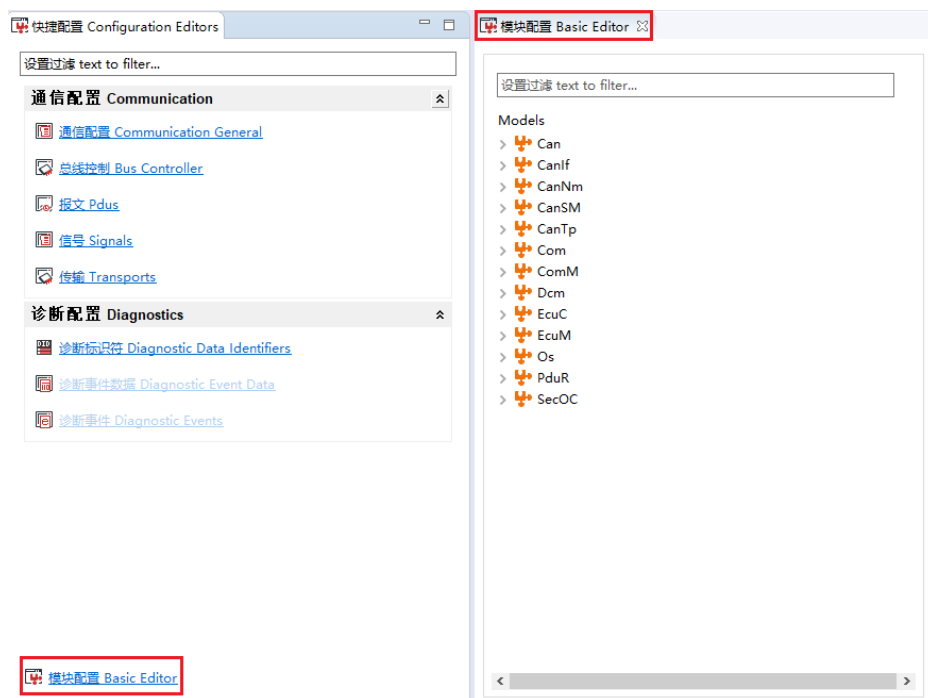
1.4 在下一步的窗口中选择项目对应的芯片，点击 Finish，工程创建完毕

Select the chip corresponding to the project in this window, click Finish, and the project creation is complete

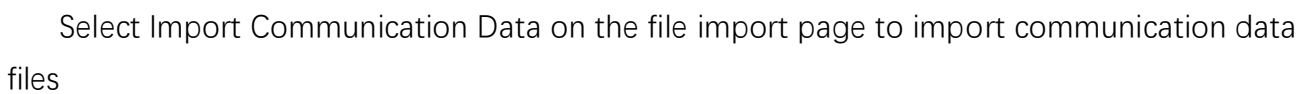


1.5 新建好工程后，先点击左下角的 Basic Editor 按钮打开模块基础配置页面

After creating a new project, click the Basic Editor button in the bottom left corner to open the module basic configuration page

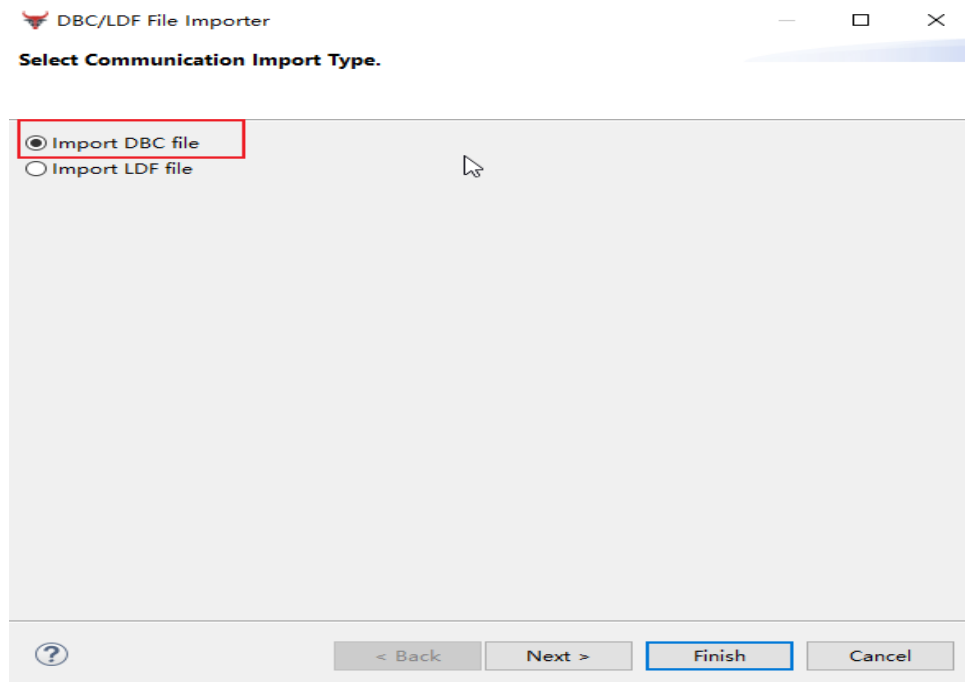


Then click the Input File button in the menu bar to enter the file import page



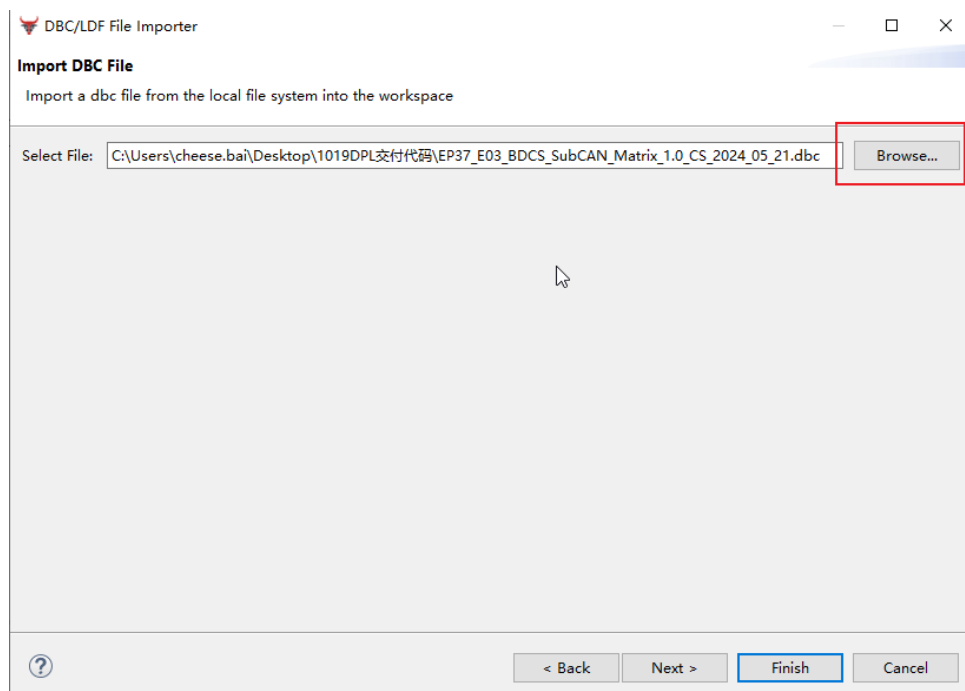
1.8 在导入通信数据文件窗口中选择导入 DBC 文件，并点击 Next

Select Import DBC file in the Import Communication Data File window and click Next



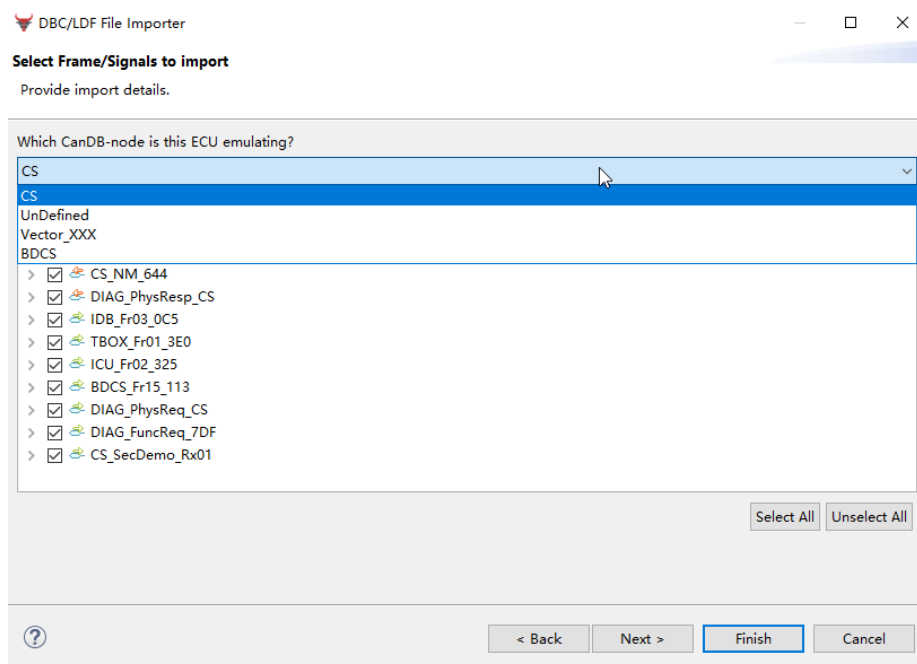
1.9 在这个页面进入文件浏览器选择要导入的 DBC 文件，选好后点击 Next

On this page, enter the file browser and select the DBC file to import. After selecting it, click Next



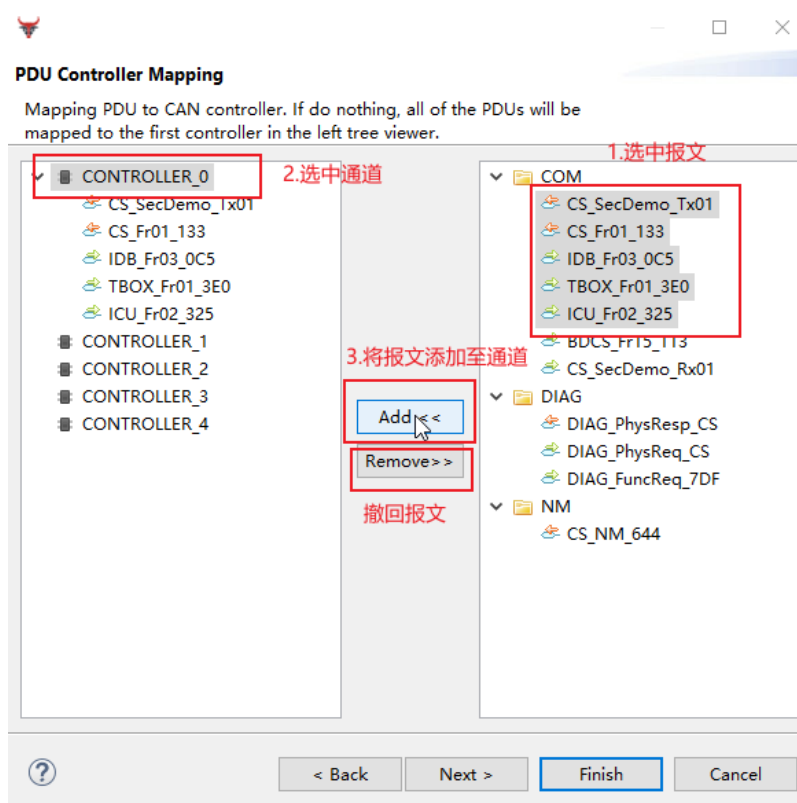
1.10 选择要导入的节点和信号，选好后点击 Next

Select the nodes and signals to import, then click Next



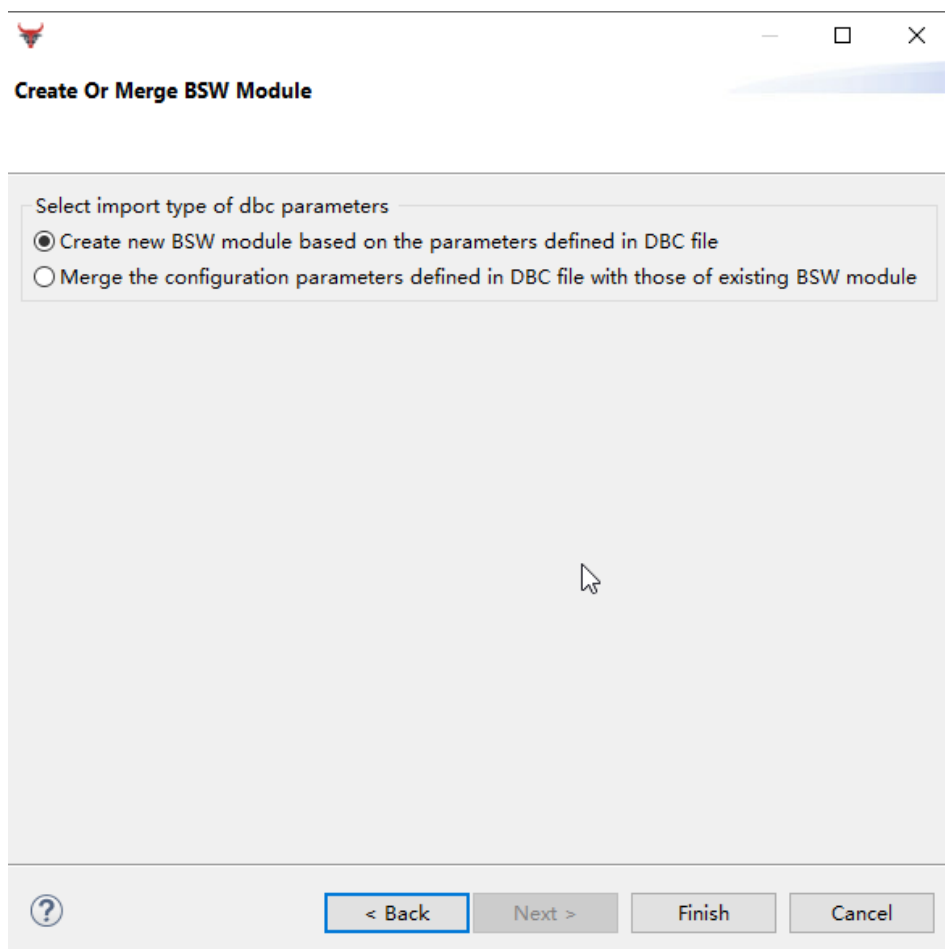
1.11 将需要导入的报文添加到对应的通道中，添加好后点击 Next

Add the message that needs to be imported to the corresponding channel, and click Next after adding it



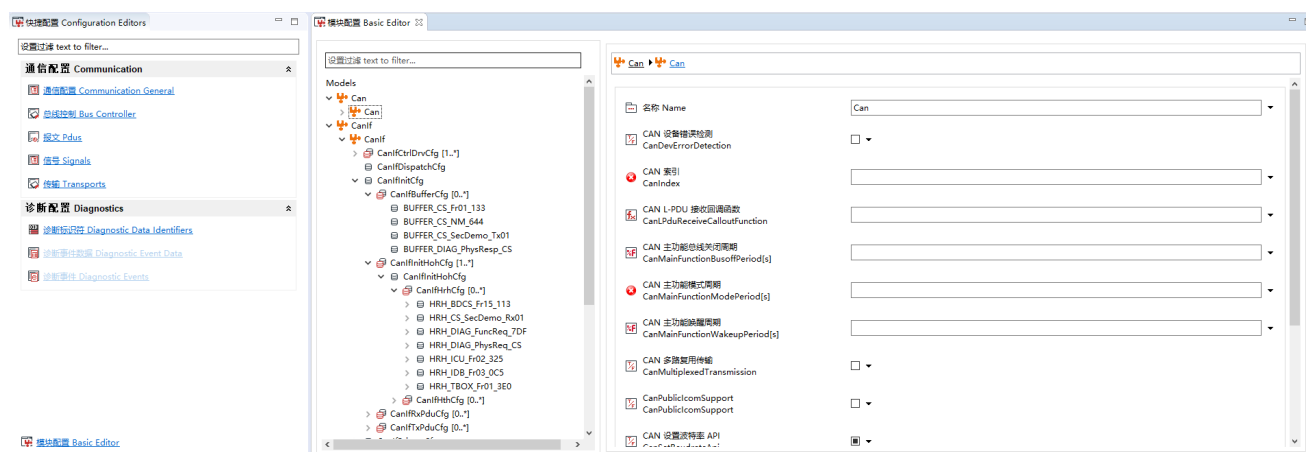
1.12 在初次导入 DBC 时选择第一个选项创建配置项，后续需要新增报文二次导入 DBC 时选择第二个选项，选择好后点击 Finish 完成导入

Select the first option to create a configuration item when importing DBC for the first time, and select the second option when importing new messages into DBC for the second time. After selecting, click Finish to complete the import



1.13 导入 DBC 后，再次启动 Basic Editor，可看到通信模块数据已配置完毕

After importing DBC, start Basic Editor again and you will see that the communication module data has been configured



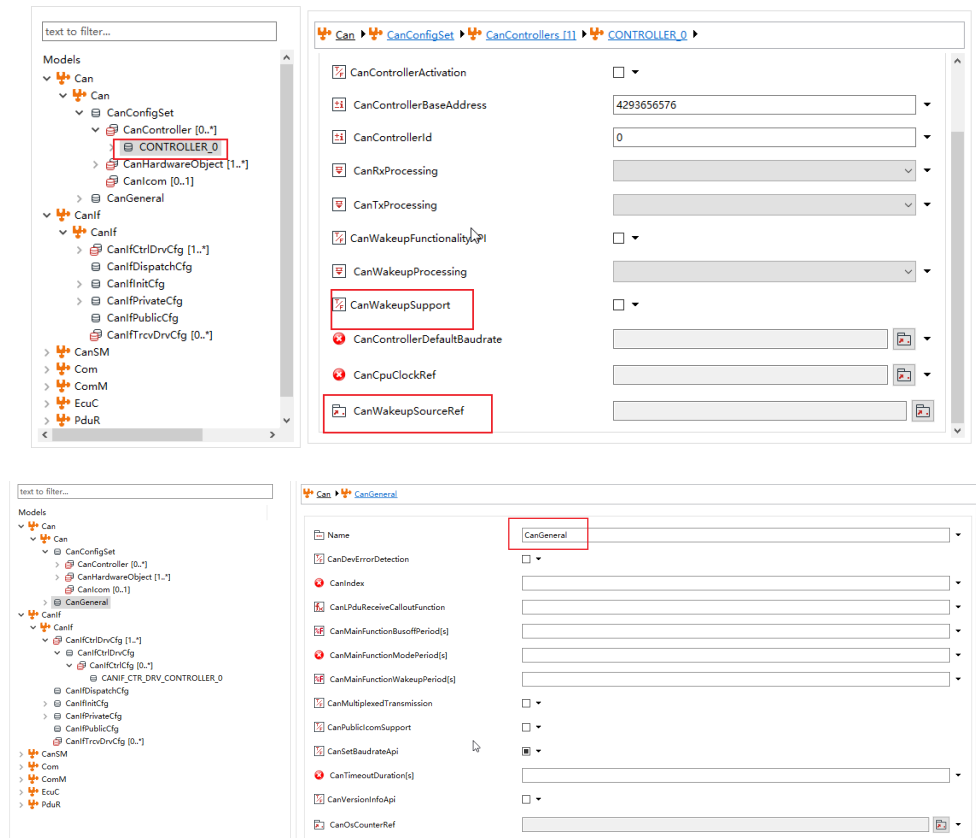
2 导入后模块的手动配置项

Manual configuration items for imported modules after importing DBC files

2.1 CAN 模块 CAN module:

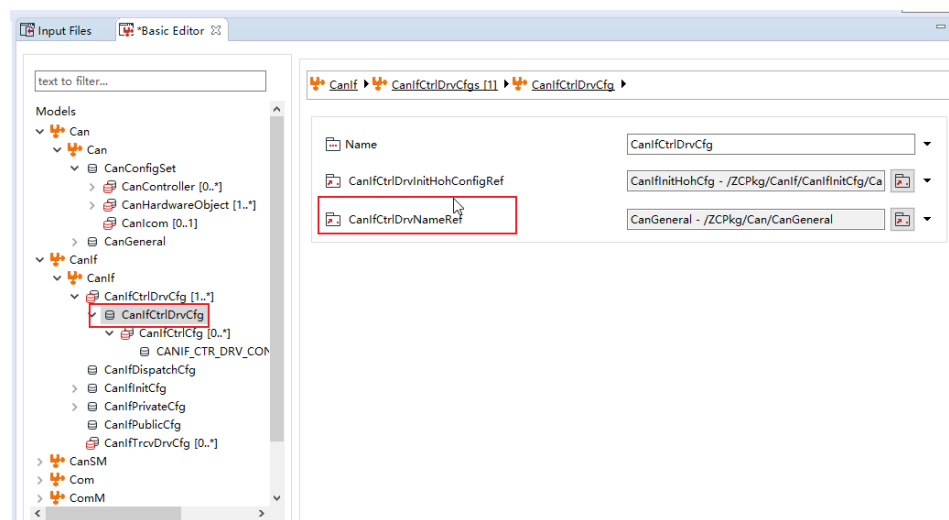
手动配置项如图

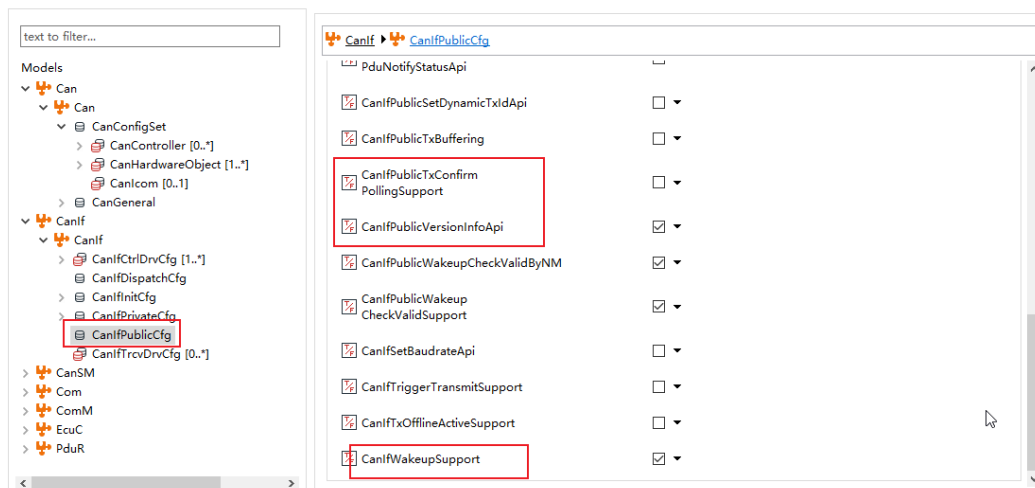
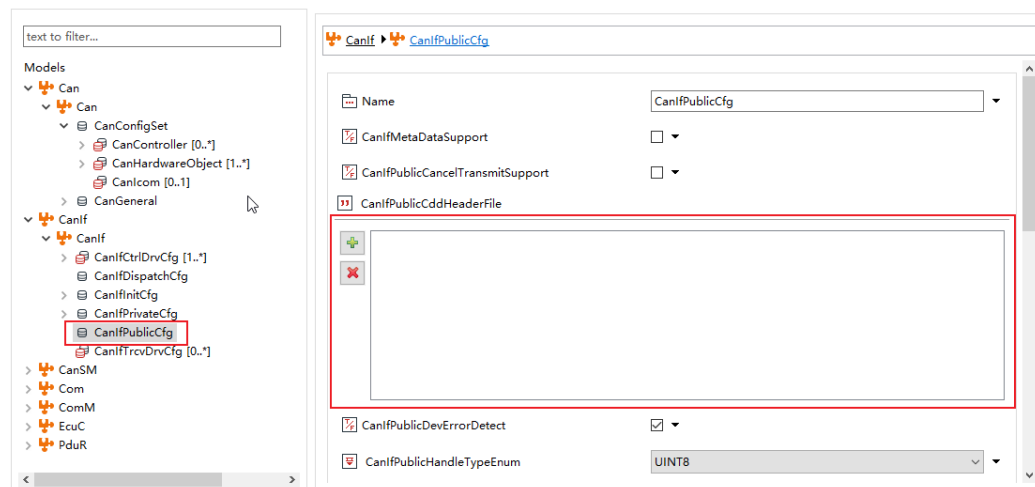
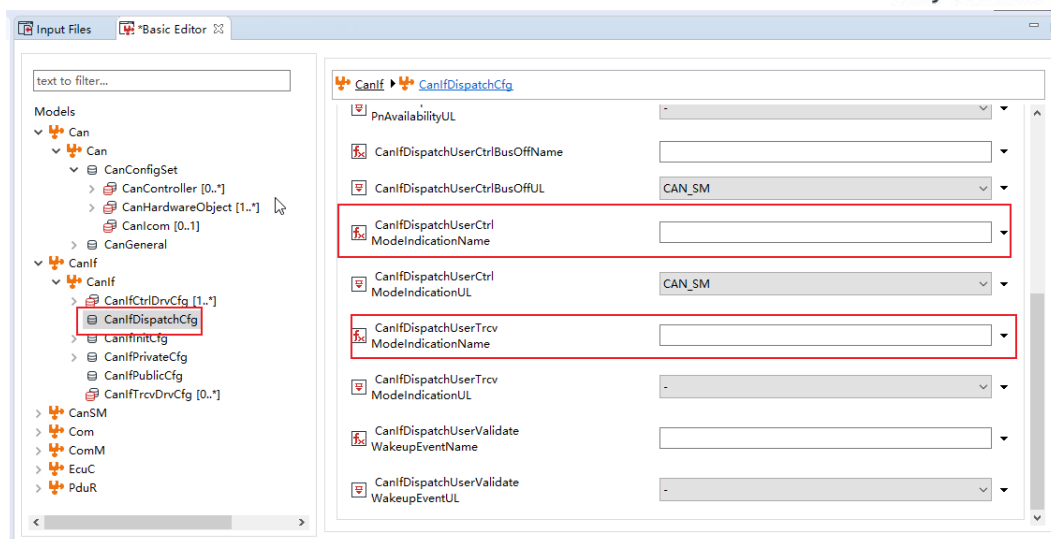
Manual configuration items as shown in the figure



2.2 CANIF 模块：手动配置项如图

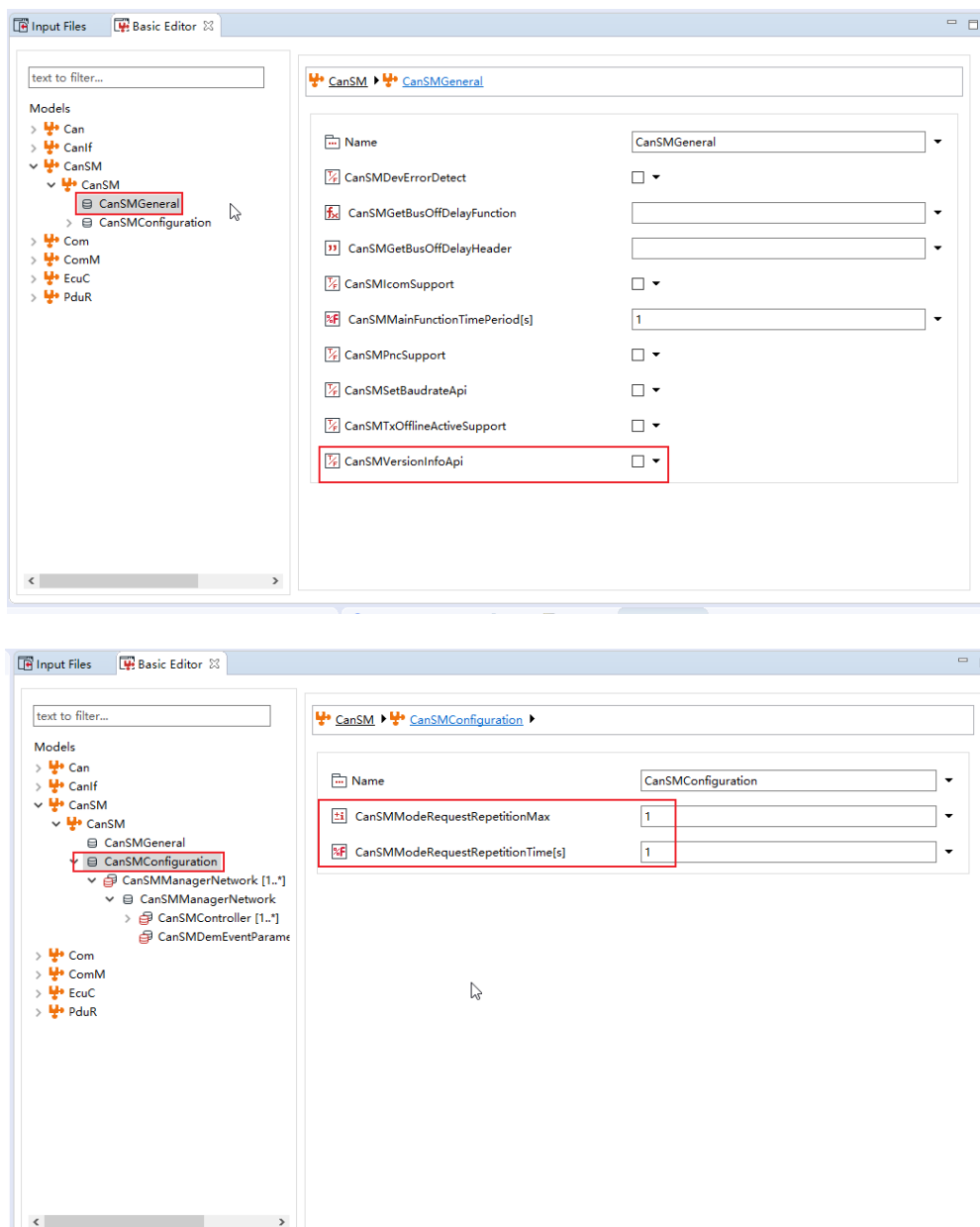
CANIF module: manual configuration items as shown in the figure

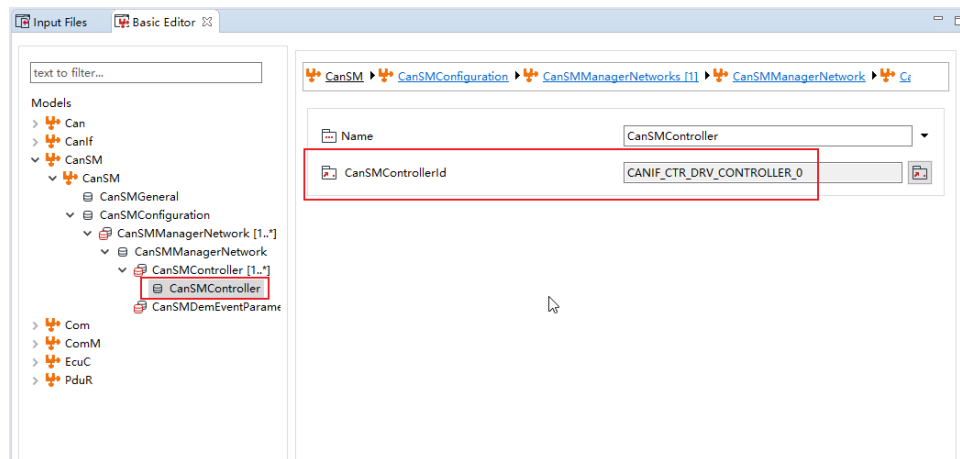
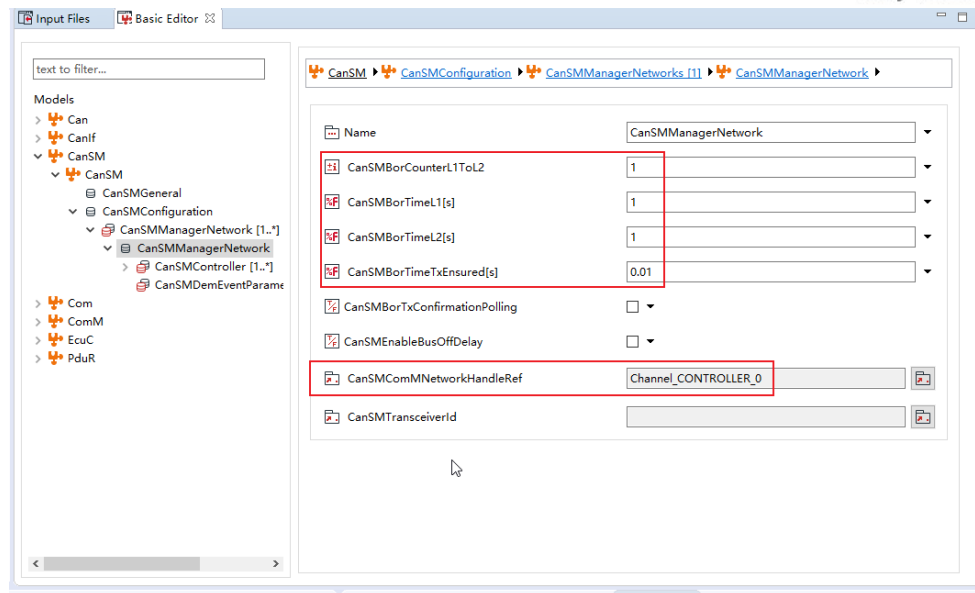




2.3 CANSM 模块：手动配置项如图

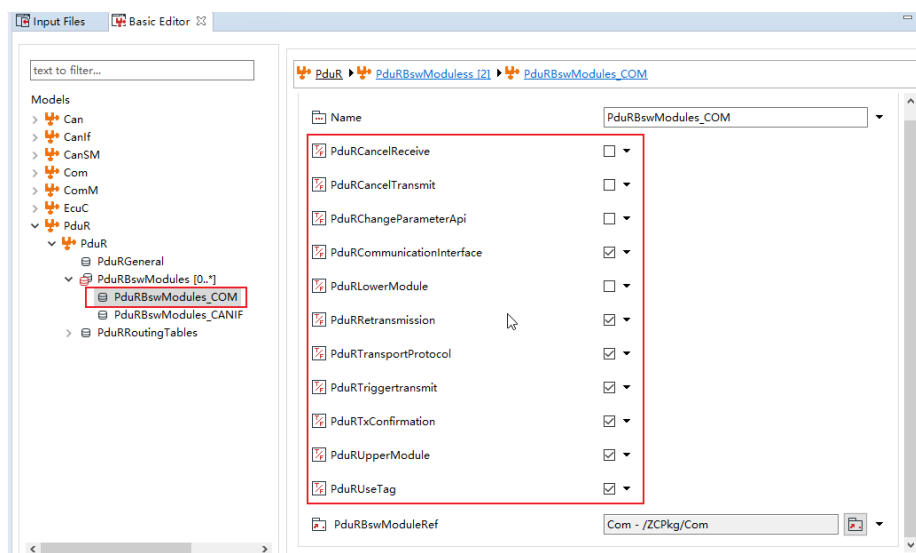
CANSM module: manual configuration items as shown in the figure





2.4 PDUR 模块 PDUR module:

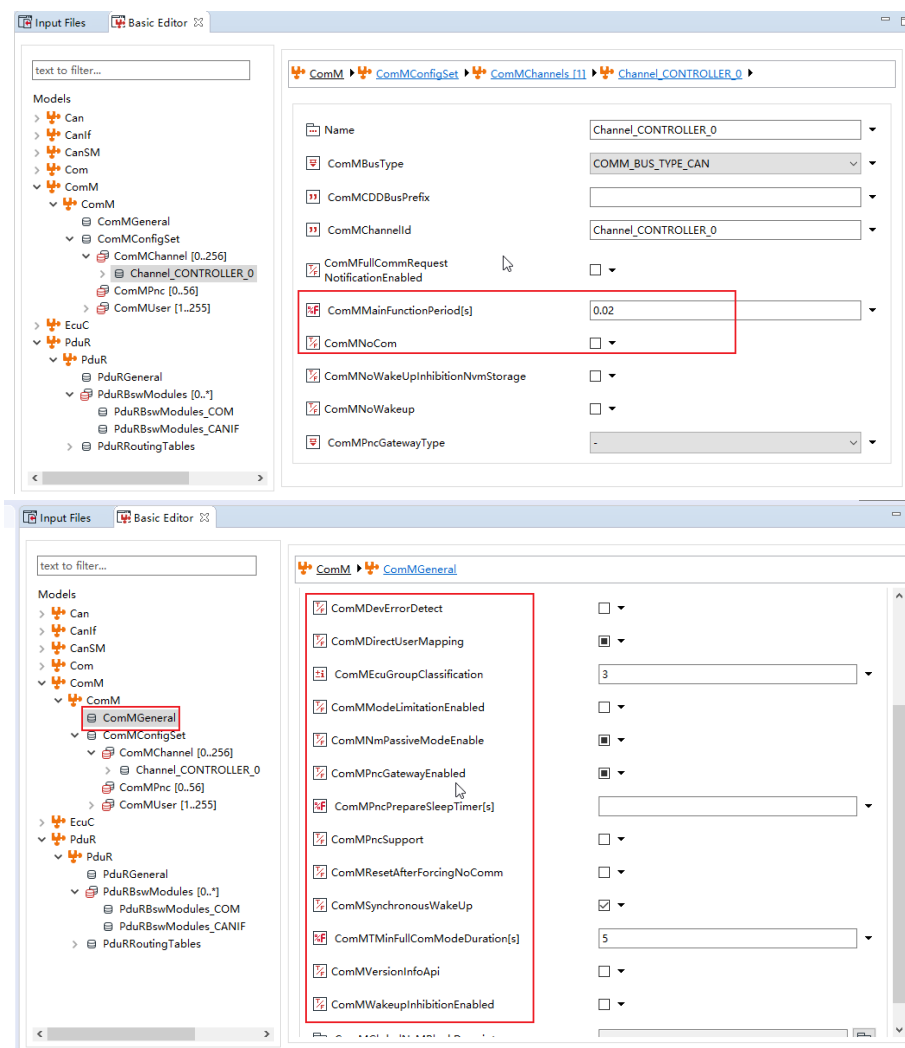
对于 PDUR 模块，根据需求手动修改 PduRbSwModules 中每个模块的开关
For the PDUR module, it is necessary to manually modify the switches of each module in PduRbSwModules according to the requirements



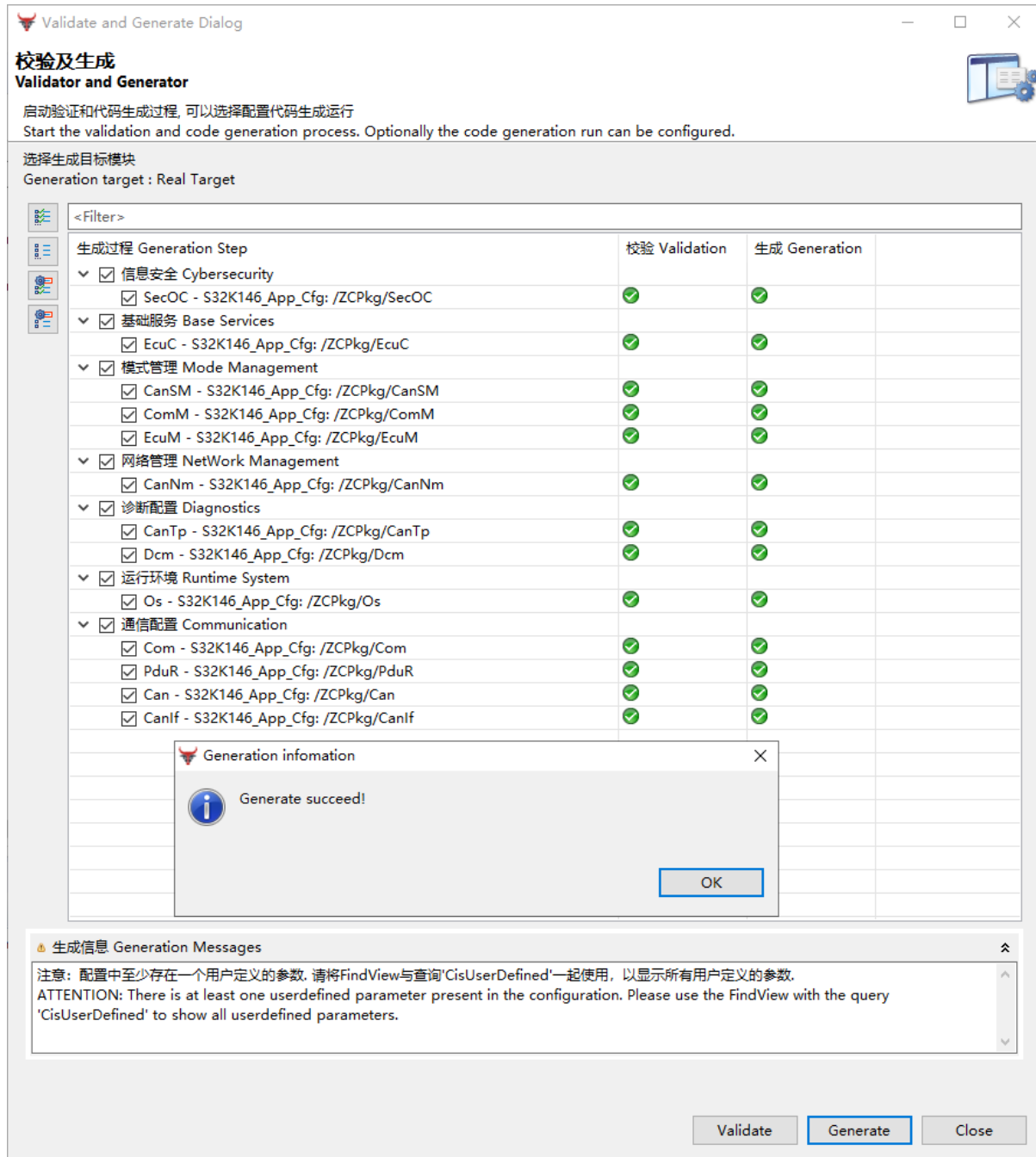
2.5 COMM 模块 COMM module:

对于 COMM 模块，需要手动修改 ComMChannel 中如图所示的配置项与 ComMGeneral 中的开关

For the COMM module, it is necessary to manually modify the configuration items in ComMChannel as shown in the figure and the switches in ComMGeneral



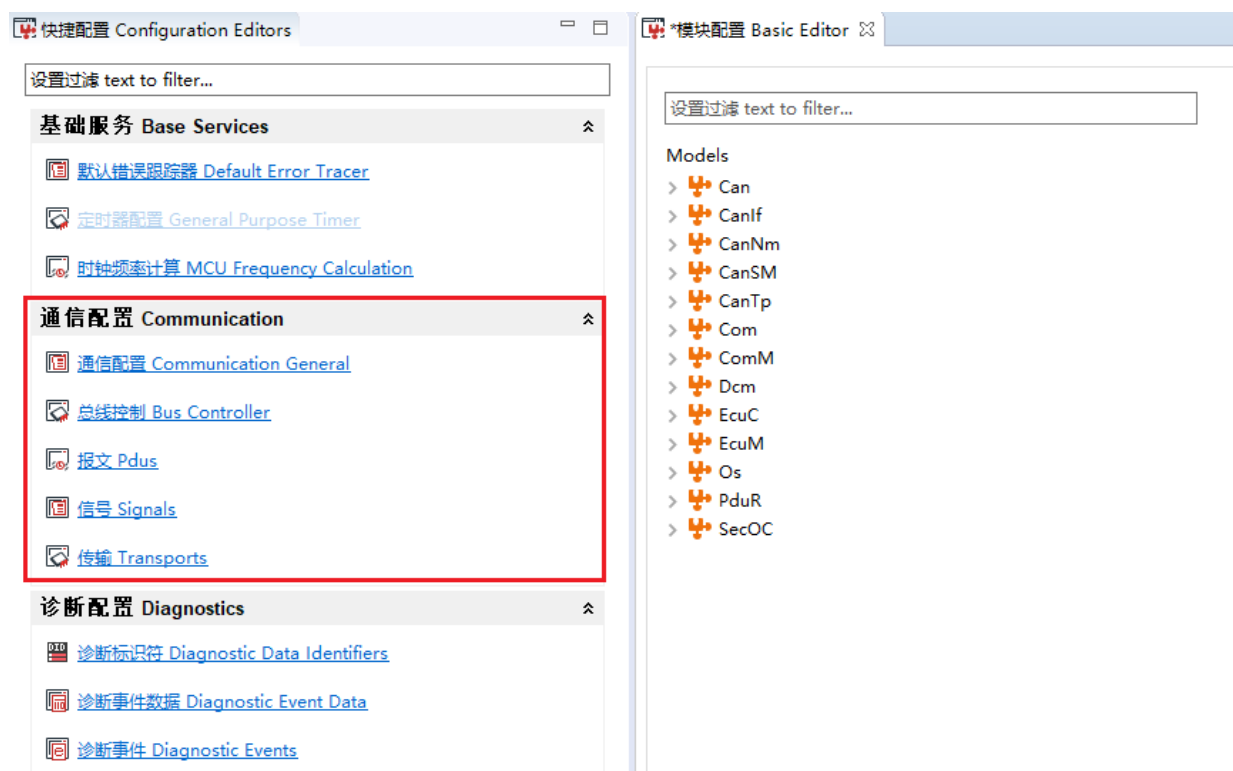
最终成功生成代码 Successfully generated code in the end



3 通信快捷配置功能 COMMUNICATION QUICK CONFIGURATION

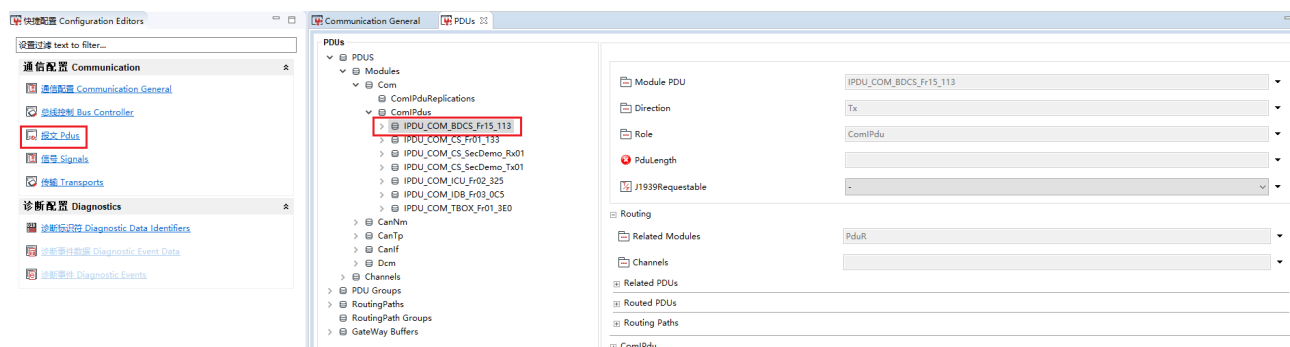
木牛工具可以在左侧快捷配置中对通信进行配置：如基础通信、总线、报文、信号、传输层等：

ZC.MuNiu can configure communication in the quick configuration on the left side, such as basic communication, bus, message, signal, transmission layer, etc.



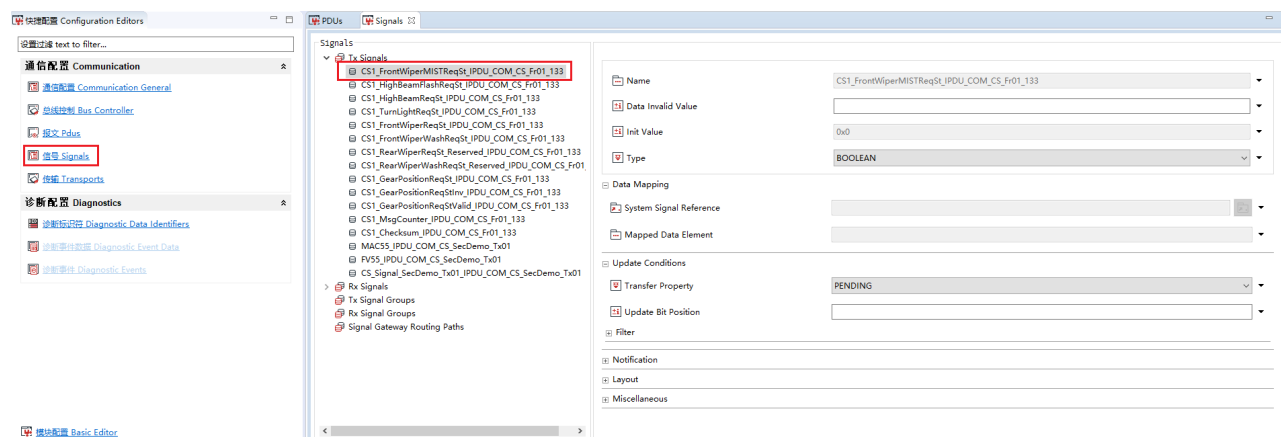
3.1 用户可以对 DBC 导入的报文进行快捷配置：

Users can quickly configure DBC imported messages:



3.2 用户可以对 DBC 导入的信号进行快捷配置：

Users can quickly configure DBC imported signals:



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To Be the Global Leading **Automotive Basic Software** Company

