

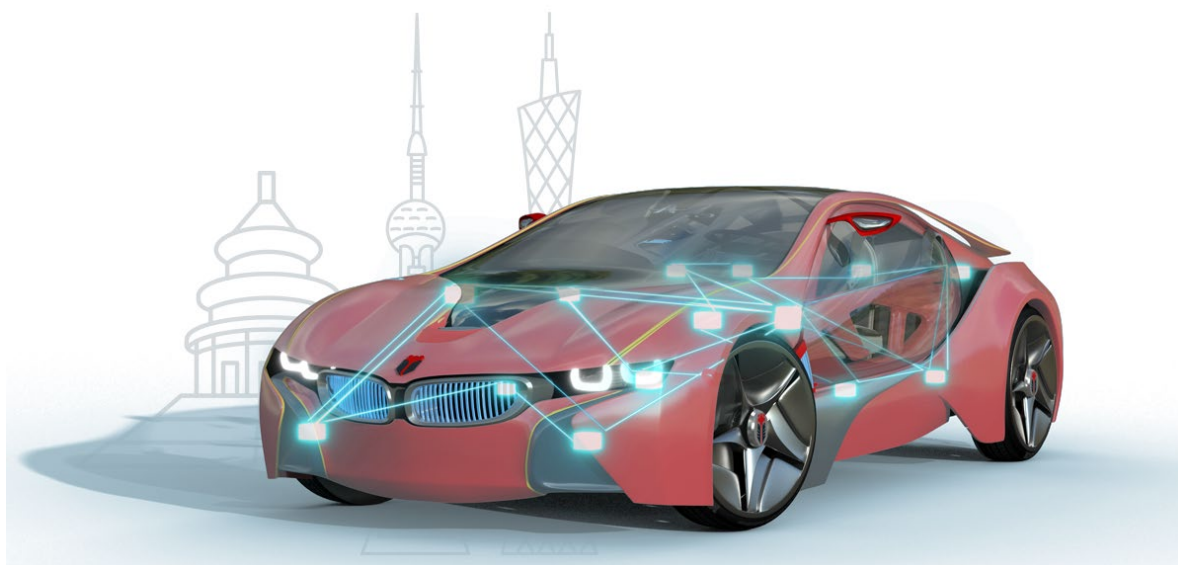


知从木牛 DEXT STUDIO 产品手册

ZC.MUNIU DEXT STUDIO PRODUCT MANUAL

知从木牛基础软件平台

ZC.MuNiu Basic Software Platform



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1 功能概述 FUNCTIONAL OVERVIEW

汽车行业诊断数据库常用的有 DEXT, ODX, CDD 等, DEXT 数据库主要用于配置工具导入, 方便用户快速生成 DEM, DCM 模块。在构建 DEXT 数据库时, 我们面临着录入海量数据和处理多样化数据格式的挑战。这一过程既耗时又耗力, 需要高昂的人力资源投入, 同时错误率居高不下, 严重影响了开发效率和进度。

In the automotive industry, diagnostic databases such as DEXT, ODBX, and CDD are commonly used. The DEXT database is primarily used for importing into configuration tools, facilitating users to quickly generate DEM and DCM modules. When building a DEXT database, we face the challenge of entering massive amounts of data and dealing with diverse data formats. This process is time-consuming and labor-intensive, requiring significant human resource investment, while the error rate remains high, severely affecting development efficiency and progress.

为了应对这一问题, 知从科技自主研发了知从木牛 DEXT STUDIO 软件。该软件采用标准的 Excel 诊断调查表来描述 ECU 的诊断通信规范, 并能将 Excel 文件自动化转换为 DEXT/ODX/CDD 等多种数据格式的文件。DEXT 软件的操作界面简洁直观, 且具备一键式转换的便捷功能, 显著降低了人力成本, 提升了工作效率, 从而大幅推进了项目的开发速度。

To address this issue, ZC has independently developed the ZC.MuNiu DEXT STUDIO software. This software uses standard Excel diagnostic survey forms to describe the diagnostic communication specifications of ECUs and can automatically convert Excel files into various data formats such as DEXT/ODX/CDD. The DEXT software has a simple and intuitive user interface and features one-click conversion, significantly reducing labor costs and improving work efficiency, thereby greatly advancing the development speed of projects.

2 应用领域 APPLICATION FIELD

DEXT STUDIO 可以在诊断模块开发、测试等应用场景下使用。例如：

DEXT STUDIO can be used in application scenarios such as diagnostic module development and testing. For example:

- 生成 DEXT 文件，导入知从木牛配置工具、生成诊断 DEM，DCM 配置，也支持导入第三方工具如：Davinci Configurator，EB tresos，ISOLAR 等。

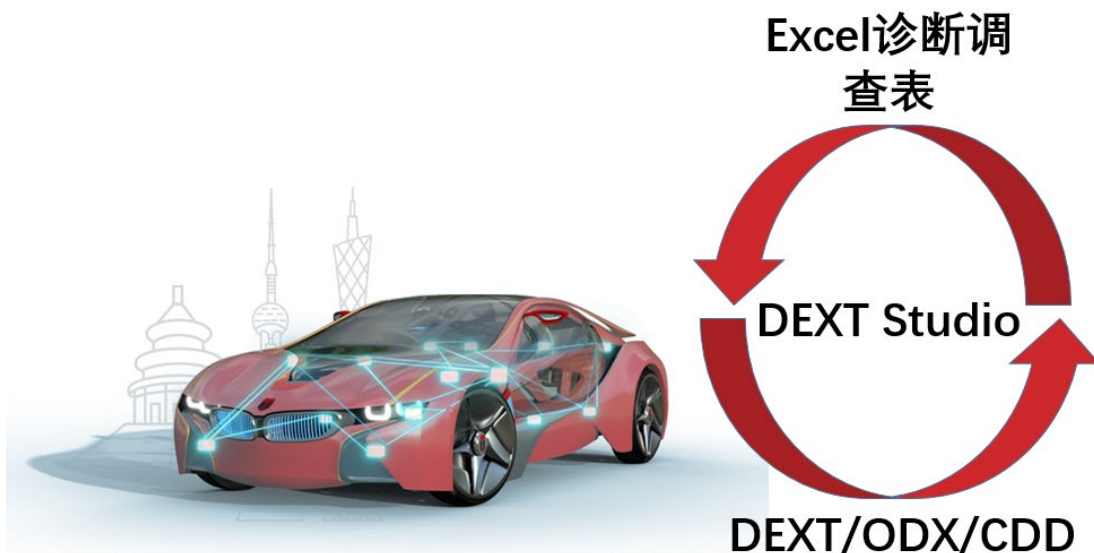
Generate DEXT files for import into configuration tools like ZC.MuNiu Configurator to generate diagnostic DEM and DCM configurations, and it also supports import into third-party tools such as Davinci Configurator, EB tresos, ISOLAR, etc.

- 生成 ODX 文件，导入知从玄武诊断工具，进行诊断及数据解析，也支持导入第三方工具如：Canoe，Can Diva 等。

Generate ODBX files for import into diagnostic tools like ZC.Xuanwu for diagnostics and data parsing, and it also supports import into third-party tools such as Canoe, Can Diva, etc.

- 生成 CDD 文件，导入 CANOE、DIVA 进行自动化测试。

Generate CDD files for import into CANOE, DIVA for automated testing.

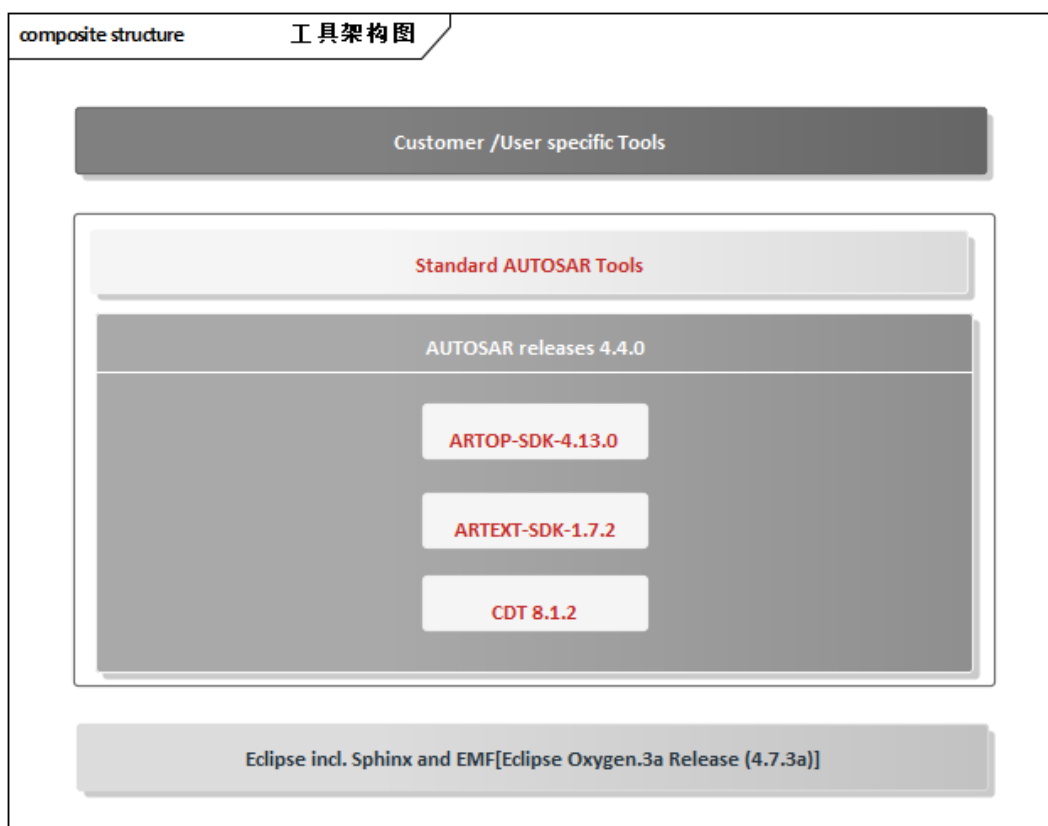


3 配置环境 CONFIGURATION ENVIRONMENT

知从木牛配置工具基于 AUTOSAR 配置工具最新架构开发。

ZC.MuNiu configuration tool is developed based on the latest architecture of the AUTOSAR configuration tool.

- Eclipse Oxygen.3a Release (4.7.3a)
- ARTOP-SDK-4.13.0 (supports the latest AUTOSAR releases 4.4.0)
- ARTEXT-SDK-1.7.2 1.6.0.
- CDT 8.1.2



DEXT STUDIO 架构图
 DEXT STUDIO ARCHITECTURE DIAGRAM

配置环境 Configuration Environment	
Run Environment	Win7/10 64bit

4 产品特点 PRODUCT FEATURE

- 基于 Eclipse 平台和 Artop 架构，插件化开发，可扩展性强

Based on the Eclipse platform and Artop architecture, with plug-in development and strong extensibility.

- 支持导入 Excel 诊断调查表，导入 DEXT 文件

Supports importing Excel diagnostic survey forms and importing DEXT files.

- 支持配置数据的一致性校验

Supports consistency checks for configuration data.

- 支持导出 DEXT, ODX, CDD 文件

Supports exporting DEXT, ODBX, and CDD files.

- 支持 ARXML 格式数据交换

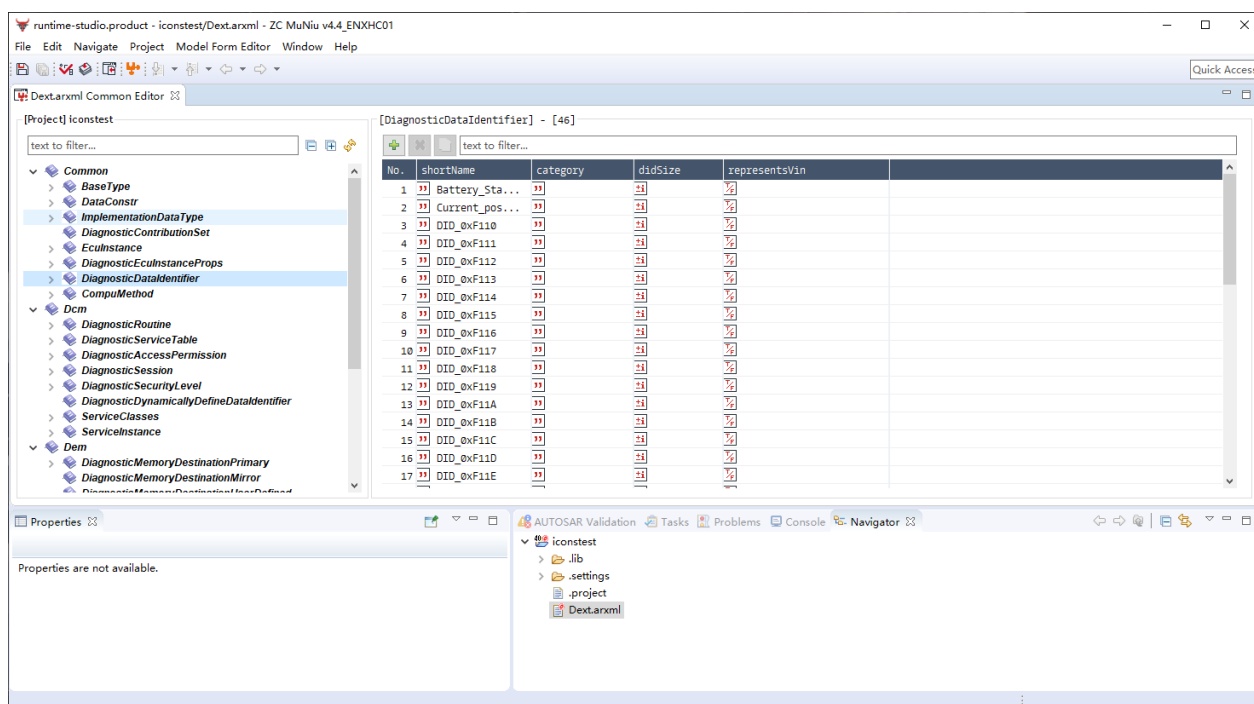
Supports data exchange in ARXML format.

- 可以根据客户需要灵活配置和裁减功能组件

Can be flexibly configured and tailored to customer requirements.

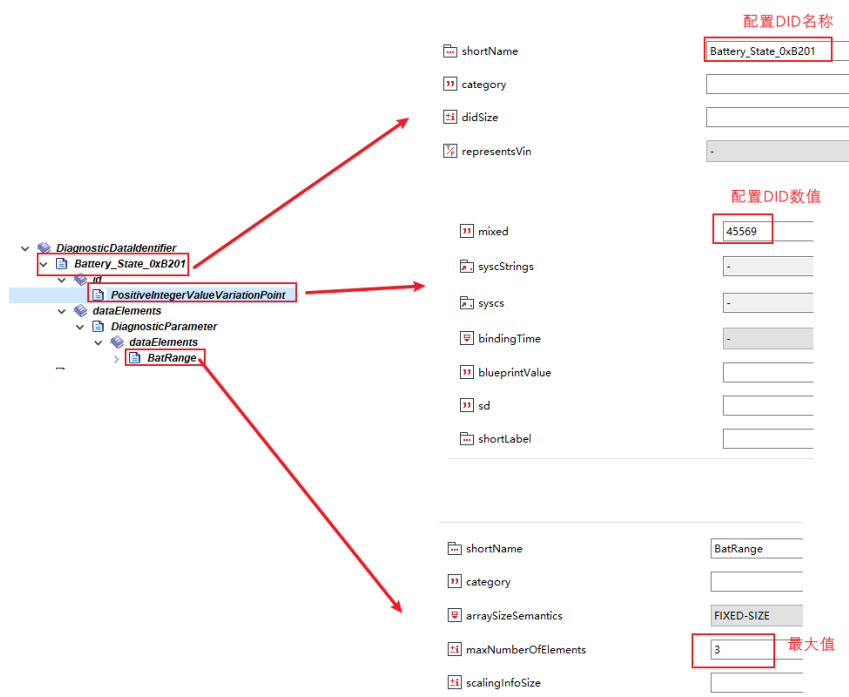
- 强大的错误检查和提示纠正机制

A powerful error-checking and prompt-correction mechanism.



5 功能描述 FUNCTIONAL DESCRIPTION

5.1 DID 配置 DID Configuration



The screenshot shows the DID Configuration interface. On the left is a tree view with the following structure:

- DiagnosticDataIdentifier
 - Battery_State_0xB201
 - PositiveIntegerValueVariationPoint
 - dataElements
 - DiagnosticParameter
 - dataElements
 - BatRange

Two configuration panels are shown on the right, with red arrows pointing from the tree view to them:

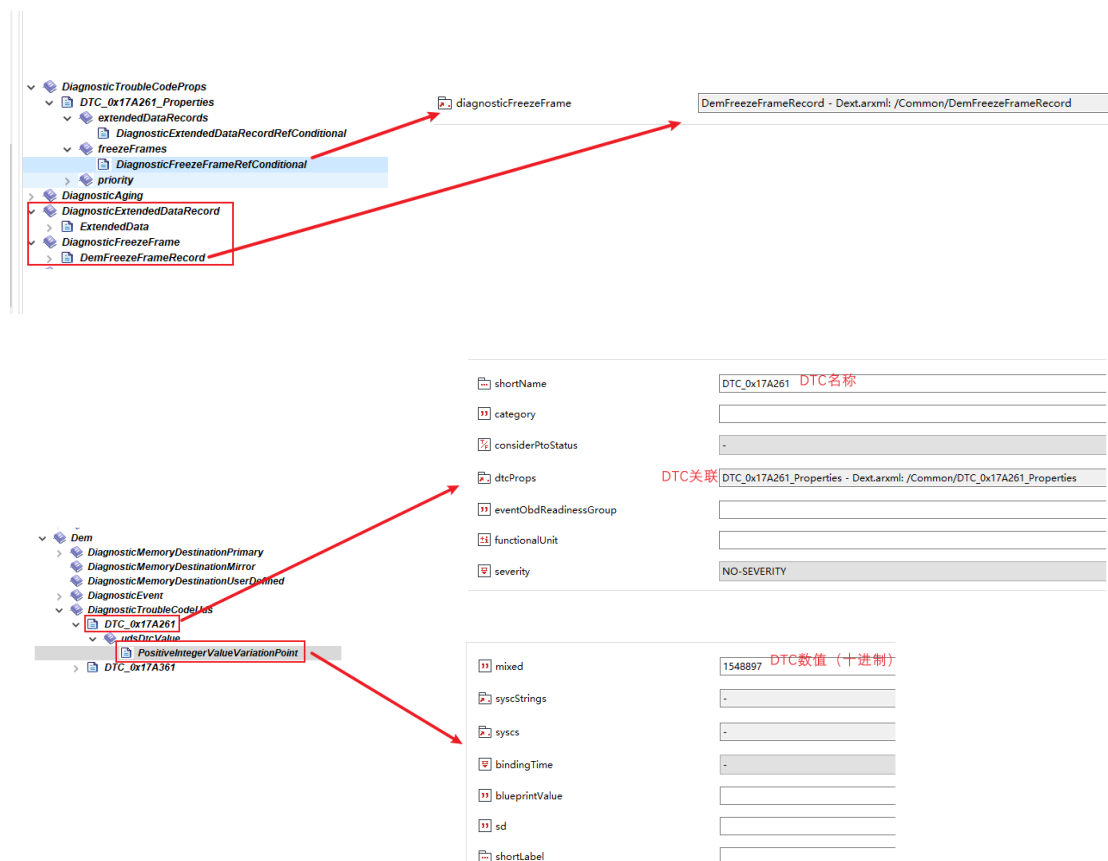
Configuration Panel 1 (Battery_State_0xB201):

- shortName: Battery_State_0xB201 (labeled "配置DID名称")
- category:
- didSize:
- representsVin: -
- mixed: 45569 (labeled "配置DID数值")
- syscStrings: -
- syscs: -
- bindingTime: -
- blueprintValue:
- sd:
- shortLabel:

Configuration Panel 2 (BatRange):

- shortName: BatRange
- category:
- arraySizeSemantics: FIXED-SIZE
- maxNumberOfElements: 3 (labeled "最大值")
- scalingInfoSize:

5.2 DTC 及快照配置 DTC and Snapshot Configuration



The screenshot shows the DTC and Snapshot Configuration interface. On the left is a tree view with the following structure:

- DiagnosticTroubleCodeProps
 - DTC_0x17A261_Properties
 - extendedDataRecords
 - DiagnosticExtendedDataRecordRefConditional
 - freezeFrames
 - DiagnosticFreezeFrameRefConditional
 - priority
 - DiagnosticAging
 - DiagnosticExtendedDataRecord
 - ExtendedData
 - DiagnosticFreezeFrame
 - DemFreezeFrameRecord

Two configuration panels are shown on the right, with red arrows pointing from the tree view to them:

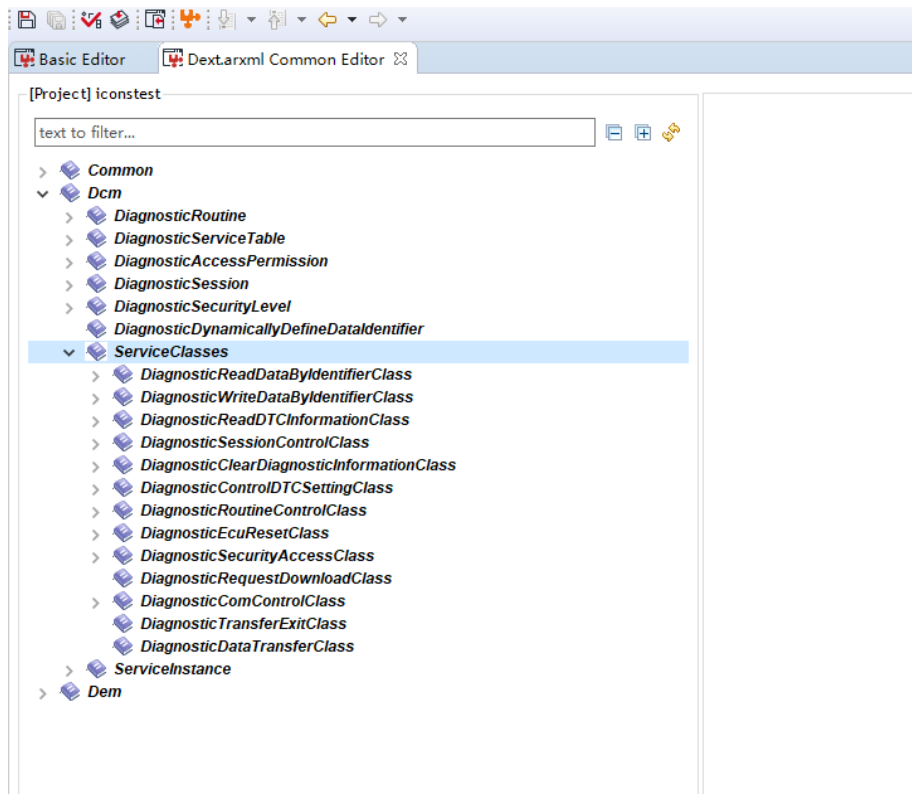
Configuration Panel 1 (DTC_0x17A261_Properties):

 - shortName: DTC_0x17A261 (labeled "DTC名称")
 - category:
 - considerPtoStatus: -
 - dtcProps: DTC_0x17A261_Properties - Dext.arxml: /Common/DTC_0x17A261_Properties (labeled "DTC关联")
 - eventObdReadinessGroup:
 - functionalUnit:
 - severity: NO-SEVERITY

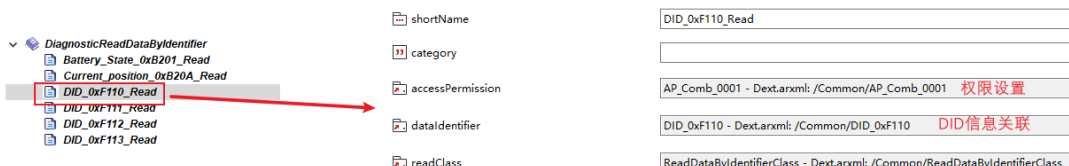
Configuration Panel 2 (DiagnosticFreezeFrame):

 - shortName:
 - category:
 - considerPtoStatus: -
 - dtcProps:
 - eventObdReadinessGroup:
 - functionalUnit:
 - severity:
 - mixed: 1548897 (labeled "DTC数值 (十进制)")
 - syscStrings: -
 - syscs: -
 - bindingTime: -
 - blueprintValue:
 - sd:
 - shortLabel:

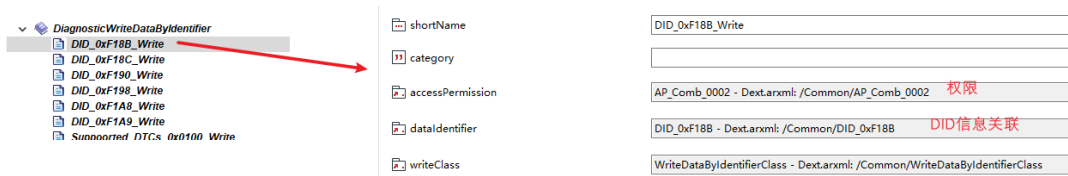
5.3 诊断服务配置 Diagnostic Service Configuration



22 服务配置 Service Configuration



2E 服务配置 Service Configuration



19 服务配置 Service Configuration

| | | |
|---|-------------------------|---|
| <ul style="list-style-type: none"> DiagnosticReadDTCInformation <ul style="list-style-type: none"> RDTCBSM RDTCEDRBDN RDTCSSBDTC RNODTCBSM RSUPDTC | shortName | RDTCBSM |
| | category | REPORT_DTC_BY_STATUS_MASK |
| | accessPermission | AP_Comb_0001 - Dext.arxml: /Common/AP_Comb_0001 权限 |
| | readDTCInformationClass | ReadDtcInformationClass - Dext.arxml: /Common/ReadDtcInformationClass |
| | 读取DTC关联 | |

| | | |
|--|---------------------|---|
| <ul style="list-style-type: none"> DiagnosticControlDTCSetting <ul style="list-style-type: none"> Disable Enable | shortName | Disable |
| | category | |
| | accessPermission | AP_Extended - Dext.arxml: /Common/AP_Extended |
| | dtcSettingClass | ControlDtcSettingClass - Dext.arxml: /Common/ControlDtcSettingClass |
| | dtcSettingParameter | 2 1-ON 2-OFF |

10 服务配置 Service Configuration

| | | |
|---|---------------------|---|
| <ul style="list-style-type: none"> DiagnosticSessionControl <ul style="list-style-type: none"> Default_SessionControl Extended_SessionControl Programming_SessionControl | shortName | Default_SessionControl |
| | category | |
| | accessPermission | AP_All - Dext.arxml: /Common/AP_All 会话权限 |
| | diagnosticSession | Default - Dext.arxml: /Common/Default 会话信息关联 |
| | sessionControlClass | SessionControlClass - Dext.arxml: /Common/SessionControlClass 会话控制类关联 |

14 服务配置 Service Configuration

| | | |
|---|---------------------------------|---|
| <ul style="list-style-type: none"> DiagnosticClearDiagnosticInformation <ul style="list-style-type: none"> ClearDiagInfo | shortName | ClearDiagInfo |
| | category | |
| | accessPermission | AP_Comb_0001 - Dext.arxml: /Common/AP_Comb_0001 权限 |
| | clearDiagnosticInformationClass | ClearDiagnosticInformationClass - Dext.arxml: /Common/ClearDiagnosticInformationClass 服务类 |

31 服务配置 Service Configuration

| | | |
|---|---------------------|---|
| <ul style="list-style-type: none"> DiagnosticRoutineControl <ul style="list-style-type: none"> New_Routine_Control New_Routine_Control_1 New_Routine_Control_2 New_Routine_Control_3 New_Routine_Control_4 | shortName | New_Routine_Control |
| | category | |
| | accessPermission | AP_Comb_0002 - Dext.arxml: /Common/AP_Comb_0002 |
| | routineControlClass | RoutineControlClass - Dext.arxml: /Common/RoutineControlClass |
| | routine | New_Routine_Control - Dext.arxml: /Common/New_Routine_Control |
| | | |

11 服务配置 Service Configuration

DiagnosticEcuReset
 Hard

| | |
|-------------------------|---|
| shortName | Hard |
| category | HARD_RESET |
| accessPermission | AP_All - Dext.arxml: /Common/AP_All |
| customSubFunctionNumber | |
| ecuResetClass | EcuResetClass - Dext.arxml: /Common/EcuResetClass |
| respondToReset | <div> -
 RESPOND-BEFORE-RESET
 RESPOND-AFTER-RESET </div> |

27 服务配置 Service Configuration

DiagnosticSecurityAccess
 UnlockedL1_SecurityAccess

| | |
|---------------------|---|
| shortName | UnlockedL1_SecurityAccess |
| category | |
| accessPermission | AP_Extended - Dext.arxml: /Common/AP_Extended |
| requestSeedId | 1 |
| securityAccessClass | SecurityAccessClass - Dext.arxml: /Common/SecurityAccessClass |
| securityLevel | UnlockedL1 - Dext.arxml: /Common/UnlockedL1 安全等级 |

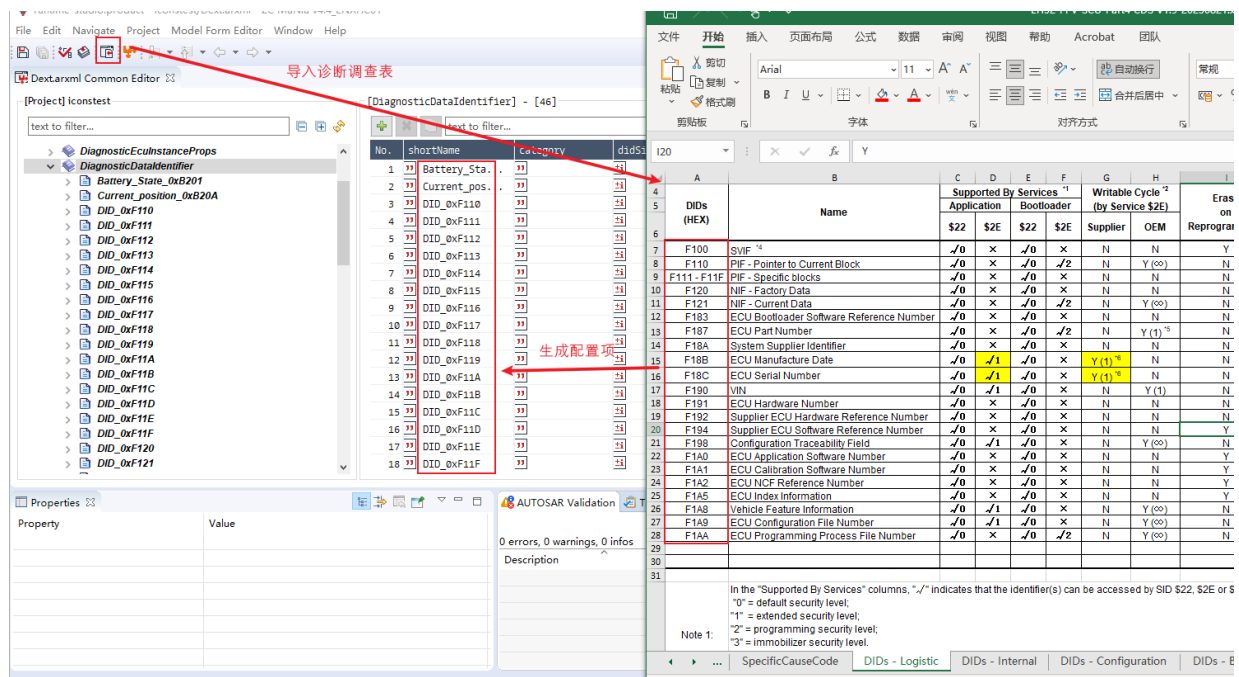
28 服务配置 Service Configuration

DiagnosticComControl
 DisableRxAndEnableTx
 DisableRxAndTx
 EnableRxAndDisableTx
 EnableRxAndTx

| | |
|-------------------------|---|
| shortName | DisableRxAndEnableTx |
| category | DISABLE_RX_AND_ENABLE_TX |
| accessPermission | AP_Extended - Dext.arxml: /Common/AP_Extended |
| comControlClass | ComControlClass - Dext.arxml: /Common/ComControlClass |
| customSubFunctionNumber | |

5.4 导入诊断调查表自动生成配置

Import Diagnostic Survey Forms to Automatically Generate Configuration



导入诊断调查表

生成配置项

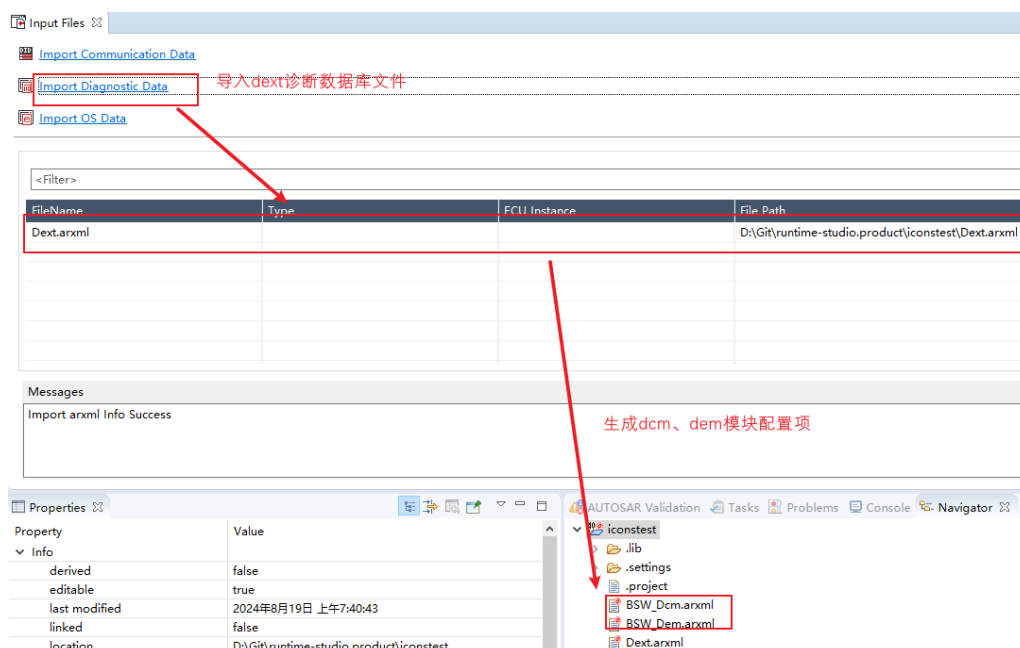
| DiDs (HEX) | Name | Supported By Services
Application | Bootloader | Writable Cycle
(by Service \$2E) | Supplier | OEM | Erases on Reprogram |
|-------------|--|--------------------------------------|------------|-------------------------------------|----------|-----|---------------------|
| F100 | SVIF | ✓ | ✓ | ✓ | N | N | Y |
| F110 | PIF - Pointer to Current Block | ✓ | ✓ | ✓ | N | N | Y |
| F111 - F11F | PIF - Specific blocks | ✓ | ✓ | ✓ | N | N | N |
| F120 | NIF - Factory Data | ✓ | ✓ | ✓ | N | N | N |
| F121 | NIF - Current Data | ✓ | ✓ | ✓ | N | N | Y |
| F183 | ECU Bootloader Software Reference Number | ✓ | ✓ | ✓ | N | N | N |
| F187 | ECU Part Number | ✓ | ✓ | ✓ | N | N | Y |
| F18A | System Supplier Identifier | ✓ | ✓ | ✓ | N | N | N |
| F18B | ECU Manufacture Date | ✓ | ✓ | ✓ | Y | Y | N |
| F18C | ECU Serial Number | ✓ | ✓ | ✓ | Y | Y | N |
| F190 | VIN | ✓ | ✓ | ✓ | N | N | Y |
| F191 | ECU Hardware Number | ✓ | ✓ | ✓ | N | N | N |
| F192 | Supplier ECU Hardware Reference Number | ✓ | ✓ | ✓ | N | N | N |
| F194 | Supplier ECU Software Reference Number | ✓ | ✓ | ✓ | N | N | Y |
| F198 | Configuration Traceability Field | ✓ | ✓ | ✓ | N | N | Y |
| F1A0 | ECU Application Software Number | ✓ | ✓ | ✓ | N | N | Y |
| F1A1 | ECU Calibration Software Number | ✓ | ✓ | ✓ | N | N | Y |
| F1A2 | ECU NCF Reference Number | ✓ | ✓ | ✓ | N | N | Y |
| F1A5 | ECU Index Information | ✓ | ✓ | ✓ | N | N | Y |
| F1A8 | Vehicle Feature Information | ✓ | ✓ | ✓ | N | N | Y |
| F1A9 | ECU Configuration File Number | ✓ | ✓ | ✓ | N | N | Y |
| F1AA | ECU Programming Process File Number | ✓ | ✓ | ✓ | N | N | Y |

Note 1:
In the "Supported By Services" columns, "✓" indicates that the identifier(s) can be accessed by SID \$22, \$2E or \$2F.
"0" = default security level;
"1" = extended security level;
"2" = programming security level;
"3" = immobilizer security level.

5.5 导出 DEXT 文件，导入知从木牛.配置工具自动生成 DCM、DEM 模块

Export DEXT Files, Import into ZC.MuNiu Configuration Tool to

Automatically Generate DCM and DEM Modules



导入dext诊断数据库文件

生成dcm、dem模块配置项

| FileName | Type | ECU Instance | File Path |
|----------|------|--------------|--|
| Devt.xml | | | D:\Git\runtime-studio.product\iconstest\Devt.xml |

Import axml Info Success

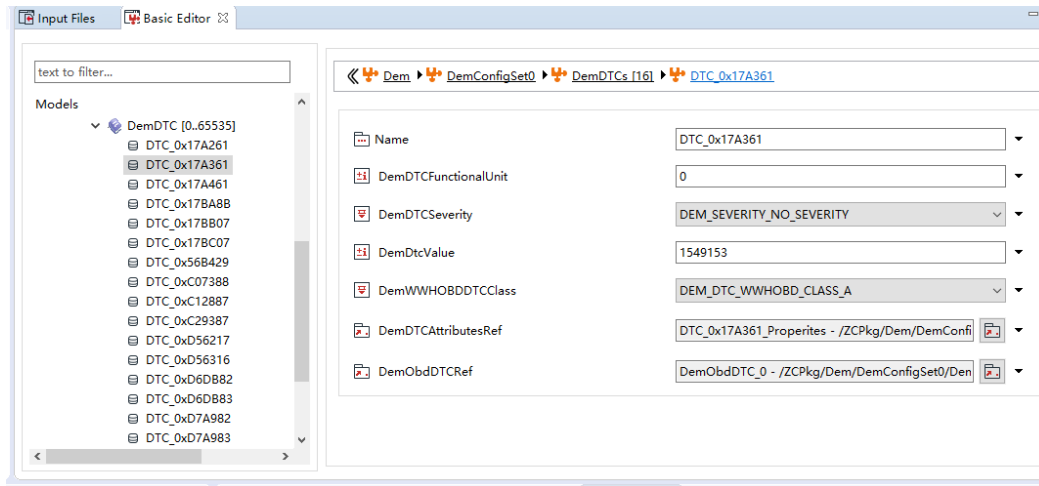
Properties

Property Value

- derived false
- editable true
- last modified 2024年8月19日 上午7:40:43
- linked false
- location D:\Git\runtime-studio.product\iconstest

iconstest

- .lib
- .settings
- .project
- BSW_Dcm.xml
- BSW_Dem.xml
- Devt.xml



公众号



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To Be the Global Leading Automotive Basic Software Company

