



STUDY COURSE OF CUSTOMIZED DEVELOPMENT FOR XIXUN CONTROLLER

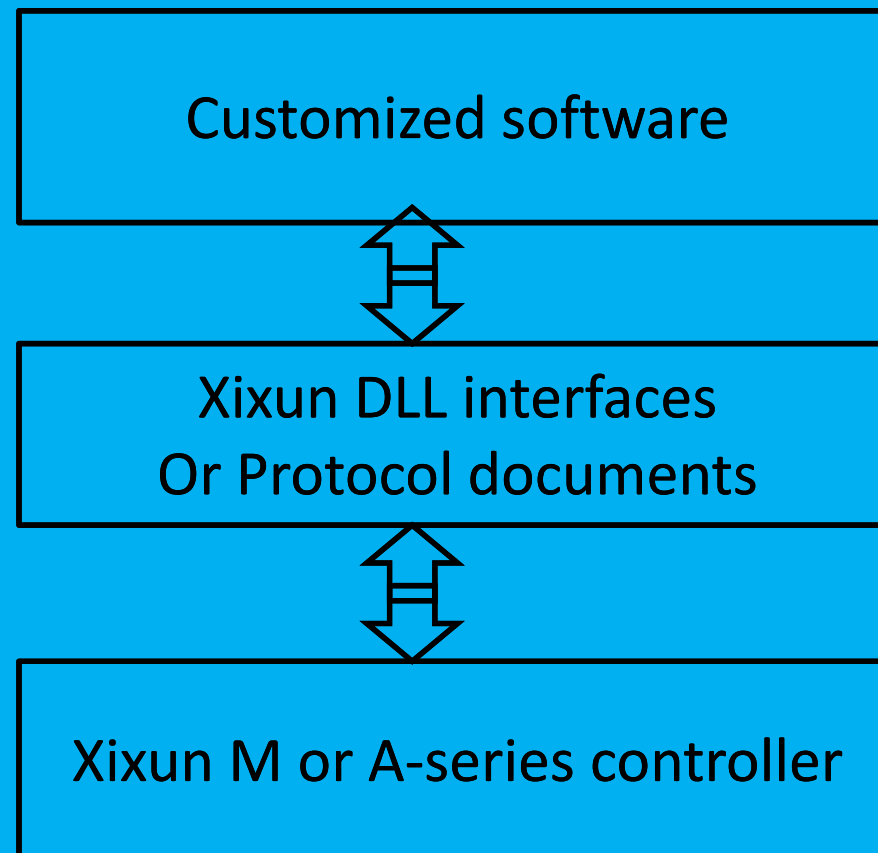
www.ledsign.cc

Shanghai Xixun Electronic Technology Company Ltd.

WHAT'S THE CUSTOMIZED DEVELOPMENT?

- + Customers develop own software based on xixun controller with the help of xixun customized development documents, in other words, customers will not use xixun software.

HIERARCHICAL STRUCTURE



WHAT'S DLL?

- + DLL is a kind of binary file, similar to exe file but can't run directly. Application can call DLL to realize some specific functions. DLL's extension is dll. It is recommend to use DLL type to do customized development.
- + Adopt protocol document, describe project xml file format and material storage format, also with communication protocol and so on. Users could development own software according to the protocol rules.
- + Adopt the way of combination of protocol documents and DLL
- + Please refer to Appendix I for development own software not in windows system.

CUSTOMIZED DEVELOPMENT DOCUMENTS INSTRUCTIONS

- + Mainly including three parts:
 - + Part 1. making program
this part including **project file generation** and **material file generation**.
 - + Part 2. communication
this part including **internet communication** and **LAN communication**.
 - + Part 3. web,ftp,LedDataServer solution
this only for web development customer, most of customers no need to know this part.
- Each part including corresponding instructions ,DLL and DEMO

DEMO

- + Demo application or Routine is exe file, which is an application for DLL development. Customer can test and verify the DLL and controller functions via Demo.
- + Another function of Demo is example, which means customer will know how to use DLL to development own software by looking at Demo.

ABOUT PROGRAMMING LANGUAGE AND ENVIRONMENT

- + when using DLL to develop own software, customer will have a question about the programming language? In theory, DLL is a standard one, no limitation of programming language and environment. This is also one reason that we recommend to use DLL to do customized development.
- + But programming language and environment are also important as the routine is developed by using specific language. Routines that we provide are developed in VS2010 or V6 environment. we do not provide other programming language routines. (routine is not necessary, can also develop by VB or Delphi languages).
- + Devellopping can be divided into three chapters.

CHAPTER 1

PROJECT FILE GENERATION

- + Project file will save program content, its xml format, please refer to “project xml file format readme.pdf ” and “project file readme(xixunled.xsd) ” for detail information.

Note: xml format elements(PageName, WindowName, ItemName, TextName attribute type are string, because control card version reason, these attributes only supports numeric string, and can not be more than eight characters; such as: ItemName ="1001" is right ,ItemName =" abcd "is wrong;

- + Two ways to generate project file:
 - + 1. customer programming xml file according to “project xml file format” document;
 - + 2. call XiXunLedProgram.dll API provide by Xixun Company to make xml file, please refer to “DLL instructions for customized development 1.2.docx ” for detail information. Also please refer to DEMO application XixunProgramDllDemo (unfinished).

CHAPTER 2

MATERIAL FILE GENERATION

- + material file is program content that was sent to controller and displayed on led sign, which generated according to project file.
- + Because you can compile xml project by call API function "CI_CompileProgram" in XiXunLedProgram.dll ,so you can not care about the rules of the material file. You can ignore the following two, does not affect the development
- + Please refer to "Material file store rules1.0" for Material files generation rules.
- + Ways of generating material files:
- + Call EncodeMaterial.dll API providing by Xixun Company; please refer to "DLL instructions for customized development 1.2.docx " and also DEMO routine TestEncodeMaterialDll source code.

CHAPTER 3

COMMUNICATION

- + Ways of communication: call Interface.dll API function providing by Xixun Company;
- + LAN communication: please refer to “sending program process via LAN.pdf ” and also refer to DEMO application SendProgramInLan source code providing by Xixun Company.
- + Internet communication: please refer to “leddata server process of sending program.pdf” and also refer to DEMO application FtpDownloadDemo source code providing by Xixun Company.

DYNAMIC LIBRARY INSTRUCTION

| Interface.dll communication dynamic library | | |
|---|---|---|
| API head file | Interface.h | |
| Supporting Communication types | Led data server center communication interface,3G,GPRS, Internet, LAN and serial port | |
| Routine (send program via led data server center) | FtpDownloadDemo | Including user login led data server center API, get terminal side information API, send program API and FTP download program API. Please refer to Interface.h head file for more API (like adjust time, adjust brightness, turn on/off led sign and anycast program) |
| Lib head file | Interfacelib | Statement of realized part's (Interface.dll file) derived one |
| Routine (send program via LAN) | SendProgramInLan | Including auto check controller information in LAN API, send program API. Please refer to Interface.h head file for more API (like adjust time, adjust brightness, turn on/off led sign and anycast program) |
| Rely on DLL | dcc.dll,wcomm_dll.dll | User no need to pay attention to these two DLL contents, only to put it with Interface.dll in the same directory. |

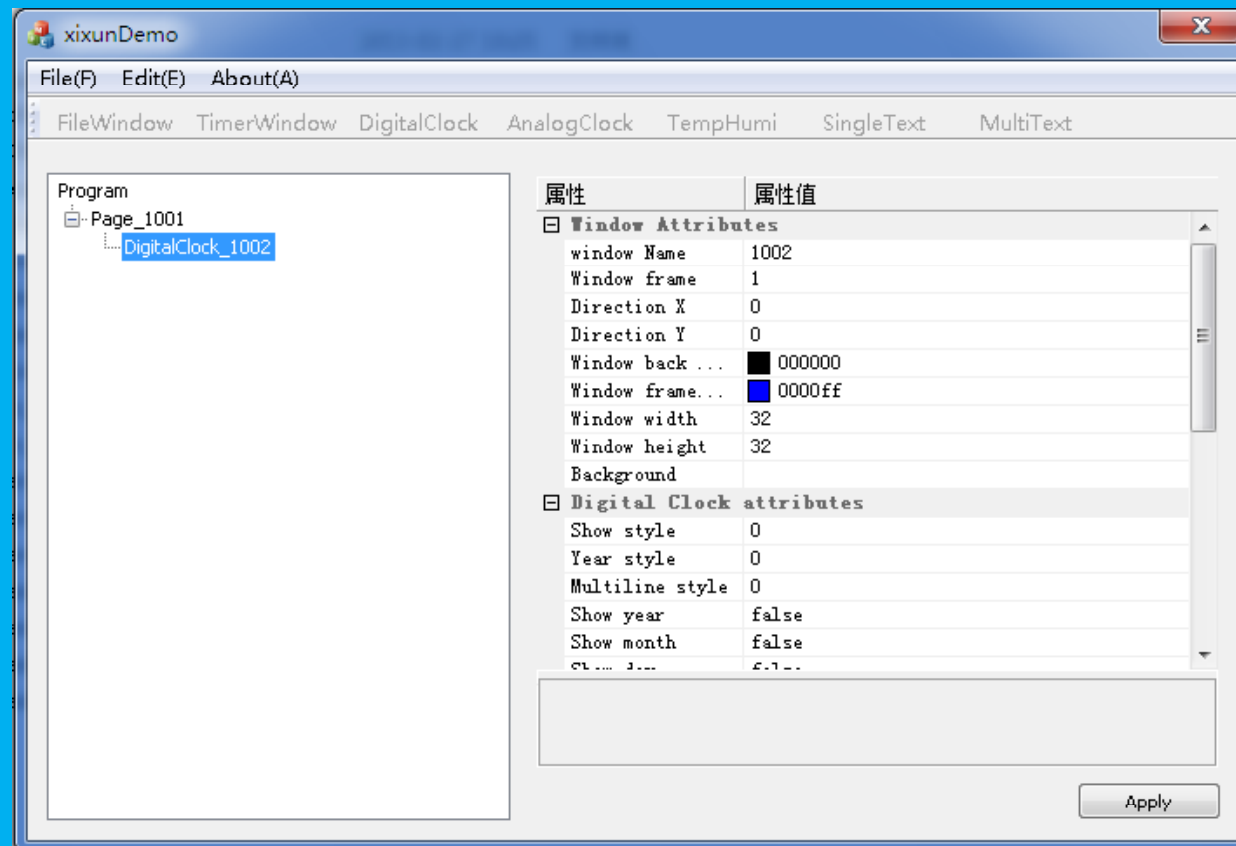
| XiXunLedProgram.dll project file DLL | | |
|--------------------------------------|--|---|
| C++head file | XiXunLedProgram.h | |
| C# head file | XiXunLedProgram.cs | |
| functions | API of creating project file, API of creating step, file window, text window, time window, temperature/humidity window, timer window, single line text window API, get API and schedule API. | |
| Routine | Xixun Demo | Customer could refer to API instructions of “ DLL instructions for customized development V1.2.pdf ” in advance, then compiling itself. |
| Xml structure definition document | XiXunLed.xsd | Put it with XiXunLedProgram.dll in the same directory |
| Lib file | XiXunLedProgram.lib | Statement of realized part's (XiXunLedProgram.dll file) derived one |
| Rely on DLL | Altova.dll,AltovaXML.dll,xerces-c_3_1.dll,XiXunLed.dll | User no need to pay attention to these four DLL contents, only need to put it with XiXunLedProgram.dll in the same directory |

EncodeMaterial.dll material file generation DLL

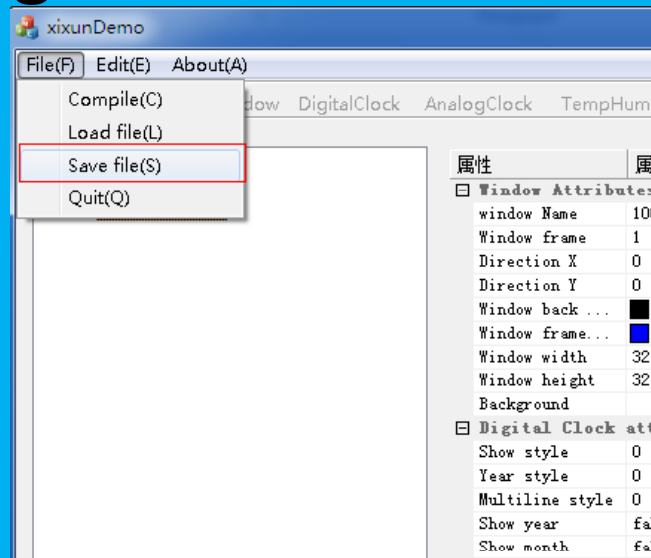
| | | |
|----------------|--|---|
| API head file | EncodeMaterial.h | |
| Material types | Support API for generating analog clock, digital clock, timer, temperature/humidity, txt and other materials | |
| Routine | TestEncodeMaterialDll | |
| Lib file | EncodeMaterial.lib | Statement of realized part's (EncodeMaterial.dll file) derived one |
| | MfcEncodeMaterial.lib | Statement of realized part's (MfcEncodeMaterial.dll file) derived one |
| Rely on DLL | No | |

EXAMPLE

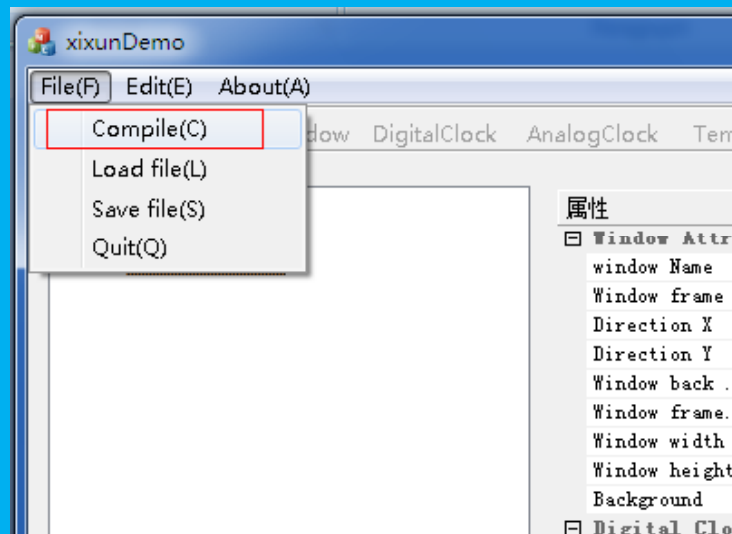
+ Edit program by xixunDemo.exe



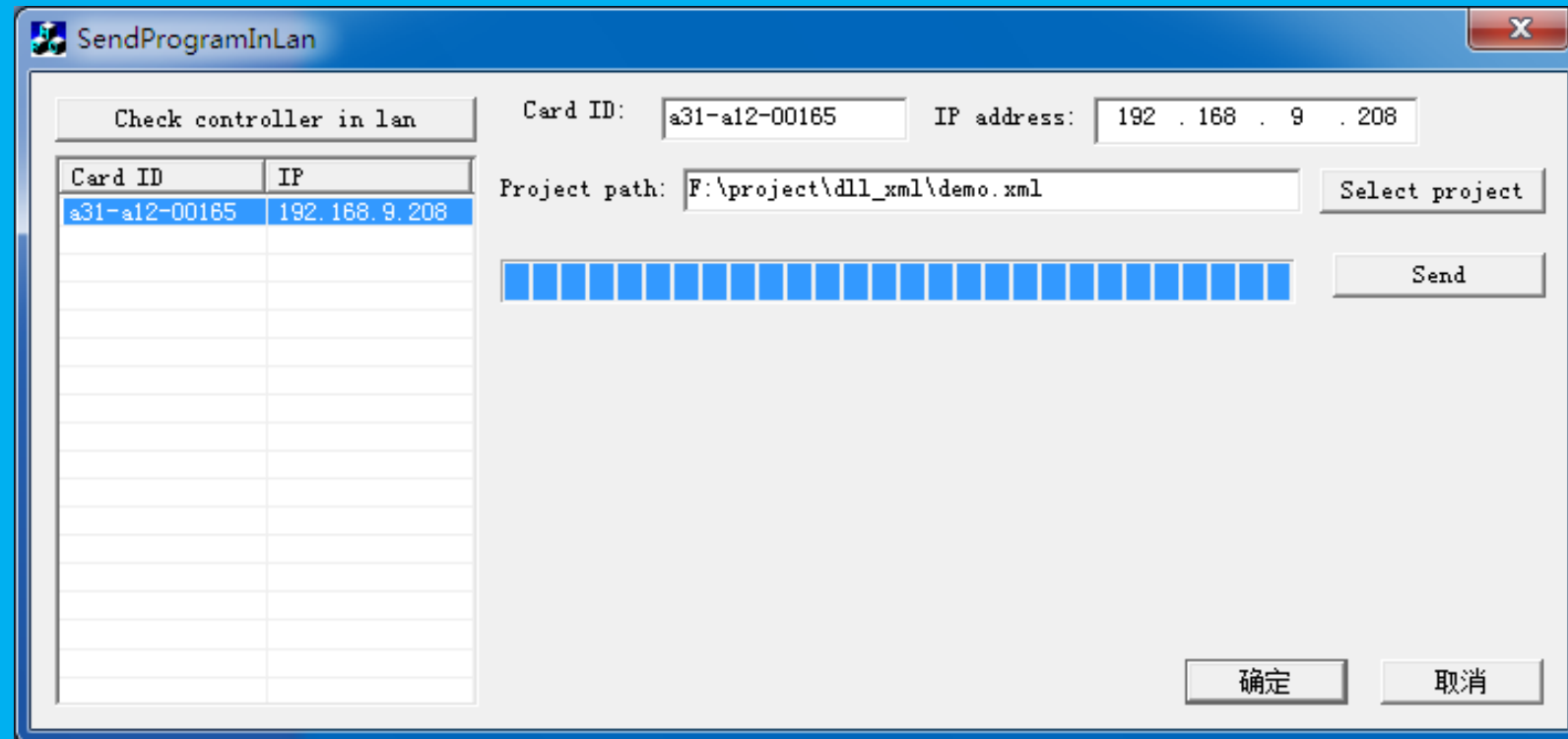
+ Save xml program file



+Compile xml program file



- + Send program to Led Controller by SendProgramInLan.exe



APPENDIX I

- + Only adopt protocol to customized development for non-windows system users
- + 1. please refer to 《xml project file format readme.pdf》 and 《xixunled.xsd file readme 》 for making program
- + 2. please refer to 《 Material file store rules1.0.pdf 》 for generating material
- + 3. please refer to 《 communication protocol of network.pdf 》 for communication.