NSIS

Setting Environment

1. NSIS Install; Nullsoft Install System을 설치한다.
2. HM NIS Edit Install; HM NIS Edit를 설치한다
3. Install Plugins; 아래 플러그인을 NSIS 설치한 위치의 Plugins 디렉토리로 복사한다.
    - EnVar-Plugin
    - Nsis7z plug-in

Preparing Files

- 설치 패키지를 위한 파일을 준비한다. (ustra.7z = VSCode + STS4 + git + node.js + yarn + ..., ustra.ico)
- NSIS Script file; 설치 패키지를 만드는 스크립트, *.nsi (ustra-dev-tools.nsi)
- Prepare files to install; 설치할 파일을 준비한다.
    - make 7z file into Input directory; 생성한 ustra.7z 파일을 Input 디렉토리에 넣는다.

```
    ├─tools
    │   ├─apache-maven-3.8.1
    │   ├─gradle-6.9.2
    │   ├─java
    │   │   └─java-1.8.0-openjdk-1.8.0.212-1
    │   ├─sts-4.7.1
    │   ├─VSCode-win32-x64-1.48.0
    │   ├─Git-2.37.0-64-bit.exe
    │   ├─node-v12.22.9-x64.msi
    │   └─yarn-1.22.19.msi
    └─workspace
```

- Create Output Directory; 설치 패키지의 최종 결과 파일을 저장할 디렉토리를 생성한다.
- Structures; 설치 패키지를 위한 디렉토리 구조는 아래와 같다.

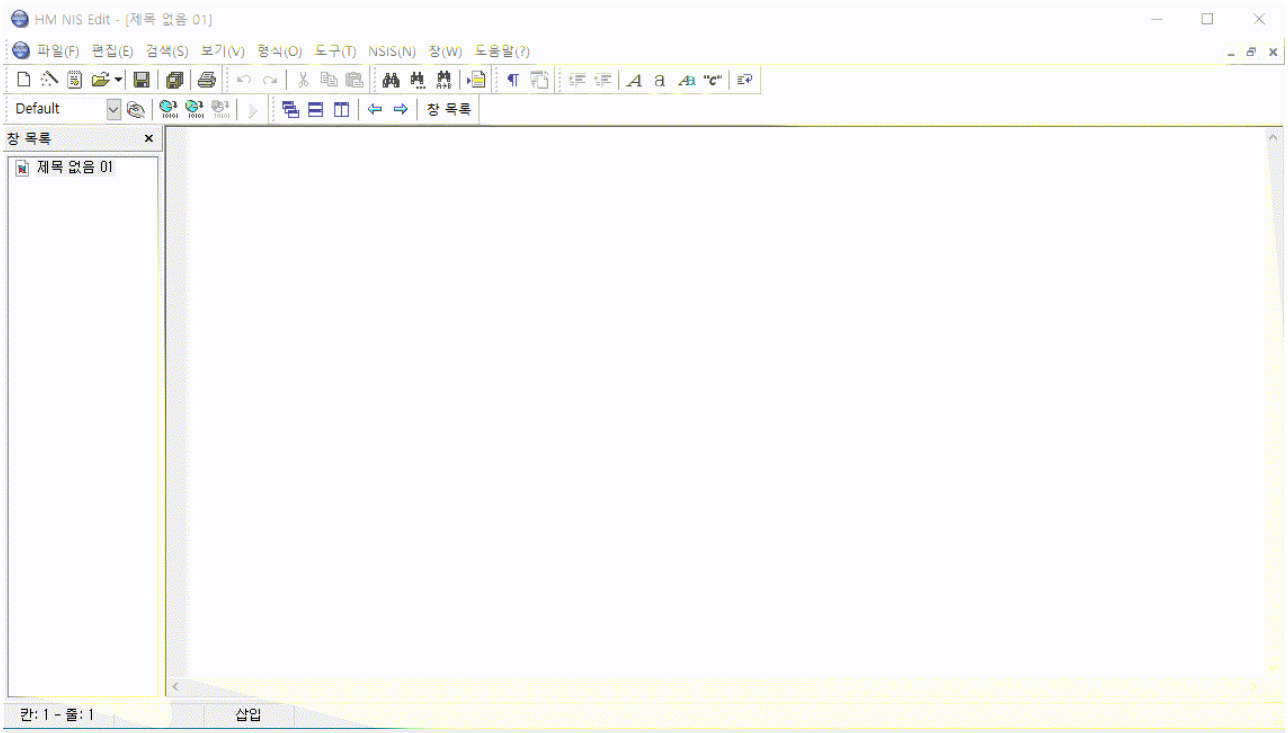
```
    └─*.nsi
       ├─Input
       │   ├─ustra.ico
       │   └─ustra.7z
       └─Output
           └─executable setup file will be here.
```

Scripts

- HM NIS Edit 를 실행한다.



- 스크립트를 작성하거나 작성된 스크립트 파일을 연다.




```
; Script generated by the HM NIS Edit Script Wizard.

; HM NIS Edit Wizard helper defines
!define PRODUCT_NAME "U.STRA Framework 개발 환경"
!define PRODUCT_VERSION "0.1"
!define PRODUCT_UNINST_KEY
"Software\Microsoft\Windows\CurrentVersion\Uninstall\${PRODUCT_NAME}"
!define PRODUCT_UNINST_ROOT_KEY "HKLM"

; MUI 1.67 compatible ------
!include "MUI.nsh"

; MUI Settings
!define MUI_ABORTWARNING
;!define MUI_ICON "${NSISDIR}\Contrib\Graphics\Icons\modern-
install.ico"
!define MUI_ICON ".\Input\ustra.ico"
;!define MUI_UNICON "${NSISDIR}\Contrib\Graphics\Icons\modern-
uninstall.ico"
!define MUI_UNICON ".\Input\ustra.ico"
```

```
; Welcome page
!insertmacro MUI_PAGE_WELCOME
; Directory page
!insertmacro MUI_PAGE_DIRECTORY
; Instfiles page
;!define MUI_FINISHPAGE_NOAUTOCLOSE
!insertmacro MUI_PAGE_INSTFILES
; Finish page
!insertmacro MUI_PAGE_FINISH

; Uninstaller pages
!insertmacro MUI_UNPAGE_INSTFILES

; Language files
!insertmacro MUI_LANGUAGE "Korean"

; MUI end ------

Name "${PRODUCT_NAME} ${PRODUCT_VERSION}"
OutFile ".\Output\Setup_UStra_Dev.exe"
;InstallDir "$PROGRAMFILES\U.STRA Framework 개발환경"
InstallDir "C:\ustra_devtools"
ShowInstDetails show
ShowUnInstDetails show

; Global Variables --------
Var fileSTS4Ini
Var fileGitInstaller
Var fileNodejsInstaller
Var fileYarnInstaller


Function InitInstallers
  StrCpy $fileSTS4Ini "$INSTDIR\tools\sts-4.7.1\SpringToolSuite4.ini"
  StrCpy $fileGitInstaller "$INSTDIR\tools\Git-2.37.0-64-bit.exe"
  StrCpy $fileNodejsInstaller "$INSTDIR\tools\node-v12.22.9-x64.msi"
  StrCpy $fileYarnInstaller "$INSTDIR\tools\yarn-1.22.19.msi"
FunctionEnd

Function WriteSTS4IniFile
  ; Write SpringToolSuite4.ini file
  ;FileOpen $9 $INSTDIR\tools\sts-4.7.1\SpringToolSuite4.ini w       ;
Opens a Empty File and fills it
  FileOpen $9 $fileSTS4Ini w        ; Opens a Empty File and fills it
  FileWrite $9 "-startup$\r$\n\
plugins/org.eclipse.equinox.launcher_1.5.700.v20200207-2156.jar$\r$\n\
            --launcher.library$\r$\n\
plugins/org.eclipse.equinox.launcher.win32.win32.x86_64_1.1.1200.v20200
508-1552$\r$\n\
            -product$\r$\n\
            org.springframework.boot.ide.branding.sts4$\r$\n\
```

```
            --launcher.defaultAction$\r$\n\
            openFile$\r$\n\
            -vm$\r$\n\
            $INSTDIR\tools\java\java-1.8.0-
openjdk-1.8.0.212-1\bin\javaw.exe$\r$\n\
            -vmargs$\r$\n\
            -Dosgi.requiredJavaVersion=1.8$\r$\n\
            -Dosgi.dataAreaRequiresExplicitInit=true$\r$\n\
            -Xms256m$\r$\n-Xmx2048m$\r$\n\
            --add-modules=ALL-SYSTEM$\r$\n\
            -javaagent:$INSTDIR\tools\sts-4.7.1\lombok.jar$\r$\n\
            -Dfile.encoding=UTF-8$\r$\n"
  FileClose $9 ; Closes the filled file
FunctionEnd

Function AddEnvironmentVariablesInHKCU
  ; add Environment Variables
  EnVar::Check "temp" "NULL"
  Pop $0
  DetailPrint "EnVar::Check temp:NULL returned=|$0|"
  ; JAVA_HOME
  EnVar::AddValue "JAVA_HOME" "$INSTDIR\tools\java\java-1.8.0-
openjdk-1.8.0.212-1"
  Pop $0
  DetailPrint "EnVar::AddValue JAVA_HOME returned=|$0|"
  ; GRADLE_HOME
  EnVar::AddValue "GRADLE_HOME" "$INSTDIR\tools\gradle-6.9.2"
  Pop $0
  DetailPrint "EnVar::AddValue GRADLE_HOME returned=|$0|"
  ; MAVEN_HOME
  EnVar::AddValue "MAVEN_HOME" "$INSTDIR\tools\apache-maven-3.8.1"
  Pop $0
  DetailPrint "EnVar::AddValue MAVEN_HOME returned=|$0|"
FunctionEnd

Function AddPathsInHKCU
  ; add Paths
  EnVar::AddValueEx "Path" "%JAVA_HOME%\bin"
  Pop $0
  DetailPrint "EnVar::AddValue Path %JAVA_HOME%\bin = |$0|"
  EnVar::AddValueEx "Path" "%GRADLE_HOME%\bin"
  Pop $0
  DetailPrint "EnVar::AddValue Path %GRADLE_HOME%\bin = |$0|"
  EnVar::AddValueEx "Path" "%MAVEN_HOME%\bin"
  Pop $0
  DetailPrint "EnVar::AddValue Path %MAVEN_HOME%\bin = |$0|"
  ;DetailPrint "EnVar::Update HKLM JAVA_HOME returned=|$0|"
  ;EnVar::Check "NULL" "NULL"
  ;Pop $0
  ;DetailPrint "EnVar::Check write access HKCU returned=|$0|"
FunctionEnd
```

```
Function InstallGit
  ; Install git
;  ExecWait "$INSTDIR\tools\Git-2.36.1-64-bit.exe"
  ExecWait $fileGitInstaller ;"$INSTDIR\tools\Git-2.37.0-64-bit.exe"
FunctionEnd

Function InstallNodejs
  ; Install Node.js v12.22.9
  ReadRegStr $R0 HKLM "SOFTWARE\Node.js" "Version"

  ${If} $R0 == ""
    ;ExecWait 'C:\Windows\SysWOW64\msiexec.exe /i "$INSTDIR\tools\node-
v12.22.9-x64.msi"'
    ExecWait 'C:\Windows\SysWOW64\msiexec.exe /i $fileNodejsInstaller'
  ${Else}
    ${If} $R0 == "12.22.9"
      ; already installed, skip this step
    ${Else}
      ; uninstall different version and install v12.22.9 version
      ExecWait "C:\Windows\SysWOW64\msiexec.exe /x {C1B586E6-C075-42F3-
B7E4-0DE4222DEEC0}"
      ;ExecWait 'C:\Windows\SysWOW64\msiexec.exe i
"$INSTDIR\tools\node-v12.22.9-x64.msi"'
      ExecWait 'C:\Windows\SysWOW64\msiexec.exe i $fileNodejsInstaller'
    ${EndIf}
  ${EndIf}
FunctionEnd

Function InstallYarn
  ; Install Yarn
;  ExecWait 'C:\Windows\SysWOW64\msiexec.exe /i
"$INSTDIR\tools\yarn-1.22.4.msi"'
  ExecWait 'C:\Windows\SysWOW64\msiexec.exe /i $fileYarnInstaller'
FunctionEnd

Function CreateDesktopShortcuts
  ; Create Desktop Shortcuts
  CreateShortCut "$DESKTOP\U.STRA Framework 개발환경 - VSCODE.lnk"
"$INSTDIR\tools\VSCode-win32-x64-1.48.0\Code.exe"
  CreateShortCut "$DESKTOP\U.STRA Framework 개발환경 - STS.lnk"
"$INSTDIR\tools\sts-4.7.1\SpringToolSuite4.exe" "-data
$INSTDIR\workspace"
FunctionEnd

Section "MainSection" SEC01
  SetOutPath "$INSTDIR"
  SetOverwrite ifnewer
  File ".\Input\ustra.7z"
  ; First above all, Extract Compressed file
  Nsis7z::ExtractWithDetails "$INSTDIR\ustra.7z" "Unpacking %s..."
```

```
  ; Set Variables to Install
  Call InitInstallers
  ; Set SpringToolSuite4.ini File
  Call WriteSTS4IniFile
  ; Install Utilities
  ; Install Node.js
  Call InstallNodejs
  ; Install Yarn
  Call InstallYarn
  ; Install Git
  Call InstallGit
  ; Set Environment Variables, HKEY_CURRENT_USER
  ; Add Environment Values; JAVA_HOME, GRADLE_HOME, MAVEN_HOME
  Call AddEnvironmentVariablesInHKCU
  ; Add Paths; %JAVA_HOME%\bin, %GRADLE_HOME%\bin, %MAVEN_HOME%\bin
  Call AddPathsInHKCU
  ; Create Desktop Shortcuts for VSCode, STS4
  Call CreateDesktopShortcuts
  ; When installation completed, delete compressed file
  Delete "$INSTDIR\ustra.7z"

SectionEnd

Section -AdditionalIcons
  CreateDirectory "$SMPROGRAMS\U.STRA Framework 개발 환경"
  CreateShortCut "$SMPROGRAMS\U.STRA Framework 개발 환경\Uninstall.lnk"
"$INSTDIR\uninst.exe"
SectionEnd

Section -Post
  WriteUninstaller "$INSTDIR\uninst.exe"
  WriteRegStr ${PRODUCT_UNINST_ROOT_KEY} "${PRODUCT_UNINST_KEY}"
"DisplayName" "$(^Name)"
  WriteRegStr ${PRODUCT_UNINST_ROOT_KEY} "${PRODUCT_UNINST_KEY}"
"UninstallString" "$INSTDIR\uninst.exe"
  WriteRegStr ${PRODUCT_UNINST_ROOT_KEY} "${PRODUCT_UNINST_KEY}"
"DisplayVersion" "${PRODUCT_VERSION}"
SectionEnd


Function un.onUninstSuccess
  HideWindow
  MessageBox MB_ICONINFORMATION|MB_OK "$(^Name)는(은) 완전히 제거되었습니다."
FunctionEnd

Function un.onInit
  MessageBox MB_ICONQUESTION|MB_YESNO|MB_DEFBUTTON2 "$(^Name)을(를) 제거하
시겠습니까?" IDYES +2
  Abort
FunctionEnd
```

```
Section Uninstall
;  Delete "$INSTDIR\uninst.exe"
;  Delete "$INSTDIR\ustra.7z"
;  Delete "$INSTDIR\tools\sts-4.7.1\SpringToolSuite4.ini"

  ; Delete environment variables
  ; JAVA_HOME
  ;EnVar::Delete "JAVA_HOME"
  EnVar::DeleteValue "JAVA_HOME" "$INSTDIR\tools\java\java-1.8.0-
openjdk-1.8.0.212-1"
  ; GRADLE_HOME
  ;EnVar::Delete "GRADLE_HOME"
  EnVar::DeleteValue "GRADLE_HOME" "$INSTDIR\tools\gradle-6.9.2"
  ; MAVEN_HOME
  ;EnVar::Delete "MAVEN_HOME"
  EnVar::DeleteValue "MAVEN_HOME" "$INSTDIR\tools\apache-maven-3.8.1"
  EnVar::Delete ""

  ; Delete Path
  EnVar::DeleteValue "Path" "%JAVA_HOME%\bin"
  EnVar::DeleteValue "Path" "%GRADLE_HOME%\bin"
  EnVar::DeleteValue "Path" "%MAVEN_HOME%\bin"

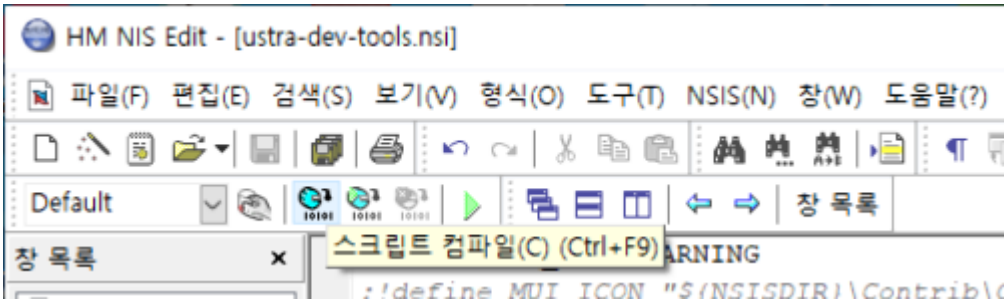
  Delete "$SMPROGRAMS\U.STRA Framework 개발 환경\Uninstall.lnk"

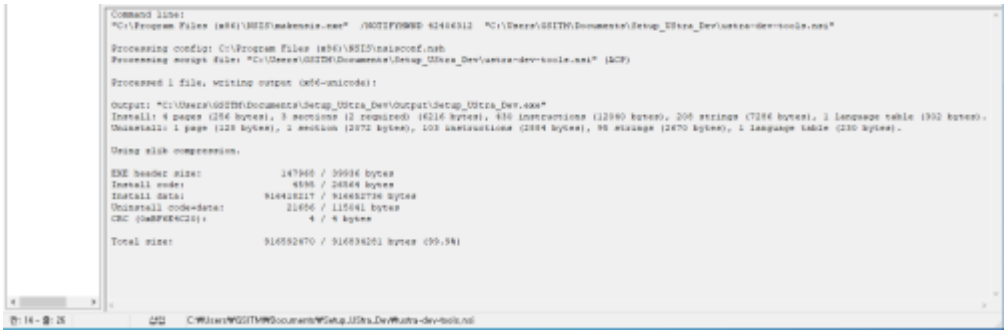
  Delete "$DESKTOP\U.STRA Framework 개발 환경 - VSCODE.lnk"
  Delete "$DESKTOP\U.STRA Framework 개발 환경 - STS.lnk"
  RMDir "$SMPROGRAMS\U.STRA Framework 개발 환경"
  RMDir /r "$INSTDIR"

  DeleteRegKey ${PRODUCT_UNINST_ROOT_KEY} "${PRODUCT_UNINST_KEY}"
  SetAutoClose true
SectionEnd
```

Build & Test

- Build; 작성한 스크립트를 빌드한다. 오류가 없으면 설치 파일이 생성된다.





- Test on Windows
  - 설치 테스트를 위한 Windows 운영체제를 준비한다; 포맷 후 Windows만 설치한 PC 혹은 Hyper-V, VMWare, Virtual Box 등의 가상 머신에 Windows 설치. (가능한 한 응용 프로그램을 설치하지 않은 Windows 운영체제를 추천)
  - 준비한 Windows 운영체제에 빌드한 설치 파일을 복사한다.
  - 설치 파일을 이용하여 프로그램을 설치한다.
  - 설치한 프로그램 동작을 확인한다.
    - SpringToolSuite4
    - VSCode
    - Node.js
    - Yarn
    - Git
  - 시스템 환경 변수 편집 혹은 CMD 등에서 환경 설정 내용을 확인한다; JAVA_HOME, GRADLE_HOME, MAVEN_HOME, Path
  - 확인 후 의도한 대로 설치되지 않았으면 스크립트 수정 후 빌드 → 테스트를 다시 진행하고, 의도한 대로 설치되었다면 다른 Windows 시스템에도 테스트 진행하여 확인한다. 다시 테스트를 진행하기 전에 반드시 이전 설치 및 설정된 내역을 리셋한다. (Uninstall, Windows 복귀 등)
  - 확인이 완료되면 배포한다.

References

- 개발 환경 및 관련 리소스는 아래의 링크에서 확인할 수 있다.
  - NSIS Download
  - NSIS Users Manual
  - NSIS Wiki
  - HM NIS EDIT: A Free NSIS Editor/IDE
  - Nsis7z_plguin
  - EvVar Plugin for NSIS
  - NSIS 사용자 설명서 @opentutorials.org
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