MicroFocus Windows Runtime Component

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Introduction

1.1. Related Products

- MetaStore Manager (and the corresponding batch component MSBSTORE)
- MetaMap Manager (and the corresponding batch component MSBMAP)
- Generator Manager (and the corresponding batch component MSBGEN)

1.2. Terminology

MDL	MetaSuite Definition Language
MXL	MetaSuite Export Language
MGL	MetaSuite Generated Language
MRL	MetaSuite Run Language

CBL	COBOL source
COB	COBOL source
SQB	SQL COBOL source
ECO	Embedded SQL COBOL source
<Ins>	MetaSuite installation folder on the client side

1.3. System Requirements

CPU	Pentium Processor or higher
System RAM	Minimum of 96 MB
Hard disk space	Minimum 300 MB of free disk space for storage of MetaSuite software files

Operating System	• Windows Vista • Windows XP with Service Pack 2 • Windows 2000 with Service Pack 3 • Windows 98, Windows Me
Software	• Microsoft .NET Framework 2.0 (already included in Windows Vista) • MicroFocus COBOL >= 4.0.16 for Windows/NT or 95 • MicroFocus Embedded SQL Toolkit V >= 2.0 for MS/SqlServer

1.4. Pre-installation Requirements

Before installing the runtime component, you must:

1. Install MetaSuite and select *MicroFocus on Windows* as Generator environment.

   For more detailed information, refer to the *Installation and Setup Guide*.

2. Create the MetaSuite Generator Dictionary for MicroFocus on Windows.

   For more detailed information, refer to the *Generator Manager User Guide*.

CHAPTER 2
About This Manual

This guide describes how to install the MetaSuite MicroFocus NT runtime component. More specifically, it describes the installation of the following MetaSuite components:

- Base product
- MetaSuite Database Interfaces

The instructions for these components refer to additional information found in separate documents. Be sure to have those documents available during the installation.

2.1. Prerequisites

Product installers are expected to be familiar with their host operating systems and software installation processes.

2.2. Related Publications

The MetaSuite User and Reference Guides describe the different MetaSuite components and provide examples for using MetaSuite. Those guides should be available for reference during the installation and test procedures described here.

The following table gives an overview of the complete MetaSuite documentation set.

Release Information	Release Notes 8.1.3
Installation Guides	• BS2000/OSD Runtime Component • DOS/VSE Runtime Component • Fujitsu Windows Runtime Component • MicroFocus Windows Runtime Component • MicroFocus UNIX Runtime Component • OS/390 and Z/OS Runtime Component • OS/400 Runtime Component • VisualAge Windows Runtime Component • VisualAge UNIX Runtime Component • VMS Runtime Component
User Guides	• INI Manager User Guide • Installation and Setup Guide • Introduction Guide • MetaStore Manager User Guide • MetaMap Manager User Guide • Generator Manager User Guide

Technical Guides	• ADABAS File Access Guide • IDMS File Access Guide • IMS DLI File Access Guide • RDBMS File Access Guide • XML File Access Guide • Runtime Modules • User-defined Functions User Guide

If you are unfamiliar with MetaSuite, the following technical description provides you with a brief overview.

The MetaSuite System	MetaSuite is designed for data retrieval, extraction, conversion and reporting. It includes a workstation-based graphical user interface and a mainframe runtime component.
MetaSuite Database Interfaces	MetaSuite can access data from a number of database management systems, using the same commands, program structure and retrieval techniques used for non-database files. Each database interface is available as an optional enhancement to the base product.
MetaMap Manager	MetaMap Manager is the MetaSuite tool used to define models. Such models are intuitively built by describing overall program specifications, input file definitions (data and process) and target file definitions (data and process).
MetaStore Manager	MetaStore Manager is a tool that provides metadata maintenance and documentation services.
Generator Manager	The Generator Manager is the system administration tool.All kinds of basic functionalities and customization possibilities are supported by this tool.

CHAPTER 3

MetaSuite Generator Runtime Installation

3.1. Runtime Components

The `x:\installdirectory\GENMicroFocus_NT\system` directory contains the following files:

```
COBOL sources:    MS*813.cbl
COBOL DLL:        MS*813.dll
Windows scripts:  mkcob.cmd
                  mkcobdb2.cmd
                  mkcobdb2_NetExpress.cmd
                  mkcobinf.cmd
                  mkcobinf_NetExpress.cmd
                  mkcobora.cmd
                  mkcobora_NetExpress.cmd
                  mkcobrun.cmd
                  mkcobsql.cmd
                  mkcobsql_NetExpress.cmd
                  mkcobsyb.cmd
                  mkcobsyb_NetExpress.cmd
                  mkcob_NetExpress.cmd
                  mkrts813.cmd
                  mkrts813_NetExpress.cmd
                  msrun.cmd
```

3.2. Install Runtime

Use a File Transfer Program (FTP) to copy the MetaSuite runtime source code (all the .cbl files) from the `MetaSuite\GenMicroFocus_Windows\SYSTEM` folder into the MetaSuite source library.

Note: If your COBOL compiler does not support Unicode (i.e., the Unicode functions "display-of" and "national-of" with the option "second argument" to provide a code page (for example 1208 to do the conversion to or from UTF-8)), some runtime programs can not be compiled.

The list of the following 3 files are optional, and are used for SQLCODE handling when SQL source files are used:

```
MSD2X813.dll    DB2/NT SQLCODE handling
MSORX813.dll    Oracle SQLCODE handling
MSSQX813.dll    SqlServer SQLCODE handling
```

Compile & Link Runtime

When the list of these files (and optionally your optional SQLCODE handling program) can not be found in `x:\installdirectory\GENMicroFocus_NT\system`, the following procedures must be executed to recreate the list of files:

```
cd x:\installdirectory\GENMFNT\system
mkrts813
```

The compiled and linked runtime DLLs will already be copied to `x:\installdirectory` in the script.

CHAPTER 4

Compile a MetaSuite Generator Program

4.1. Overview

`x:\installdirectory\GENMicroFocus_NT\SYSTEM` contains MK*.BAT which can be used to (pre-)compile a MetaSuite Generator program. Following compilation scripts are installed:

```
mkcob.bat
mkcobdb2.bat
mkcobinf.bat
mkcobora.bat
mkcobsql.bat
mkcobsyb.bat

mkcob.cmd
mkcobdb2.cmd
mkcobdb2_NetExpress.cmd
mkcobinf.cmd
mkcobinf_NetExpress.cmd
mkcobora.cmd
mkcobora_NetExpress.cmd
mkcobrun.cmd
mkcobsql.cmd
mkcobsql_NetExpress.cmd
mkcobsyb.cmd
mkcobsyb_NetExpress.cmd
mkcob_NetExpress.cmd
```

4.2. Compilation

```
cd x:\installdirectory\GENMicroFocus_NT\MGL
MKCOB MXL-name
```

The following procedure will be executed:

```
del %1.exe
del %1.def
del %1.obj
del %1.aif
mfenv 32 COBOL %1.mgl,%1,last.lst,NUL
if %ERRORLEVEL% == 12 notepad last.lst
mfenv 32 cbllink %1
```

4.3. Pre-compilation

When your MetaSuite program accesses a RDBMS source file, the generated program must be pre-compiled before compilation. Pre-compilation is dependent of the type of RDBMS that will be accessed.

DB2/NT

```
cd x:\ installdirectory\GENMicroFocus_NT\MGL
mkcobdb2 MXL-name
```

The following procedure will be executed:

```
del %1.exe
del %1.def
del %1.obj
copy %1.mgl %1.sqb
db2 db2start
db2 connect to …
db2 precompile %1.sqb target mfcob bindfile DATETIME ISO messages
%1.msg
if %ERRORLEVEL% == 4 notepad %1.msg
mfenv 32 COBOL %1,%1,last.lst,NUL
if %ERRORLEVEL% == 12 notepad last.lst
mfenv 32 cbllink %1+cobintfn db2api.lib db2cli.lib
db2 bind %1.bnd blocking all datetime iso isolation cs
db2 connect reset db2 db2stop
```

Informix

```
cd x:\ installdirectory\GENMicroFocus_NT\MGL
mkcobinf MXL-name
```

The following procedure will be executed:

```
del %1.exe
del %1.eco
del %1.cob
esqlCOBOL -t mf2 -log %1.log -esqlout %1.cob -native %1.mgl
```

Oracle

```
cd x:\ installdirectory\GENMicroFocus_NT\MGL
mkcobora MXL-name
```

The following procedure will be executed:

```
del %1.cbl
procob userid= userid/password iname=%1.mgl oname=%1.cbl mode=ansi
litdelim=apost sqlcheck=full
if %ERRORLEVEL% == 12 notepad %1.lis
del %1.exe
del %1.def
del %1.obj
del %1.aif
mfenv 32 COBOL %1,%1,last.lst,NUL
if %ERRORLEVEL% == 12 notepad last.lst
cbllink %1
```

SqlServer

```
cd x:\ installdirectory\GENMicroFocus_NT\MGL
mkcobsql MXL-name
```

The following procedure will be executed:

```
del %1.exe
del %1.def
del %1.obj
mfenv 32 COBOL %1.mgl,%1,last.lst,NUL sql(mssql) sqlpass(password)
sqldb(dbname)
if %ERRORLEVEL% == 12 notepad last.lst
cbllink %1+cobintfn sqlakw32.lib
```

Sybase

```
cd x:\ installdirectory\GENMicroFocus_NT\MGL
mkcobsyb MXL-name
```

The following procedure will be executed:

```
del %1.exe
del %1.def
del %1.obj
copy %1.MGL %1.CBL
mfenv 32 COBOL %1.CBL,%1,last.lst,NUL sql(mssql) sqlpass(password)
sqldb(dbname)
if %ERRORLEVEL% == 12 notepad last.lst
mfenv 32 cbllink %1+cobintfn sqlakw32.lib
```

CHAPTER 5

Run a MetaSuite Generator Program

When a MetaSuite Generator program is run, there is a template run script generated as well, which is stored in `x:\installdirectory\GENMicroFocus_NT\MRL\MXL-name.mrl`. You can customize the generation of the template run script by changing the code tables, which are used for the template run script. Refer to the *Generator Manager User Guide* for more information on how the code tables for the template run scripts are built.

Note: The scripts used in the following sections are for documentary purposes only.

5.1. Example

The following is an example run script, which is generated for EX0.MXL.

```
rem Windows/MicroFocus Runscript For EX0-0001
set dd_PPTIPT=NUL
set dd_PPTF01=employee-master
set dd_PPTLOG=EX0.log
del %dd_PPTLOG%
set dd_PPTLST=EX0.lst
del %dd_PPTLST%
set dd_PPTTD01=EX0.d01
del %dd_PPTTD01%
set dd_PPTDBG=EX0.dbg
del %dd_PPTDBG%
set COBSW=+S5+D-F
EX0.exe
set RC=%errorlevel%
echo %RC%
```

CHAPTER 6
RDBMS Run Considerations

Users can set only 1 runtime variable on the command for security reasons. The next example will set the password:

```
XXXXXXXX.exe SYS-DB-PASSWORD = 'password'
```

6.1. DB2/NT

DB2/NT users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = 'server'
```

6.2. Informix

Informix users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = 'server'
```

6.3. Oracle

Oracle users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = 'connect string'
SYS-DB-USER = 'user-id'
SYS-DB-PASSWORD = 'password'
```

You can use as well the transparent logon for Oracle:

```
SYS-DB-CONNECT = '(AUTO)'
```

6.4. SQL Server

SQL Server users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = 'server'
SYS-DB-USER = 'user-id.password'
```

You can use as well the NT logon for SQL Server:

```
SYS-DB-USER = '$INTEGRATED'
```

6.5. Sybase

Sybase users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = 'server'
SYS-DB-USER = 'user-id'
SYS-DB-PASSWORD = 'password
```

6.6. ODBC

If the SQL dialect is set to ODBC then users should supply the following MetaSuite Generator application runtime variable in the PPTIPT file to connect to a specific database:

```
SYS-DB-CONNECT = {'ODBC database name' | '(DBNAME)'}
SYS-DB-USER = 'user-id'
[SYS-DB-PASSWORD = 'password']
```

Special rule:

If SYS-DB-CONNECT = '(DBNAME)' then the DBNAME parameter value (specified in the ADD FILE command in the MDL) will be taken.
The runtime variable SYS-DB-DATABASE however can overwrite this value.
So the logic order is:

```
SYS-DB-CONNECT
SYS-DB-DATABASE (if SYS-DB-CONNECT='(DBNAME)')
File specific DBNAME (if SYS-DB-DATABASE empty)
```