

# XTD - 7 : Provisioning the Contents



2001. 11. 23

## XTD Document Version History

Version	Date	Author	Description
1.0	2001 - 11 - 23	Kim.Y.D	Created.
1.1	2001 - 12 - 20	Kim.W.G	Modified. - msd file
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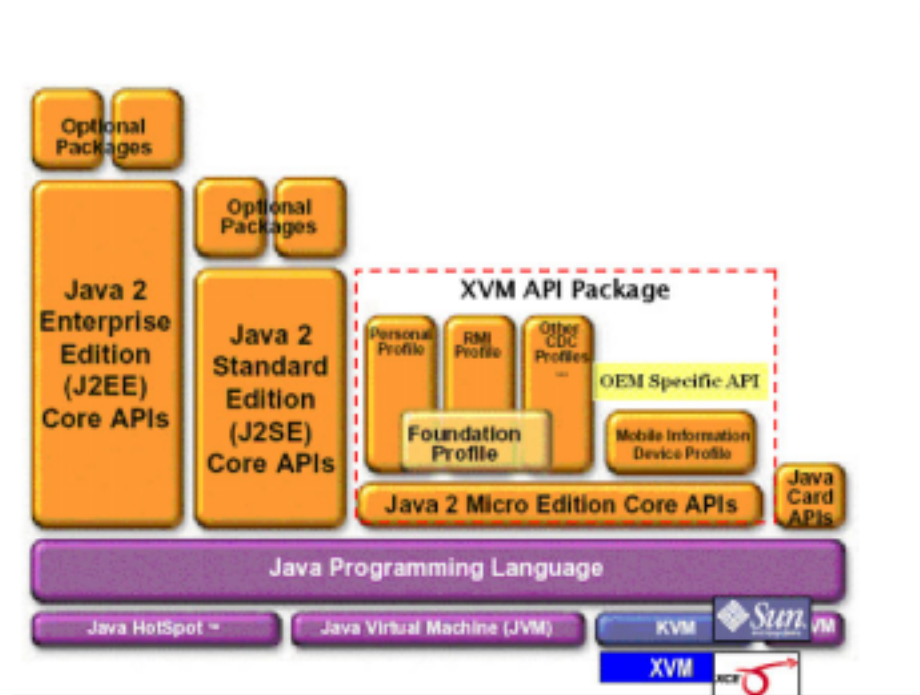
History of XTD-7: 2001.11.23

## 1. XVM Service

### 1.1 Java XVM

Sun Microsystems Java Platform

3가 Edition



#### J2EE(Java 2 Enterprise Edition)

Server side application

API package가 가

#### J2SE(Java 2 Standard Edition)

Simple Server model/ Client application, stand-alone application

API Package

#### J2ME(Java 2 Micro Edition)

CLDC,MIDP

Micro device (PDA , Cellular Phone,...)

Java

application

#### CLDC(Connected Limited Device Configuration)

( ,CPU Power, Display area/Quality,Networking )

Device Java application Java virtual  
machine )

### MIDP(Moblile Information Device Profile)

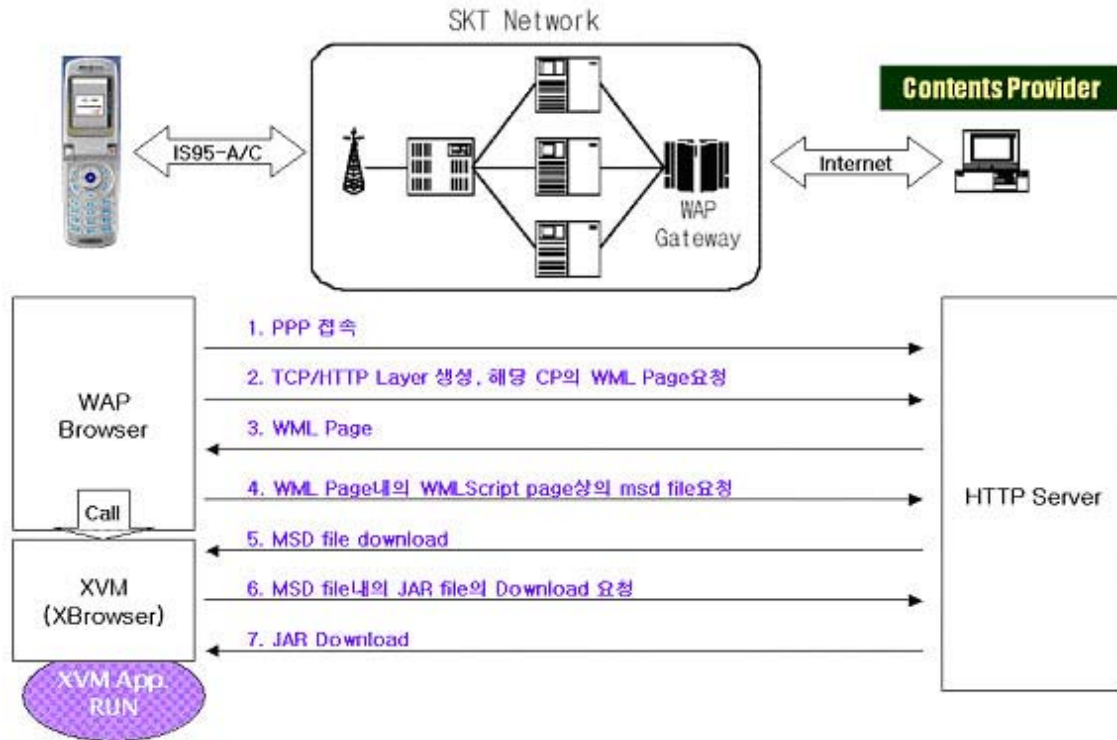
CLDC Device Device 가 API  
Pakage . , PDA Cellular Phone  
Cellular Phone API Package .)

### XVM

Sun Microsystems CLDC/MIDP Clean Room(Specification  
Source Code .)  
J2ME Application J2ME Runtime .  
가 011 가  
OEM Specific API( :sound, vibration, backlight, SMS ) 가  
J2ME Application Platform .

#### 1.2 XVM Service Model

XVM Application JVM Application  
. WAP WAP Browser Network Connection  
URL WML Page JVM Application  
Stand - Alone Network Connection  
. , JVM Application  
(Xbrowser : Application Manager MIDlet)  
Download Phone .



XVM Application Service      wml,wmls

WAP Browser      XVM      Xbrowser(      )      Application

Download      .      XVM Application Service

WAP service      , HTTP Server

Application      wml, wmlScript, msd, jar file      Download      . ,

1      4      WAP      , 4      WML

WMLScript      Function      Function

Multimedia.runXVM()      WAP Browser function      .      XVM

Xbrowser(      )      Application management

가      Application      Download      .

## 2. Service

### 2.1 System

## 2.2 Server Side

Internet HTTP Server :  
 Msd, jar file Apache, IIS HTTP Server가  
 . Default Port 80 .

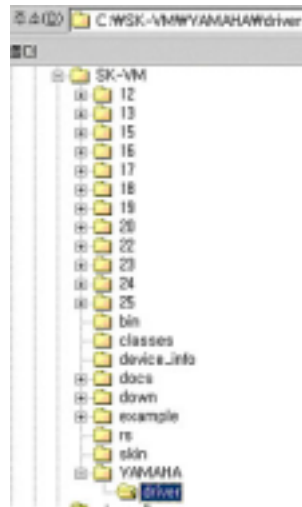
## 2.3 Client Side

**XVM Emulator :**  
 Application Windows Emulator  
 가 가 Phone

XCE Developer Zone(<http://developer.xce.co.kr>) Download  
 Download .



ZIP File c: \ SK-VM  
 Install . c: \ SK-VM



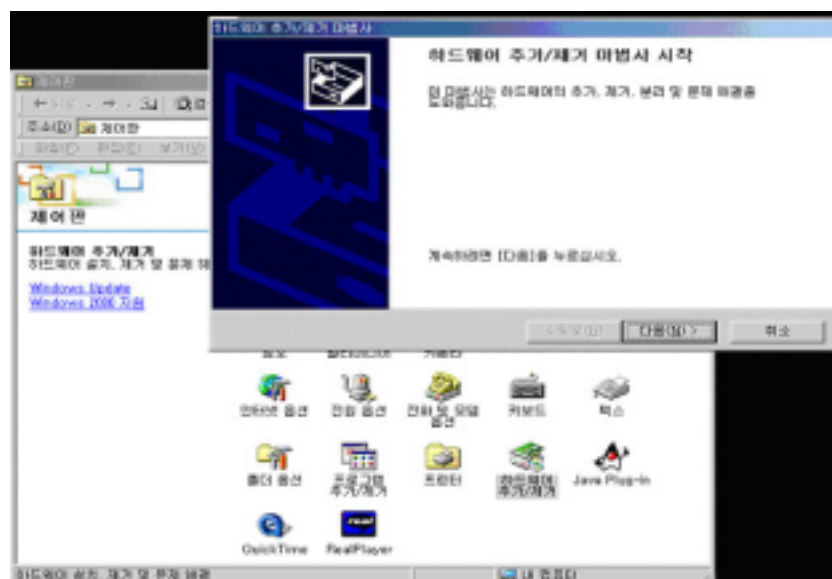
## MMF Sound Driver

1. "C:\SK-VM\YAMAHA\driver" Directory

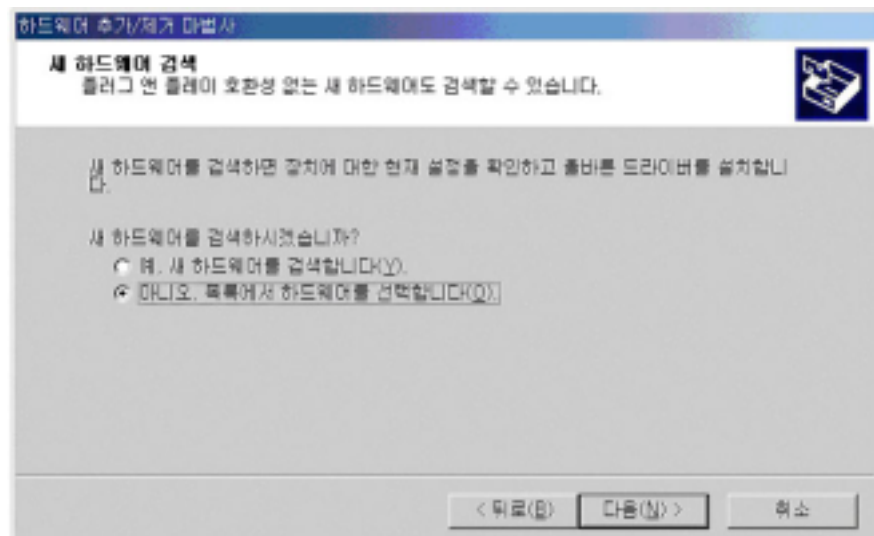
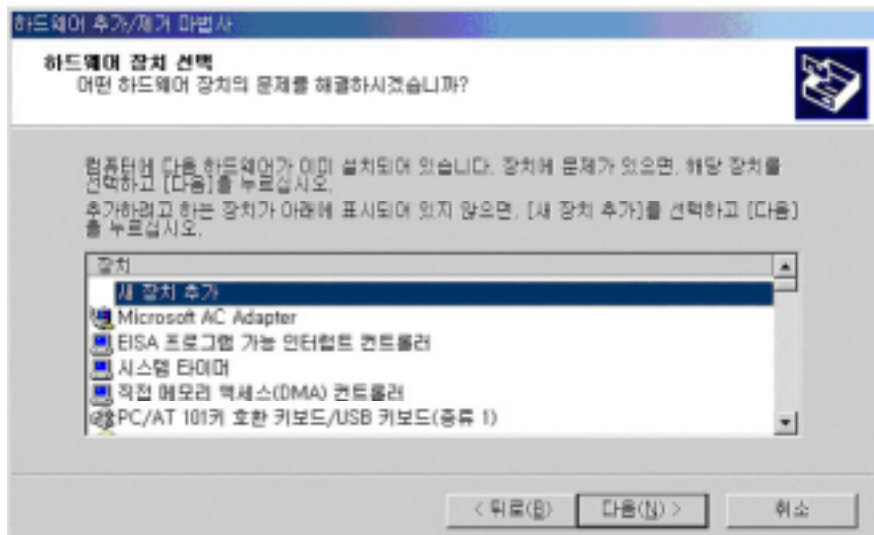
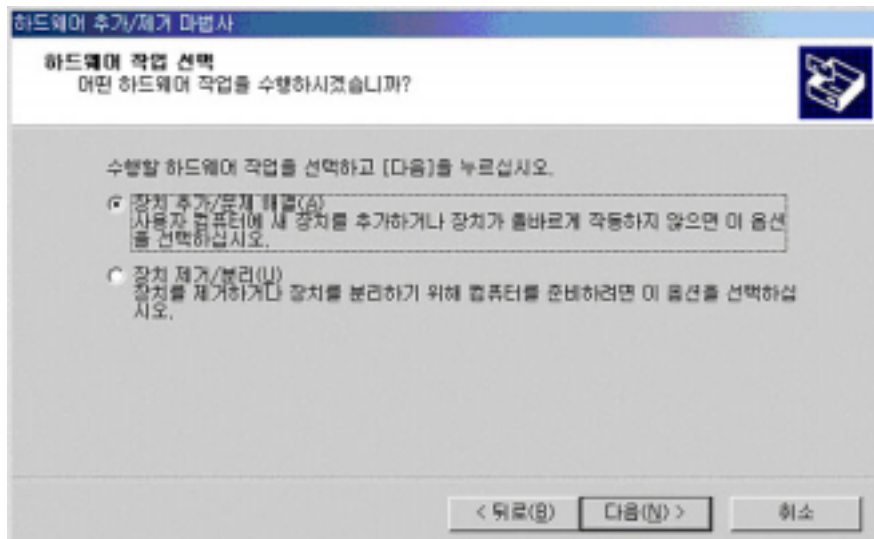
이름	크기	종류
ma2synth.inf	5KB	설치 정보
MA2Synth.sys	252KB	시스템 파일

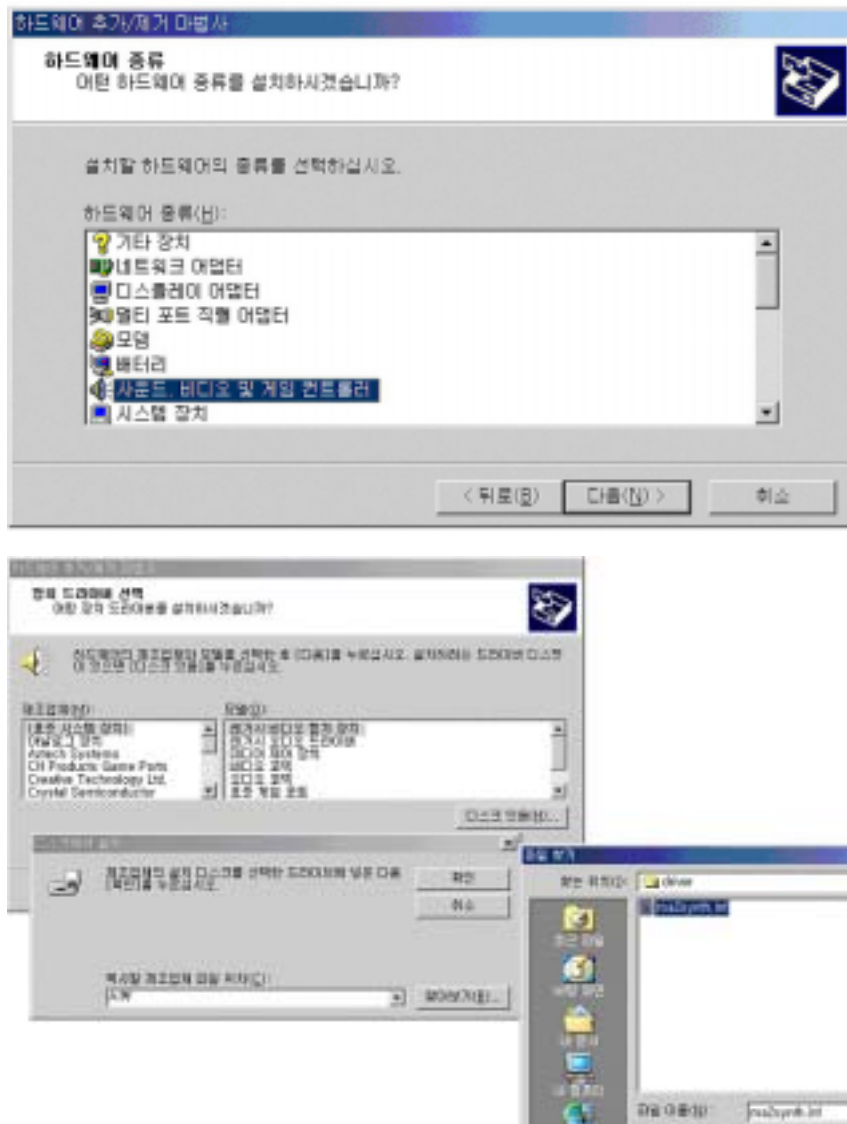
2. [ ] -> [ ] -> [ ] 가

- 3.









## Test Phone

XVM                      Test Phone                      .

Application                      Test Phone

,                      Target phone

. Emulator가                      Phone

Emulator                      Phone                      Application

Application                      Bug

가 .

## Source Editor

Java Source

## Java compiler

Sun JDK “javac” compiler, java  
compiler가 . JAVA class file format  
compiler .

, XVM CLDC/MIDP Package compile PC  
workstation java boot class package

, java compiler option bootclasspath String  
class J2SE java.lang.String XVM java.lang.String  
class가 compile .

, XVM Emulator /classes/classes.jar

:

javac -bootclasspath c: \ SK - VM \ classes \ classes.jar testMidlet.java

## 2.2 가 System

### 2.2.1 Dynamic WML/MSD Service

Contents wml  
msd 가 . HTTP Server JSP,Servlet,ASP,PHP,CG  
Dynamic Web service 가 .

### 2.2.2 Database system

XVM Application Server side database가  
Oracle, SQL Server Database system .

### 2.2.3 WAP Development Toolkit

XVM Service WAP WAP Contents  
Toolkit 가 .

## 3.

XVM Content MSD , JAR file . WAP Browser  
JAR file WML Page .

### WML

WAP Browser Navigation WML Page .

### WML Script

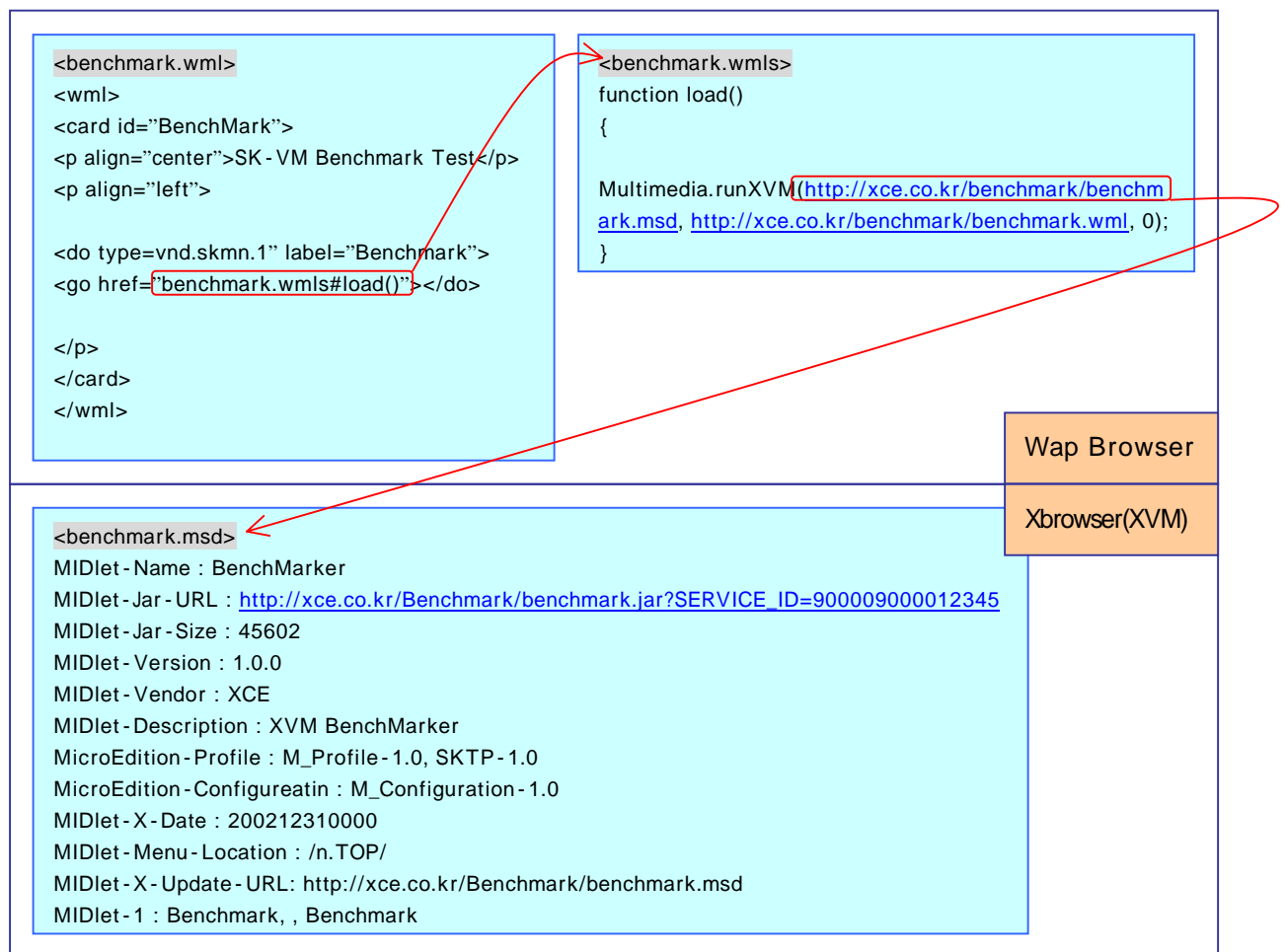
msd file WML Script function  
.

### MSD

XVM Application descriptor file application attribute filed  
Application manager MIDlet  
. , jar file .

### JAR

Contents class file, image, sound jar package  
. Application .



XVM BenchMark MIDlet , Benchmark.wml  
 wml script function , Benchmark.wmls  
 function( load() )  
 Wml script function Multimedia.runXVM() msd  
 가 XVM application manager가 msd file download

### 3.1 Service file

#### 3.1.1 HTTP Server MIME Type Setting

msd, jar file HTTP Server  
 WAP Service(WML, WMLScript page download service)  
 HTTP Server MIME Type . WAP  
 Browser MIME Type 가 가 가

가 가

## MIME Type

### Example

Apache HTTP Server    Apache/conf/httpd.conf

```
# AddType allows you to tweak mime.types without actually editing it, or to
# make certain files to be certain types.
# For example, the PHP 3.x module (not part of the Apache distribution - see
# http://www.php.net) will typically use:
#
#AddType application/x-httpd-php3 .php3
#AddType application/x-httpd-php3-source .phps

AddType application/x-tar .tgz

# Add Types for WAP
AddType text/vnd.wap.wml .wml
AddType application/vnd.wap.wmlc .wmlc
AddType application/vnd.wap.wmlscriptc .wmlsc
AddType image/vnd.wap.wbmp .wbmp
AddType text/vnd.wap.wmlscript .wmlscript
AddType text/vnd.wap.wmlscriptc .wmlsc
AddType text/vnd.wap.wmlscriptc .wmlsc
```

### 3.1.2 WML , WML Script

XVM Application      Download      WML Page

[XVMGames.wml]

```
<wml>
<card id=Download">
  <p align="center">XVM                      </p>
  <p align="left">
    <do type="vnd.skmn.1" label="          ">
      <go href=XVMGame.wmls#load_1()"/></do>

    <do type="vnd.skmn.2" label="          ">
      <go href=XVMGame.wmls#load_2()"/></do>

    <do type="vnd.skmn.3" label="          ">
      <go href=XVMGame.wmls#load_3()"/></do>
  </p>
</card>
</wml>
```

[XVMGames.wmls]

```
function load_1()
{
    Multimedia.runXVM("http://xce.co.kr/StartWars/StartWars.msdx",
        "http://xce.co.kr/XVMGames/XVMGames.wml", 0);
}

function load_2()
{
    Multimedia.runXVM("http://xce.co.kr/mpoker/mpoker.msdx",
        "http://xce.co.kr/XVMGames/XVMGames.wml", 0);
}

function load_3()
{
    Multimedia.runXVM(http://xce.co.kr/land/land.msdx,
        http://xce.co.kr/XVMGames/XVMGames.wml, 0);
}
```

## WML

WML	<do> tag	WAP Browser
-----	----------	-------------

```
<do type = "vnd.skmn.N"
```

“vnd.skmn.N” = WAP Browser WML Page  
.(N = 0~9)

```
<go href="XVMGames.wmls#load_1()"
```

reference .

```
XVMGames.wmls      #      load_1()
(wml script file name)      #      (script function name)
```

wml script file	wml script
-----------------	------------

function

## WML Script

WAP Browser XVM WMLScript function Multimedia.runXVM()  
 . SK Telecom WAP Service function .

Multimedia.runXVM((msdURL, retURL, svcOption);

msdURL : Download msd URL, URL 128

retURL : Download 가 wml

svcOption : (0 : , 1 : , 2 : ),

WAP Service WML, WMLScript

SK Telecom - N.TOP WAP Contents

NATE Home page -> Site map -> CP -> WAP Developer Tool -> WAP

### 3.1.3 MSD File

MSD MIDlet attribute field  
 value . Application Manager  
 field field .  
 HTTP Server msd MIME Type

Fields		
Field Name	Description	Example Values
MIDlet - Name	Application Suite 25	XVM BenchMarker
MIDlet - Version	Application Suite ( 0.0.0 )	0.1
MIDlet - Vendor	Application Suite Contents Provider 25	XCE



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MIDlet -JAR-URL	Application Suite ( Application Manager(XBrowser) HTTP ) CPID JID 12 .CPID JID 900009000012345	jar file download http://www.xce.co.kr/BenchMark.jar?SERVICE_ID=900009000012345
MIDlet -JAR-Size	Application Suite JAR size (byte )	30245 (30245 / 1024 = 29.536... , 29kBytes .)
MicroEdition - Profile	Application Suite MIDP SKTP(SK Telecom Profile) . SK-VM M_Profile-1.0, SKTP-1.0 .	M_Profile-1.0, SKTP-1.0 Sun Microsystems J2ME Wireless Toolkit JAD file MicroEdition-Profile MIDP_1.0
MicroEdition - Configuration	CLDC SK-VM M_Configuration-1.0 .	M_Configuration-1.0 , Sun Microsystems J2ME Wireless Toolkit JAD file MicroEdition- Configuration CLDC_1.0
MIDlet -X -Date	(YYYYMMDDhhmm) : 0 Dynamic Web Service(jsp,Servlet,PHP,CGI,ASP ) .. , , , : : : : 24 7	200111301230 2001 11 30 12 30 0
MIDlet - Menu -Location	가 '/' 가	/n.TOP/

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MIDlet - <n>	<p>12x12</p> <p>50</p> <p>package fully-qualified class name</p>	<p>BenchMark, BenchMark.png, com.xce.benchmark.BenchMark field</p> <p>Java Source</p> <p>Package</p> <p>filed package</p> <p>JAR Packaging</p> <p>MIDlet Run ClassNotFound</p>
MIDlet - Description		
MIDlet - Info - URL		
MIDlet - X - Update - URL	<p>WML</p> <p>URL.</p>	
App - Type	<p>MIDP</p> <p>MIDlet SK - VM App가</p> <p>MIDlet</p>	
User Defined Fields	<p>MIDlet MIDlet property</p>	<p>Host:xce.co.kr</p> <p>Port1:25000</p> <p>Port2:25001</p> <p>MIDlet MIDlet. GetAppProperty (String key) . Code msd</p> <p>file</p>
MIDlet - Icon	<p>가 12x12</p> <p>(X290 23x23)</p>	<p>'01.12</p> <p>(X290 )</p>

MIDlet - Ani - Icon	Animation Icon , 36x36(none- transparency lbm image) 2 <b>72x36</b>	'01.12 (X290 )
------------------------	---	-------------------

msd file 가 (12 ) 2  
MIDlet - X - Date  
12 MIDlet - Ani - Icon MIDlet - Icon

### Example

```
MIDlet - Name : Mpoker
MIDlet - Version : 1.0
MIDlet - Vendor : XCE
MIDlet - JAR - URL : http://xce.co.kr/mpoker.jar?SERVICE_ID=9000090000012345
MIDlet - JAR - Size : 30245
MIDlet—Description : Network Poker Game
MicroEdition - Profile : M_Profile - 1.0, SKTP - 1.0
MicroEdition - Configuration : M_Configuration - 1.0
MIDlet - X - Date : 200111301230
MIDlet - X - Update - URL : http://xce.co.kr/update.wml
MIDlet - Ani - icon : http://xce.co.kr/icon1.lbm
MIDlet - Icon : http://xce.co.kr/icon2.lbm
MIDlet - Menu - Location : /n.TOP/
MIDlet - 1 : Mpoker, , com.xce.game.mpoker.Mpoker
```

### 3.1.4 JAR file packaging

1. JAVA Source Compile .  
Javac -bootclasspath (classes.jar ) (compile java source file name)  
( ) javac -bootclasspath c: \ SK - VM \ classes \ classes.jar BenchMark.java

### 2. JAR Packaging

#### 2.1 Package

jar file

Jar -Mcvf (\_\_\_\_\_jar file name.jar) (packaging class file )

### Option

M : jar manifest file . XVM MIDlet manifest file

c : jar file .

v : jar packaging .

f : jar packaging jar file .

( ) jar -Mcvf BenchMark.jar BenchMark.class

Package /Sub Directory JAR Pakaging

JAR Packaging , jar

Directory . Directory '/'

jar packaging ClassNotFoundException Exception

, Image, Sound file FileNotFoundException IOException

MIDlet .

<Example> NetTester MIDlet packaging

NetTester MIDlet package .

```
1 package com.xce.jam;
2
3 import javax.microedition.lcdui.*;
4 import javax.microedition.midlet.*;
5 import javax.microedition.io.*;
6
7 public class NetTester extends MIDlet
8 {
```

Source code .

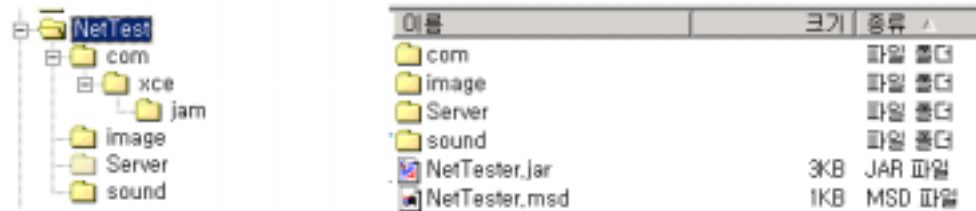


이름	크기	종류
NetTester\$DummyCanvas,...	1KB	Java Class
NetTester.class	4KB	Java Class
NetTester.java	4KB	Java Source

(1) Source Code Compile .

```
\NetTest\com\xce\jam>javac -bootclasspath c:\SK-VM\classes\classes.jar NetTester.java
```

(2) Compile class sound, image  
JAR Packaging .



```
\NetTest>jar -Mcvf NetTester.jar ./com/xce/jam/*.class ./sound/*. * ./image/*.png
```

```
C:\NetTest>jar -Mcvf NetTester.jar ./com/xce/jam/*.class ./sound/*. * ./image/*.png
adding: com/xce/jam/NetTester$DummyCanvas.class(in = 496) (out= 318)(deflated 37%)
adding: com/xce/jam/NetTester.class(in = 3626) (out= 1944)(deflated 46%)
adding: sound/snd.buz(in = 111) (out= 95)(deflated 14%)
adding: sound/snd.ma2(in = 4858) (out= 2867)(deflated 48%)
adding: sound/snd.mmf(in = 1662) (out= 1192)(deflated 28%)
adding: image/caution.PNG(in = 656) (out= 661)(deflated 8%)
adding: image/connecting.PNG(in = 288) (out= 293)(deflated -1%)
adding: image/connectionFailed.PNG(in = 312) (out= 317)(deflated -1%)
```

### 3.1.5 Pre-verification

Sun Microsystems J2ME Wireless Toolkit Pre-verification  
, XVM Class .

## 3.2

### 3.2.1 Server Side

1. HTTP Server .



2. HTTP Server Document Root wml, wmls,

msd, jar file



Apache HTTP Server  
Group/Apache/htdocs

Default Document Root  
.../htdocs directory

### 3.2.2 Client Side

1. Emulator download Test.



Emulator Phone Debug  
Emulator Test MIDlet Exception Bug  
Phone Test 가 .

2. download Test  
msd download wml,  
wmlScript NATE < > URL  
URL > wml .

Example> http://123.213.231.223/NetTester.wml

WAP Browser가 Contents WML 가 XVM Application  
Download XVM Xbrowser Download

### 3.3

가 . ,  
(Expire Date) , ,

msd file “MIDlet-X-Date” field .  
, , Download Server System  
MSD “MIDlet-X-Date” field

jsp [XCE Developer Zone(<http://developer.xce.co.kr>)-  
>Board-> ->41. Expire-data ] .

### 3.4 Trouble Shooting

#### 3.4.1 Service ID

Service ID . Service ID가 msd file Download  
JAR file download “ - .  
.” 가 . Service ID가 JAR  
Download 가 . Service  
ID SERVICE\_ID=900009000012345 .

#### 3.4.2 Apache Server Bug

Download "MicroEdition-Configuration" 가  
가 . Apache Server HTTP/1.1 Response  
chunked data가 msd download  
. apache server httpd.conf .

```
# The following directive disables HTTP/1.1 responses to browsers which
# are in violation of the HTTP/1.0 spec by not being able to grok a
# basic 1.1 response.
#
BrowserMatch "RealPlayer 4 \ .0" force-response-1.0
BrowserMatch "Java/1 \ .0" force-response-1.0
BrowserMatch "JDK/1 \ .0" force-response-1.0
# BrowserMatch "SKT" downgrade-1.0 force-response-1.0
```

# Download HTTP Response 1.0 version  
chunked data가 가 download가 가

3.4.3 JAD & MSD

Sun Microsystems J2ME Wireless Toolkit  
, Java Application Descriptor file JAD . XVM  
MSD가 . Attribute name  
Attribute가 가 가 .  
JAD Attribute 가 가

Attribute	XVM	J2ME ireless Toolkit
MicroEdition-Profile	M_Profile-1.0, SKTP-1.0	MIDP_1.0
MicroEdition-Configuration	M_Configuration-1.0	CLDC_1.0

3.4.4 “null 가 .”

가 msd 가 . Msd  
, 가 .

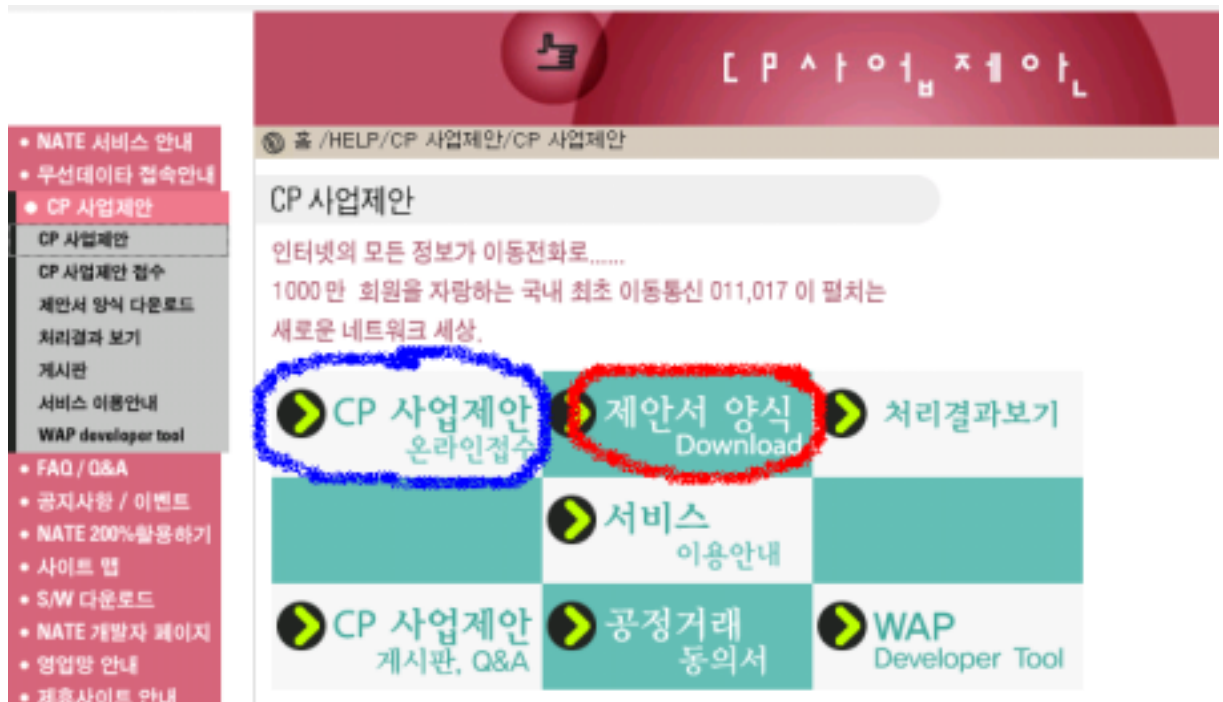
4.

SK-VM CP  
<http://www.nate.com:82/help/sitemap/index.htm> 가 CP





4.1 SK-VM CP



CP On-Line Download

4.2

On-Line Download

## 5. Contents

Case 1 : Expire Date가	Download	.
Content	MIDlet - X - Update - URL	WML Page
가 Download	. MIDlet - X - Update - URL	
	가	.
Contents	Download	rms
Application Data	.	
Application code	Application Code가 Write	.
가 Application Data(RMS	Application Data)	
가	.	
Case 2 : MSD	Expire Date	
MSD	Expire Date	, MIDlet
Code	.	,
Program Code가	Download	JAR
Packaging	.	
Case 3 : SMS	Application Download	
SK Telecom	SMS Download Notification Type	
Web	가 가	, .
.		
Case 4 : WAP Browser	XVM	
WAP Browser	XVM Application	.
WAP Browser Script Function	Multimedia.runXVM()	URL
XVM Application download	XVM Application	
.		