

XTD - 8 : FAQ

2001. 11. 23

XTD Document Version History

Version	Date	Author	Description
1.0	2001-11-23	Park.J.Y	Created.
1.0	2001-12-20	Kim.W.G	Modified - 가
1.1	2002-01-23	Kim.W.G	Modified - QnA 1~3200 가
1.1	2002-01-25	Kim.W.G	Modified - , 가

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1.

Q 1.1 : SK-VM ?

ANSWER :

XCE SK J2ME(Java2
Micro Edition) clean
room J2ME KVM
XVM(eXtended Virtual Machine) 가 CLDC
M-Configuration MIDP¹ M-Profile SK
OEM-Specific API² SKT-Service API SK-VM

Q 1.2 : OEM-Specific API ?

ANSWER :

MIDP 가 J2ME
MIDP Profile
OEM-Specific API
SK SKT-Service API OEM-Specific API
가

Q 1.3 : SK-VM LG Telecom ez-java ?

ANSWER :

SK-VM CLDC J2ME Profile MIDP clean room
M-Profile , LG Telecom ez-java SUN Microsystems
MIDP
KittyHawk

Q 1.4 : SK-VM GVM ?

ANSWER :

SK-VM
, GVM³ Mobile-C(C)
가 (가 vs API API)

Q 1.5 : Sun Microsystems
?

MIDP

SK-VM

ANSWER :

SK-VM CLDC/MIDP 100
SUN Microsystems MIDP
SK-VM SK-VM SKT-
Service API API SK-VM
MIDP

Q 1.6 :

ANSWER :

SK-VM S <http://developer.xce.co.kr>

2. (emulator)

Q 2.1 : 가 .
?

ANSWER :

SK-VM [Device] -> [Memory Map]

Q 2.2 : Device invokeWapBrowser 가

ANSWER :

가

Q 2.3 : MIDlet Classes 가 path class ?

ANSWER :

MIDlet Classes(Run dialog Frame) delete

Q 2.4 :
close .

ANSWER :

2, XBrowser((STOP))가 .

Q 2.5 : **?**

ANSWER :

System.out

Q 2.6 : ?

ANSWER :

Windows 2000) Win32 (Windows 95/98/ME, Windows NT 4.0, , Windows NT 4.0 Windows 2000
가 .

Q 2.7 : xBrowser url , .

ANSWER :

가 . ,

Q 2.8 : SKT Specific-OEM API ?

ANSWER :

Network Connection (ver1.0.1f) Backlight, Vibration, .

Q 2.9 : ?

ANSWER :

classpath example 가 .(example folder
) example package(ex : package skvm; ...)
midlet (skvm/MathTest) skvm.MathTest
가(add) .

Q 2.10: wml contents down 가 가 ?

ANSWER :

WAP Browser가 wml 가 .
msd file .

XTD_07_ProvisioningContents

Q 2.11 : Invalid char code 가 ?

ANSWER :

text draw ..
~
(ch > 0xb0a0 && ch < 0xc8ff) || (ch > 0xa1a0 && ch < 0xacff)
.. "invalid char code"가
..

3. (Contents)

Q 3.1 : XCE

, msd, jar, wml, wmls 가
?

ANSWER :

class file 가 가
midlet jar msd
XTD-7
wap browser가 가 wml, wmls

Q 3.2 :

?

ANSWER :

HTTP Protocol
description file
XTD_07_ProvisioningContents

Q 3.3 : WML

?

ANSWER :

WAP 가 WMLScript
가
XTD-7 : Provisioning The Contents

Q 3.4 :

update가 가 ?

ANSWER :

(msd file MIDlet-
X-Date)
MIDlet-X-Update-URL wml update
update

Q 3.5 : MIDlet-JAR_URL

jar

SERVICE_ID

?

ANSWER :

jar ?

>MIDlet-Jar-URL: http://xx.xx.xx.xx/xx.jar?SERVICE_ID=900009000012345

SERVICE_ID CP

Q 3.6 : ? 가

ANSWER :

가

가

Q 3.7 : MIDlet update RMS ?

ANSWER :

Upgrade Update jar, msd

Q 3.8 : RMS ?

ANSWER :

Connector

XFile

XTD-1 : Tutorial [FileIO.java](#)

Q 3.9 : Property ?

ANSWER :

[Device] → [View device-info]

XTD-7 : Provisioning The Contents

Q 3.10 : ?

ANSWER :

XVM

가

KSC-5601

가 , TextComponent

TextComponentHandler

가

XTD-10 : Creating New TextComponent

Q 3.11 : font SIZE_SMALL
가 ?

ANSWER :

가 . (Font.STYLE_PLAIN, Font.SIZE_MEDIUM)
SIZE_SMALL

Q 3.12 : ?

ANSWER :

```
import com.xce.lcdui.TextComponentHandler;
....
TextComponentHandler handler = TextComponentHandler.getTextComponentHandler();
int mode = handler.getInputMode();

// mode

public static final int ENG_CAPITAL = 1;
public static final int ENG_SMALL = 2;
public static final int NUMBER = 4;
public static final int SYMBOL = 8;
public static final int HANGUL = 16;
```

Q 3.13 : JAR 가 ?

ANSWER :

```
Jar
XFile xfile = new XFile("testjar.jar", "datafile.txt");
int readlen = xfile.available();
byte buf[] = new byte[readlen];
xfile.seek(fileposition,XFile.SEEK_SET);
xfile.read(buf, 0, readlen);
xfile.close();
```

Q 3.14: (,) 10
?

ANSWER :

Jar 가 jar, msd
가 10 , 10

Q 3.15 : SK-VM ?

ANSWER :

XCE XVM SUN Microsystems KVM XVM
pre-verification
KVM
verification feature compatibility가 XCE KVM XVM KVM pre-
XVM

Q 3.16 : SKT
SK-VM Wap

ANSWER :

SK
(, ...)
가 , CDMA 2000 1x 가 (SK-VM
CDMA 2000 1x) SK-VM , wap
(1 = 10) , (1
= 512bytes)

Q 3.17: , CP

ANSWER:

CP 가 XTD-7 :
Provisioning The Contents

4. (graphics)

Q 4.1 : Canvas 가 ?

ANSWER :

MIDP Canvas 가
SK-VM XTextField Canvas
TextField .

Q 4.2 : XTextField 가 .
?

ANSWER :

가 . 가
, ,
.

Q 4.3 : , 가 ?
?

ANSWER :

가 .
.

Q 4.4 : 'ㄱ' 가 , ,
?

ANSWER :

Canvas (, , , ,)
void paintIM(Graphics g)

Q 4.5 : 4Gray(BLACK, WHITE, DK-GRAY, LT-GRAY) RGB ?

ANSWER :

BLACK 0x00000000
DK_GRAY 0x00545454
LT_GRAY 0x00ababab
WHITE 0x00ffffff

4 Gray com.xce.lcd.uitoolkit setGrayScale()

Toolkit.BLACK
Toolkit.WHITE
Toolkit.LT_GRAY

Toolkit.DK_GRAY

Q 4.6 : SIS가 ?

ANSWER :

SIS Simple Image Service , SK-VM1.1 SIS API가
가 가

Q 4.7 : MIDP Image Resizing 가 ?

ANSWER :

Resizing Download
Performance

Q 4.8 : (Command Line, LCD) ,
?

ANSWER :

MIDP , SK-VM LCD
가
ex) repaint(0,0, getWidth(), getHeight()+16);

Q 4.9 : 가 lcd
?

ANSWER :

Scale , J2SE API
가 , Graphics2D source image

Q 4.10 : canvas 10pixel
?

ANSWER :

Q 4.11 :
 , 4 6 8
.

ANSWER :

SK-VM

가

가

가

JAR

가

가

가

가

nate

가

WIDTH, HEIGHT

X-350

128 x 112

Q 4.12 : `getPixel(x,y)`

?

ANSWER :

`getPixel(x, y)`
`0x00RRGGBB`

Graphics

Color

Q 4.13 : Form

Vertical ScrollBar

가

?

ANSWER :

Form

Q 4.14 : Canvas

Command

ANSWER :

Canvas

CommandListener

keyPressed

```
keyPressed
public void keyPressed(int keyCode) {
    switch (keyCode) {
        case KEY_COML :
            break;
        case KEY_COMR :
            break;
    }
}
```

5. (Image)

Q 5.1 : (transparency) SK-VM 가
?

ANSWER :

png24 . save for web

Q 5.2 : , png
.

ANSWER :

, png transparency /
drawImage , API
MIDP API reference .

Q 5.3 : png 8 . png
2 가 가 ?

ANSWER :

png 1, 2, 4, 8, 16 4 gray 2
8 png
index color .

Q 5.4 : png pngbuf가 가 OutOfMemory Error
가 . buf .

ANSWER :

PNGBUF PNG 가
가 , PNGBUF RESERVED
OutOfMemory error가 .

Q 5.5 : png 4 gray , , ,
.

ANSWER :

4-gray white lightgray가 .

Q 5.6 : PNG ?

ANSWER :

- PNG: interlaced
- 1,2,4,8,16 bit grayscale
- 8, 16 bit grayscale with alpha (8, 16 bit)
- 1,2,4,8 bit indexed RGB (max 256 color palette 가)
- 3, 6 bytes RGB: RGB가 1
- 4, 8 bytes RGBA: RGBA 1
- alpha value transparency (alpha==0,transparent)
- tRNS chunk

Q 5.7 : PNG mask transparent
color가 mask mask transparent

ANSWER :

PNG transparency color , mask
transparency mask 가 , PNG 가
가 .
lbm png2lbm -nottransparency
transparency lbm .

Q 5.8 : PNG ?

ANSWER :

PNG 가
: Width * Height * (2 + 1) / 8 (byte)
() : Width * Height * (2) / 8 (byte)
PNG LBM

Q 5.9 : png jar 가 png
가 ?

ANSWER :

png 가
jar

Q 5.10 : GIF ?

ANSWER :

GIF PNG format XCE LBM

Q 5.11 : ?

ANSWER :

PNG 가

OutOfMemoryError

Q 5.12 : 4-gray ?

ANSWER :

4-gray
4-gray , 4-gray

Q 5.13: png lbm ?

ANSWER :

png lbm 가 lbm
jar 가 . png lbm
가 가
, png , lbm
가

Q 5.14: mask, maskable image가 가 ?

ANSWER :

transparency() . mask가 true 가

Q 5.15 : transparency png file lbm ?

ANSWER :

png lbm lbm
, PNG2LBMWin(Visual Tool) nontransparent (checkbox)
false

Q 5.16:

, ?

ANSWER :

```

        PNG
        LBM
        4
        4
        (
        ,
        가
        )
> copy test1.lbm + test2.lbm + test3.lbm + test4.lbm test.lbm
        4 가 test.lbm .(1 가 )
try{
    in = getClass().getResourceAsStream("/test.lbm");
    img_data = new byte[in.available()];
    in.read(img_data, 0, in.available());
    in.close();
    for (int i=0 ;i< 4 ; i++ )
    {
        div_img[i] = Image.createImage(img_data, (img_data.length/4)*i, (img_data.length/4));
    }
}
catch(Exception e){}
        4 가 . div_img
        .

```

Q 5.17:

API가 ?

ANSWER :

API , 가 .

6. (network)

Q 6.1 : Socket ?

ANSWER :

Q 6.2 : Server Socket 가 가 ?

ANSWER :

J2ME 가 IP 가
가 IP
API

Q 6.3 : socket timeout ?

exception ?

timeout

ANSWER :

API . java.util.Timer
가

Q 6.4 : HTTP Connection Query String 가 가 ?

ANSWER :

가 "?" key=value
"value" 가

Q 6.5 : ?

ANSWER :

- HTTP : 80 , HTTP Protocol 1.1
- socket : HTTP 가 가
- Datagram : Vidio, Audio

Q 6.6 : 가

ANSWER :

9600 BPS

GVM

가

95C

2~3

Q 6.7: Image

?

ANSWER :

Image Object
byte[]

MIDP
HttpConnection

Download

가

Q 6.8 : Network byte stream I/O

가

?

ANSWER :

가
Phone

CDMA (IS95-B)
Buffer

10M
R/W
1024

Ethernet
가

Buffer

R/W

Q 6.9 : socket close()

socket

?

ANSWER :

close() 2~4

Q 6.10 : MIDP application network
?

connect method

가

ANSWER :

가 가 WAP

7. (phone dependent part)

Q 7.1 : EFS ??

ANSWER :

EFS(Embedded File System) . SK-
VM Connector framework, XFile
EFS RecordStore

Q 7.2 : ?

ANSWER :

MSD, JAR 10 , 90KB
. JAR , MSD , RMS, 90KB

Q 7.3 : SK-VM

ANSWER :

MIDP RMS , Connector ,
XFile 가 .

Q 7.4 : 가 가 가
가 .

ANSWER :

가

Q 7.5 : , KeyPressed

ANSWER :

KeyCodes :
public static final int KEY_CLR = 8;
public static final int KEY_COML = 129;
public static final int KEY_COMC = 130;
public static final int KEY_COMR = 131;
public static final int KEY_UP = 141;
public static final int KEY_LEFT = 142;
public static final int KEY_RIGHT = 145;
public static final int KEY_DOWN = 146;
public static final int KEY_FIRE = 148;


```
public static final int KEY_CALL = 190;
public static final int KEY_END = 191;
public static final int KEY_FLIP_OPEN = 192;
public static final int KEY_FLIP_CLOSE = 193;
public static final int KEY_VOL_UP = 194;
public static final int KEY_VOL_DOWN = 195;
```

```
public static final int KEY_NUM0 = 48;
public static final int KEY_NUM1 = 49;
public static final int KEY_NUM2 = 50;
public static final int KEY_NUM3 = 51;
public static final int KEY_NUM4 = 52;
public static final int KEY_NUM5 = 53;
public static final int KEY_NUM6 = 54;
public static final int KEY_NUM7 = 55;
public static final int KEY_NUM8 = 56;
public static final int KEY_NUM9 = 57;
public static final int KEY_STAR = 42;
public static final int KEY_POUND = 35;
```

Q 7.6 : KEY_END KEY_FLIP_CLOSE

ANSWER :

KEY_END KEY_FLIP_CLOSE Catch

Q 7.7 : LCD ?

ANSWER :

가 (SCH-X350) 70msec 가
12~15frames 가 LCD

Q 7.8 : PC

ANSWER :

MSM . X130 MSM 27MHz
가

Q 7.9 : download applicaion ?
(off button)

ANSWER :

Q 7.10 : SK-VM 가 ?

ANSWER :

SK-VM 가 VM 가 .

Q 7.11 : SK-VM

ANSWER :

XTD(XCE Technical Document) XTD_6_SupportedDevices

Q 7.12 : SK-VM GVM , GVM
SK-VM ?

ANSWER :

,
 ,
 , “ ” 가 SK-VM GVM ,

Q 7.13 : EFS () 가 ?

ANSWER :

Q 7.14 : JAR 가 ?

ANSWER :

JAR

Q 7.15 : X230 X250 ?

ANSWER :

360KB X350 2
(256 color) 4 gray 4

Q 7.16 : MIDlet RMS ?

ANSWER :

1,2,3,... 가 가 .
RMS
rs .

Q 7.17 : MIDlet RMS MIDlet
가 ?

ANSWER :

MIDlet . Expired
Upgrade Update msd,
jar Update .

Q 7.18 : url 가 .
?

ANSWER :

NATE [] url (WapBrowser)가
wml file
file(wml, wmls, msd) . XTD-7 Provisioning The
Contents .

Q 7.19 : ?

ANSWER :

Runtime getRuntime(), freeMemory() VM 가
.

8. (sound)

Q 8.1 : , ?
mmf

ANSWER :

mmf 가 .
가

Q 8.2 : MMF file 가 ?

ANSWER :

mmf native
,

Q 8.3 : wav, mp3 mmf ?

ANSWER :

Q 8.4 : mmf ?

ANSWER :

Q 8.5 : AudioClip Exception in thread java/io/IOException .

ANSWER :

Play Exception in thread java/io/IOException

Q 8.6 : ?

ANSWER :

evrc mmf .

Q 8.7 : EVRC ?

ANSWER :

X-350 .

Q 8.8: , ?

ANSWER :

Device.beep(int, int) . 가 beep ,

9. API

Q 9.1 : ?

ANSWER :

System.getProperty("m.MIN") 8 M ,
8 .

Q 9.2 : 017 011 ?

ANSWER :

System.getProperty("m.CARRIER") SKT 011 017
.

Q 9.3 : isDoubleBuffered() ?

ANSWER :

isDoubleBuffered()
, SK-VM LCD Buffer false .

Q 9.4 : API Call class connect(String phonenum) method가 ?

ANSWER :

가 . Call
.

Q 9.5 : api Ticker
가 ?

ANSWER :

method .

Q 9.6 : .

ANSWER :

API . ver2.0 .

Q 9.7 : SK-VM SMS ?

ANSWER :

APPLICATION_DATA Java
XTD-1 : Tutorial

Q 9.8 : APPLICATION_DATA (?
?) 가 ?

ANSWER :

MIDP UI

Q 9.9 : BackLight.on(0)

ANSWER :

Device.setBacklightEnabled(false) , BackLight.on(0)

Q 9.10 : API Write API
?

ANSWER :

PhoneBook Class API SK-VM Version 1.1
, Write 가 Read

Q 9.11: MATH 가 가 ?

ANSWER :

MathFP Math

Q 9.12: ?

ANSWER :

```
// MIDP
import java.util.Random;
) MIDlet
private static Random rnd;
// new
rnd = new Random();
//
private static int getRandomInt(int limit)
{
```

```
int number = rnd.nextInt();
number = (number >>> 16) & 0xffff;
number /= (0xffff/limit);
return number;
}
```

```
// (0 9 .)
int temp = getRandomInt(10);
```

Q 9.13 : PIMS ?

ANSWER :

PIMS API , PhoneBook
PhoneBook Class VM Version 1.1 .

Q 9.14 : ?

ANSWER :

가
SKT
1~2km 가
SKT
가 가 .

Q 9.15 : ()

가 .?

ANSWER :

SK-VM 1.1 .

Q 9.16 : 가 ?

ANSWER :

-> SKT
Service API . sk-vm/docs/sktapi/index.html .

Q 9.17 : SK-VM Phone to Phone 가 ?

ANSWER :

PhoneToPhone , 가 .

Q 9.18: OutOfMemory Error ?

ANSWER :

invoke 가 error . exception error , exception
OutOfMemory
error
exception

Q 9.19 :

? msd

ANSWER :

MSD KEY: VALUE MIDlet
getAppProperty(KEY) VALUE

Q 9.20 : wap

SK-VM

API

?

ANSWER :

WAP

Q 9.21 : SK-VM

wap

?

ANSWER :

SK-VM Device.invokeWapBrowser() wap

Q 9.22 :

?

ANSWER :

AudioSystem.setVolume()
0 ,
AudioSystem.getMaxVolume()

Q 9.23 : RMS

가

가

?

ANSWER :

compaction
가 가

Q 9.24 : wap

SK

USER_AGENT

가 ?

ANSWER :

```

ASP
< %
user_agent = Request.ServerVariables("HTTP_USER_AGENT")

If instr(user_agent, "SKT") >= 1 then
.....
end if
%>

user_agent      XTD_11_UserAgentField
.

```