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Development Tools for Java™

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**IPVES Application Note 04:**

**WWW Server**

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## **IPJV-ES Application Note 04: WWW Server**

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**V 1.0**

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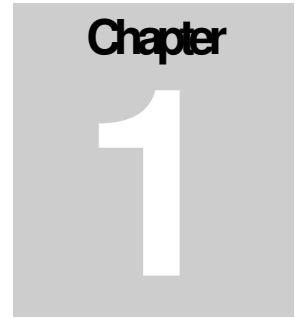
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## Introduction

*IPJV-ES Development Board can be used in different applications.*

**T**he IPJV-ES Development Board with embedded virtual machine for Java™ offers an Ethernet based connection to the Internet and numerous interface possibilities to other equipment, include serial RS-232 DTE interface, serializer module with UART, SPI, GPSI and 10BASE-T Ethernet support, 6-channel 10-bit A/D inputs, analog comparator and 16 I/O pins.

The IPJVM virtual machine for Java is a clean room implementation, that has been specially optimized to run on device with limited amount of internal memory and designed for Java™ 2 Platform, Micro Edition (J2ME™) Connected Device Configuration (CDC) Foundation Profile.

A complete development toolkit available for application development with IPJVM platform. The IPJVM platform provide system designers and software developers simple, flexible and cost-effective solution for embedded Internet application rapid development and prototyping. The platform is combination of Uvicom IP2022 Internet Processor and a Java programmable runtime environment.

The IPJV-ES Development Board based on Uvicom IP2022 Internet Processor, optimized for Internet-edge applications. It handles protocol processing in software instead of in hard-wired logic, making the whole solution more adaptable to evolving standards and allow designer to use the same solution across a wide variety of internet-edge products simply by changing the software, thereby significantly reducing nonrecurring engineering (NRE) costs.

Typical IPJV-ES applications include Includes HTTP/FTP/SMTP/SNMP/Telnet servers, PPP support on embedded UARTs, encryption, security and authentication tools, reporting and alarming via e-mail, remote monitoring, control, management and maintenance.

## Updates

New versions of the IPJV-ES software and applications can be obtained from the manufacturer's web site at:

<http://www.svtehs.com/ipjv.htm>

## WWW Server

*Simple WWW server on the IPJV Development Board.*

**T**his is simple WWW server, based on the free Decaf Java www server, written by Ken Rigoni. Simple startup code for this server listed below.

```
import jbvm.ip2k.*;
import java.text.*;
import java.util.*;
import java.io.*;
import java.net.*;
import com.decaf.*;
public class TestWWW
{
    public static void main (String[] aArg)
    {
        try { new VMJPinger().start(); } catch (Throwable e)
            { e.printStackTrace(System.err); }
        String arg[]=new String[1];
        arg[0]="/etc/wwwsrv.conf";
        try { WWWServer.main(arg);} catch (Throwable e) {
            System.err.println ("Uncaught exception: "+e);
            e.printStackTrace(System.err); }
    }
}
```

WWW server use several configuration files, described below.

### WWW configuration /etc/wwwsrv.conf

DEFAULT_URL=/index.html	Default page
ERROR_URL=/error.html	Error page relative to wwwroot
SSI=shtml	SSI extension
CGI_EXT=c1	CGI extension
PASSWORD_FILE=/etc/wwwpasswd	password file name
WWW_ROOT=/wwwroot	server root folder name
PROTDIR_FILE=/etc/wwwprotidir	protected folder file name
WWW_PORT=80	server listening port
MIME_FILE=/etc/wwwmime	MIME types description file name

### Password file

Describes access control information for protected folder access.

Format: UserName:Password:UID

UserName	user name
Password	user password
UID	user number ID

### Protected folder file

Describes protected folders. Format: *Folder=User,User...*

Folder	folder path relative to wwwroot without leading and tailing slash
User1	users list separated by comma

## MIME types file

Describes MIME types. Format: *MimeType:Ext:Icon*

MimeType	MIME type
Ext	extensions separated by space or comma
Icon	Icon URL

## Special files

/error.html	This page returned when the requested URL is not found
/images/binary.gif	Default icon showing in directory tree
/images/back.gif	Back directory icon showing in directory tree
/images/folder.gif	Folder icon showing in directory tree

## CGI API

All cgi classes must extend genCGI class. GenCGI class members:

FIELD	Properties query splitted by field/value	Query string
FIELD	Properties Info information	Request
FIELD	PrintStream Out	Output stream
CONSTRUCTOR	getCGI(Properties Info,PrintStream Out) do all the job	Constructor,
METHOD	boolean containsQueryFieldKey(String key) presence of query field	Return
METHOD	String getQueryField(String s) field value	Return query
METHOD	Enumeration getQueryPropertyNames() query fields	Enumerate
METHOD	boolean containsInfoFieldKey(String key) presence of Info key	Return

METHOD	String getInfoField(String field)	Return Info
key value		
METHOD	Enumeration getInfoKeyNames()	Enumerate
Info keys		
METHOD	void out (String s)	Simple output
String		
METHOD	public void outOK()	Return OK
response header		

## Sample CGI

This sample show Info properties.

```
import java.io.*;
import java.util.*;
import com.decaf.*;

class showProperties extends getCGI
{
public showProperties(Properties Info,PrintStream Out)
{
super(Info,Out);
Enumeration e = Info.keys();
out("Return Typical Script property list to the browser.
    This arguments are available to all CGIScripts that
    Extend the GetCGI class");
while ( e.hasMoreElements() ) {
String name = (String) e.nextElement();
String value = (String)Info.get(name );
out("<br>" + name + " = " + value);
}
}
}
```

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