

Session: 460040 / 36GI

@server **iSeries**

iSeries Access for Linux The Native Linux Solution

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iSeries Access Development

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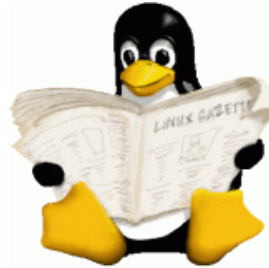
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Agenda

- **iSeries Access for Linux**
 - What is it?
 - Packaging and Ordering
 - Requirements
 - 5250 Emulator
 - ODBC Driver
 - Utilities
 - Using iSeries File and Print
 - 64-bit EDRS support



What is it?



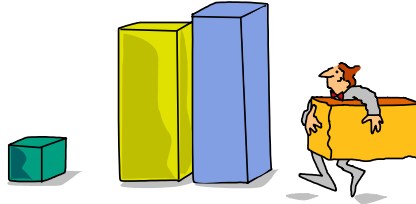
What is iSeries Access for Linux?

- **A full-function native Linux 5250 emulator**
 - Keyboard mapping
 - Macro support
 - Record/playback
 - Pop-up/pull-down keypads
 - Ability to provide a workstation/device ID
 - Both 80 and 132 screen sizes
 - Screen print
 - and other capabilities
- **An ODBC Driver**
 - Enables your Linux PC applications (OpenOffice, Apache/PHP, Perl, C, C++, ...) to access information in DB2 UDB for iSeries
- **iSeries Access Utilities**
 - RmtCmd, CwbRunSQL, CwbTrc, ...



Designed to run natively on INTEL and POWERPC Linux operating systems

Packaging & Ordering



iSeries Access Family set of products - V5R3

Description	Product	Product Number
Family Name	iSeries Access Family	5722-XW1
Windows Client	iSeries Access for Windows	5722-XE1
Face of iSeries	iSeries Navigator	Packaged in 5722-XE1
Browser Access	iSeries Access for Web	5722-XH2
Browser Access	HATS LE V5	5724-F97-01
Handheld / Wireless	iSeries Access for Wireless iSeries Toolbox for Java ME	5722-XP1
Linux Client	iSeries Access for Linux	5722-XL1



You will need an iSeries Access Family license to use the iSeries Access for Linux 5250 Emulator

iSeries Access Family - Ordering

V5R3 5722-XW1 iSeries Access Family	V5R2 5722-XW1 iSeries Access Family
• iSeries Access for Windows, 5722-XE1, V5R3	• iSeries Access for Windows, 5722-XE1, V5R2
• iSeries Access for Web, 5722-XH2, V5R2	• iSeries Access for Web, 5722-XH2, V5R2
	• WebSphere Host Publisher, 5724-B81, V4.0, 5724-B81, V4.01
• HATS Limited Edition V5.0, 5724-F97-01	• HATS Limited Edition V4.0 5724-D34-01 (after 6/30/2003)
• iSeries Access for Linux, 5722-XL1, V5R3	
	V5R2 customers can get V5R3 versions of iSeries Access products by ordering a no-charge Feature Number of Product 5722-XW1

Downloading the product

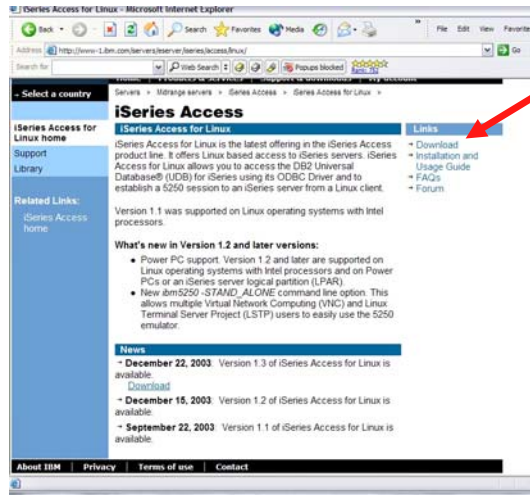
- **iSeries Access for Linux can be obtained in one of two ways:**
 - Download it from the iSeries Access for Linux web page at <http://www.ibm.com/eserver/iseries/access/linux/>.
 - The web site is always up-to-date with the latest version/fixes
 - The iSeries Access for Web V5R3 product provides a new download function to enable Linux users to install iSeries Access for Linux on their desktops.
 - PTF's are created for iSeries Access for Web to update the Linux download



Go to web page and download it



Over 6000 downloads already -- from 60 different countries!



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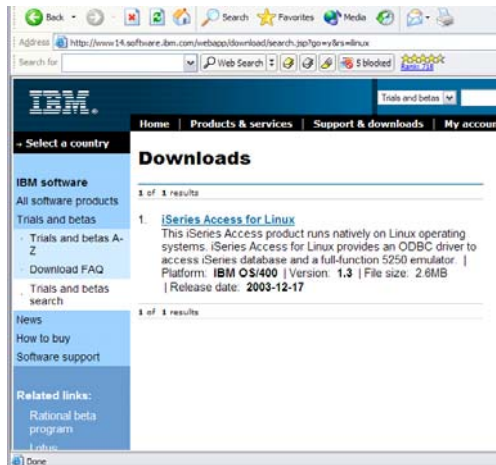


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Download from web site...

Downloaded directly from web page



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Download via iSeries Access for Web...

The screenshot shows a web browser window displaying the 'iSeries Access for Web' page. The page has a navigation menu on the left and a main content area. The 'Downloads' section contains a table with the following data:

Name	Description	File	Size	Action
iSeries Access for Linux (336)	iSeries Access for Linux contains a full 5250 emulator and an enhanced ODBC driver. For more information see: http://www.ibm.com/eserver/iseries/access/linux/ .	iSeriesAccess-5.2.0-1.0.i386.rpm	948,246	Download Work with
Test download		EXPLORE.EXE	91,136	Download Work with
Windows AFP Viewer Plug-in	The AFP Viewer plug-in lets you view AFP documents from a Web browser.	gnsp32dm.exe	3,387,763	Download Work with

Below the table, there is an 'Action Details' section stating: 'The Downloads function supports the following actions: Download'. A sub-section for 'Download' explains: 'Use the Download action to download the file to your PC. You may be given the option to save'.

Notes: Installing iSeries Access for Linux

Installing iSeries Access for Linux

1. Download the iSeries Access for Linux RPM package: `iSeriesAccess-5.2.0-xx.xx.i386.rpm` (where "xx.xx" indicates the version level that is available for download).
2. Enter the following command on the Linux client: `rpm -ivh iSeriesAccess-5.2.0-1.8.i386.rpm`

Notes:

- The files are installed to directory `/opt/ibm/iSeriesAccess` on your Linux system.
- The iSeries Access for Linux will automatically uninstall any previous version of the obsolete iSeries ODBC Driver for Linux product.
- If the installation fails because of a dependency on `libodbcinst.so`, make sure you have the `unixODBC` driver manager installed. If the problem persists, run the installation command with the `--nodeps` parameter to stop dependency checking.
- For more logging information, add the `-vv` parameter to the end of the `rpm` commands.

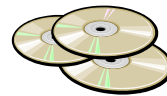
Updating iSeries Access for Linux

To update, enter the following command: `rpm -Uvh iSeriesAccess-5.2.0-xx.xx.ppc.rpm`. (where "xx.xx" indicates the version level that is available for download).

Uninstalling iSeries Access for Linux

To uninstall, enter the following command: `rpm -ev iSeriesAccess`

Hardware and Software Requirements



Getting Started...

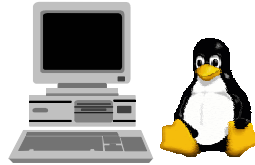
- **Same server requirements as iSeries Access for Windows**
 - See iSeries Information Center for details
- **iSeries Server Requirements**
 - The QUSER user profile must be enabled
 - From an iSeries command line type `DSPUSRPRF` `USRPRF(QUSER)` and press ENTER to display the status for QUSER
 - Use the `CHGUSRPRF` command to change the profile if necessary.
- **The host servers must be started**
 - Use `STRHOSTSVR` to start the iSeries host servers.



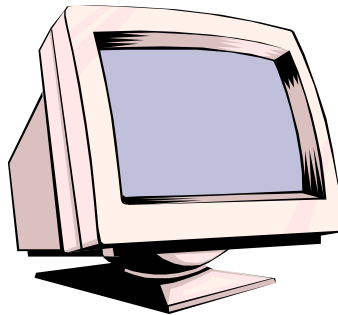
Getting Started...

- **Linux Requirements**

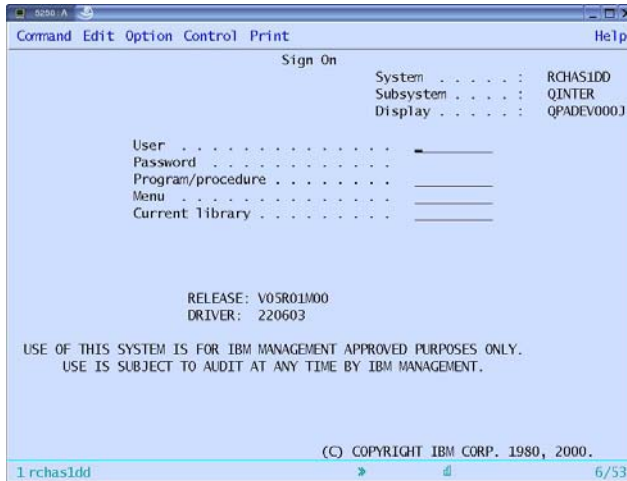
- **Linux** distribution
 - SuSE, Red Hat, ...
 - **GLibc 2.2**
 - **RPM 3.0**
 - **OpenMotif 2.0** or later for the 5250 emulator
 - **unixODBC 2.0.11** or later for the ODBC driver manager version



iSeries Access for Linux 5250 Emulation

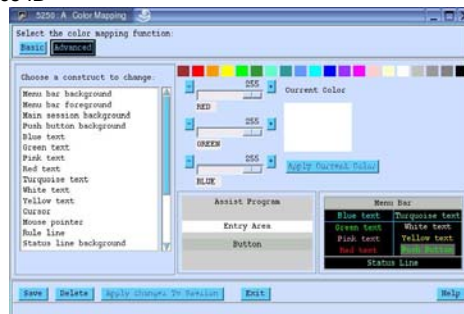


Linux 5250 Emulation



Full function, native 5250 emulator

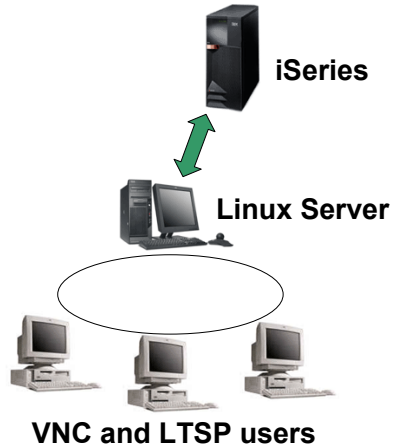
- The 5250 emulator contains a variety of functions, such as:
 - Ability to provide a workstation/device ID
 - Both 80 and 132 screen sizes
 - Keyboard/Color mapping
 - Macro support
 - Record/playback
 - Pop-up/pull-down keypads
 - Screen print
 - and other capabilities
- It can also asynchronously display server messages



Support 3-tier environments...

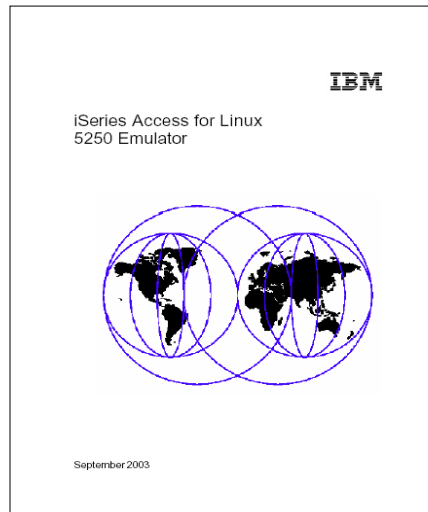
- **Enable easy use of:**
 - Virtual Network Computing (VNC)
 - Linux Terminal Server Project (LTSP)
 - XDM Remote X thin clients

- **“-STAND_ALONE”**
 - ibm5250 command line option to enable multi-user environments



Users Guide

- Documentation explaining 5250 emulator functions
 - [//www.ibm.com/servers/eserver/iseries/access/linux/pdf/iseries_access_5250.pdf](http://www.ibm.com/servers/eserver/iseries/access/linux/pdf/iseries_access_5250.pdf)



National Language Support

- 5250 emulation menus and messages are available in 21 national language versions.
 - The main emulator window labels and helper applications are translated and will display based on the \$LANG system environment variable.
 - The command line value –LANGID may also be used to set the language.
- DBCS support available in version 1.8
 - See web site for setup instructions

Language	Locale	Description
2923	nl_NL	Dutch
2924	en_US	English
2928	fr_FR	French
2929	de_DE	German
2931	es_ES	Spanish
2932	it_IT	Italian
2939	de_CH	German Swiss
2940	fr_CH	French Swiss
2942	it_CH	Italian Swiss
2962	ja	Japanese Kanji
2963	nl_BE	Belgium
2966	fr_BE	French in Belgium
2975	cs_CZ	Czech
2976	hu_HU	Hungarian
2979	ru_RU	Russian
2981	fr_CA	French Canadian
2986	ko	Korean
2987	zh_HK	Traditional Chinese
2989	zh	Simplified Chinese
2994	sk_SK	Slovakian
2996	pt_BR	Portuguese Brazil

iSeries Access for Linux - Customer Reference

Thanks IBM!!!

Great job folks! For several months I had been looking for a software package to handle IBM's 5250 protocol for Linux. While there are a few projects out there none of them could fit our needs. IBM's developers have done a great job in setting up a very smooth running version of Client Access for Linux.

I was even more excited to see that the newest version would work with our LTSP system (Linux Terminal Server Project). We are now serving up 40+ desktops with full iSeries access from one Linux server with plans to expand the user base. Again, Great Job!



Eric Pell
 Manager of Information Systems
 Gainey Transportation Services
<http://www.gaineycorp.com>



iSeries Access for Linux ODBC Driver

	+2.688
0	+5.000
1	+1.500
0	+1.125
0	+1.062

ODBC Applications

- **OpenOffice** 
- **Apache/PHP for Web Serving**
- **unixODBC DataManager** 
 - "Explorer" type of application to manage DSNs
 - Run and view results of SQL requests
 - DataManagerII simple insert/change/delete rows
- **cwbRunSQL**
 - Command line application for executing SQL scripts
- **unixODBC isql**
 - Command line application
 - Neat way to generate simple HTML page with data tables
- **Your own applications...C++, C, ...**

OpenOffice

	A	B	C	D
1	CUSNUM	LSTNAM	Data	
2	334456	Johnson	Sum - BALDUE	25
3			Sum - CDTDUE	50
4	397267	Tyron	Sum - BALDUE	0
5			Sum - CDTDUE	0
6	555666	Zeeman	Sum - BALDUE	70
7			Sum - CDTDUE	0
8	556467	Finane	Sum - BALDUE	50
9			Sum - CDTDUE	0
10	583990	Abraham	Sum - BALDUE	500
11			Sum - CDTDUE	0
12	593029	Williams	Sum - BALDUE	50
13			Sum - CDTDUE	0
14	593829	Pamas	Sum - BALDUE	0
15			Sum - CDTDUE	0
16	639283	Jones	Sum - BALDUE	200
17			Sum - CDTDUE	0
18	646283	Allison	Sum - BALDUE	20
19			Sum - CDTDUE	0
20	995560	Miner	Sum - BALDUE	0
21			Sum - CDTDUE	0
22	Total Sum - BALDUE			915
23	Total Sum - CDTDUE			50
24				

OpenOffice – DataPilot

Layout

Column	CUSNUM	CHGCOD
	LSTNAM	BALDUE
CUSNUM	Sum - BALDUE	INIT
LSTNAM	Sum - CDTDUE	CDTDUE
Row	Data	STREET
		CITY
		STATE
		ZIPCOD
		CDTLMT

Drag the fields from the right into the desired position.

Buttons: OK, Cancel, Help, Remove, Options..., More >>

DMII

The screenshot shows the Data Manager MRV BETA 2.2.6 interface. On the left, a tree view displays the ODBC configuration hierarchy: ODBC > Drivers > System Data Sources > User Data Sources > 1dd. The 1dd data source is expanded to show a list of columns and their data types:

Column Name	Data Type
CUSNUM	NUMERIC
LSTNAM	CHAR
INIT	CHAR
STREET	CHAR
CITY	CHAR
STATE	CHAR
ZIPCOD	NUMERIC
CDTLMT	NUMERIC
CHGCOD	NUMERIC
BALDUE	NUMERIC
CDTDUE	NUMERIC
QMENSURC	TABLE

On the right, the 'Results' window shows a query execution for the 1dd data source. The query is: `filter sql=SELECT "CUSNUM", "LSTNAM", "INIT", "STREET", "CITY",`. The results table contains 7 rows of data:

Row	CUSNUM	LSTNAM	INIT	STR
1	839283	Jones	B D	21B
2	555666	Zeeman	J K	345
3	593029	Williams	ED	485
4	846283	Alison	J S	787
5	397267	Tyron	WE	13 M
6	593829	Pamas	FN	9 Bri
7	839283	Jones	B D	21B

The status bar indicates: `RUN: filter sql=SELECT "CUSNUM", "LSTNAM", "INIT", "STREET", "CITY",` and `RUN: 16 rows and 11 columns affected`.

ODBC Configuration

- A data source can be configured using the ODBC data source graphical user interface, ODBCConfig

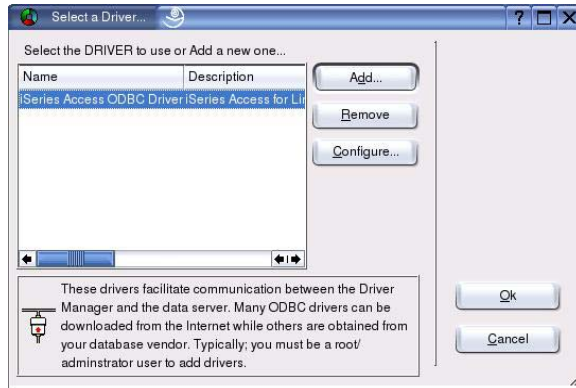
The screenshot shows the ODBC Data Source Administrator window with the 'User DSN' tab selected. The window contains a table with the following data:

Name	Description	Driver
1dd	iSeries Access ODBC Driver	iSeries Access ODBC Driver

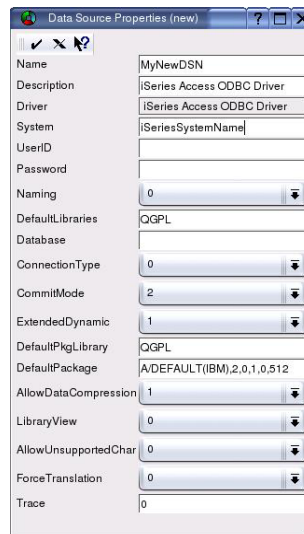
Buttons for 'Add...', 'Remove', and 'Configure...' are visible to the right of the table. A message box at the bottom states: 'User data source configuration is stored in your home directory. This allows you to configure data access without having to be the system administrator.' An 'OK' button is located at the bottom right.

Creating a new ODBC Driver data source

- Select the "iSeries Access ODBC Driver", Then click "OK"
- Note: The "Add..." button is only for adding more ODBC drivers.



Configuring an ODBC Driver data source



Connection String Keywords that are supported

- **General Properties**
 - DSN
 - DRIVER
 - PWD or Password
 - SYSTEM
 - UID or UserID
- **Server Properties**
 - CMT or CommitMode
 - CONNTYPE or ConnectionType
 - DBQ or DefaultLibraries
 - NAM or Naming
 - UNICODESQL
- **Format Properties**
 - DFT or DateFormat
 - DSP or DateSeparator
 - DEC or Decimal
 - TFT or TimeFormat
 - TSP or TimeSeparator
- **Package Properties**
 - DFTPKGLIB or DefaultPkgLibrary
 - PKG or DefaultPackage
 - XDYNAMIC or ExtendedDynamic
- **Performance Properties**
 - BLOCKFETCH
 - BLOCKSIZE or BlockSizeKB
 - COMPRESSION or AllowDataCompression
 - CONCURRENCY
 - LAZYCLOSE
 - MAXFIELDLEN or MaxFieldLength
 - PREFETCH
 - QUERYTIMEOUT
- **Sort Properties**
 - LANGUAGEID
 - SORTTABLE
 - SORTTYPE or SortSequence
 - SORTWEIGHT
- **Catalog Properties**
 - CATALOGOPTIONS
 - LIBVIEW or LibraryView
 - REMARKS or ODBCRemarks
 - SEARCHPATTERN
- **Translations Properties**
 - ALLOWUNSCHAR or AllowUnsupportedChar
 - CCSID
 - GRAPHIC
 - TRANSLATE or ForceTranslation
- **Diagnostic Properties**
 - QAQQINILIB or QAQQINILibrary
 - SQDIAGCODE
 - TRACE
- **Other Properties**
 - ALLOWPROCCALLS
 - DB2SQLSTATES
 - DEBUG
 - TRUEAUTOCOMMIT

Notes: Connection Keywords that are not supported

Connection string keywords can be used to change the behavior of the ODBC connection. The following lists the options that are not supported by the ODBC Driver in iSeries Access for Linux but are valid for the iSeries Access for Windows ODBC Driver.

Unsupported Keyword Description

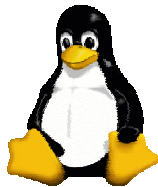
- **SIGNON** -- specifies what default user ID to use, if the connection cannot be completed with the current user ID and password information.
- **SSL** - specifies whether a Secure Sockets Layer (SSL) connection is used to communicate with the server. SSL connections are only available when connecting to servers at V4R4 or later.
- **XLATEDLL or Translation DLL** - specifies the full path name of the DLL to be used by the ODBC driver to translate the data that is passed between the ODBC driver and the server. The DLL is loaded when a connection is established.
- **XLATEOPT or Translation Option** - specifies a 32-bit integer translation option that is passed to the translation DLL. This parameter is optional. The meaning of this option depends on the translation DLL that is being used. Refer to the documentation provided with the translation DLL for more information. This option is not used unless the XLATEDLL property is set.
- **TRACEFILENAME** - specifies the full path name to either the file or the directory in which to put the internal driver trace data into. A path name to the file should be specified if MULTTRACEFILES is set to 0. A path name to a directory should be specified if MULTTRACEFILES is set to 1. This property has no effect unless the TRACE property has option 1 set.
- **MULTTRACEFILES or Multiple Trace Files** - specifies whether or not trace data from the internal driver trace will be put into multiple files. A new file will be created for each thread that the application is using. This property has no effect unless the TRACE property has option 1 set.
- **MAXTRACESIZE** - specifies the maximum trace size (in MB) of the internal driver trace. Specifying a value of 0 means no limit. This property has no effect unless the TRACE property has option 1 set.

For a list of supported keywords, refer to Connection String Keywords and Values.

Linux ODBC Driver Restrictions

- **MTS is not supported**
 - Because MTS uses Windows specific components that are not available on Linux.
 - X/Open XA transactions and API's are supported
- **APIs that display a graphical user interface are not supported**
 - The API call will still complete but will behave as if displaying the GUI failed.
- **Translation DLLs are not supported**
 - Any attempt to use them will be ignored.
- **DSN connection option for userid/password prompting via a sign-on dialog is not supported**
- **DSN option for customizing package settings for an application is not supported**
 - Only the simple implementation of package settings is being ported to Linux.
- **Secure Sockets Layer (SSL) component**
 - The SSL component is not shipped with the Linux driver. Use a common SSL tunnel or Socks server instead.
- **Connection Timeout**
 - The connection timeout option is not supported with the Linux driver.
- **Some Connection String Keywords**
 - As noted on previous page

Differences between iSeries Access for **Linux** ODBC and iSeries Access for **Windows** ODBC





Differences in Linux Vs Windows ODBC Drivers



Linux ODBC Driver

- The driver is an **ODBC 3.5 ANSI** driver with the ability to store and process Unicode data
 - An ANSI driver does not support Unicode strings passed as arguments to the APIs
 - Applications passing Unicode strings on APIs will work because the unixODBC driver manager maps these calls to the ANSI driver's narrow interfaces.
- To sign on you **must specify** a user ID and password when calling the connection API or have the userid and password entered into the DSN
 - The ODBC driver will not prompt for iSeries user IDs or passwords
 - User ID and password updates must be done through a telnet session with the iSeries.
- When binding a parameter or a column with SQL_C_WCHAR as the C type, wchar_t buffers **should not be passed in**
 - The driver manager and driver both handle the SQL_C_WCHAR data type as a 2 byte UCS-2 string.

Windows ODBC Driver

- The driver is an **ODBC 3.5 Unicode** driver
 - A Unicode driver accepts Unicode strings (UCS-2) as arguments to the APIs.
 - Applications passing ANSI strings on APIs will work because the driver manager maps calls these calls to the Unicode driver's wide interfaces.
- The user has **signon options** that control which userid and password to use when connecting
 - When connecting, cached passwords might be used. If a user's password has expired a dialog is displayed to allow a user to change it.
- When binding a parameter or a column with SQL_C_WCHAR as the C type, wchar_t buffers **should be passed in**
 - The driver manager and driver both handle the SQL_C_WCHAR data type has a 2 byte UCS-2 string.

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iSeries Access for Linux Utilities



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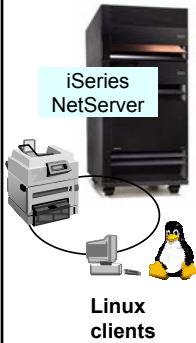
Commands provided for Linux

- **RMTCMD** – issue iSeries commands
- **RMTODBC** – issue iSeries commands via ODBC
- **CWBRUNSQL** – execute SQL scripts
- **CWBPING** - test the connection to the server
 - allows options: verbose, port mode, address mode, tcp service name (telnet, ftp), tcp port, user ID, password, ...
- **CWBTRC** - trace the iSeries ODBC Driver for Linux
 - allows options: path, wrap size, filter, timestamp, ...
- **CWBNLTBL** - download conversion tables
- **CWBCOPWR** - alter advanced communications settings
- **CWBMEDIC** – utility to gather service information into one file

iSeries Access for Linux Files and Printers



iSeries NetServer: Supports Linux Clients



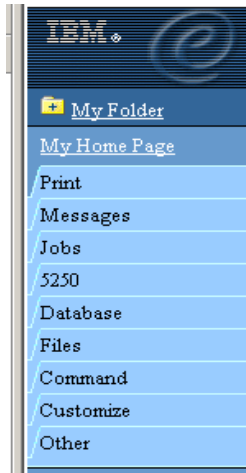
- Support for Windows Network Neighborhood (iSeries NetServer) is expanded to support Linux clients.
 - iSeries NetServer support of Linux (clients) provides the same file and print sharing function as the existing iSeries NetServer.
 - Linux clients (with kernel Version 2.4.3 and higher) with SAMBA (Version 2.0.7 and 2.2) can access the iSeries NetServer functions.
 - This function was available as a V5R1 PTF in 4Q01 and built into V5R2 and above
- For additional information, see:
 - <http://www.ibm.com/eserver/series/netserver>

This gives the iSeries administrator the ability to easily control what files or printers a Linux user can get access to.

Combine with Access for Web - complete Linux solution

My Personal Folder

- Print**
 - Printer output
 - Printers
 - Internet Printers
 - Printer shares
 - Output Queues
- Database**
 - Tables
 - My Requests
 - Run SQL
 - Copy Data to Table
 - Import Requests
- 5250**
 - Start 5250 Session
- Commands**
 - Run CL commands



Files

- Browse Files (in IFS)
- File Shares (in NetServer)

Messages

- Display Messages
- Send Messages
- Operator Messages
- Message Queue

Jobs

- User Jobs
- Server Jobs

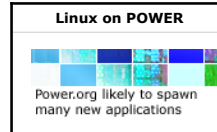
Customize

- Administrator controls access to functions by user or group of users:
 - Customize front page
 - Limit tasks that can be performed



iSeries Access for Linux

- **A 64-bit PowerPC EDRS driver**
 - Extended Dynamic Remote Support access to iSeries DB2
 - Getting customers on Power 5

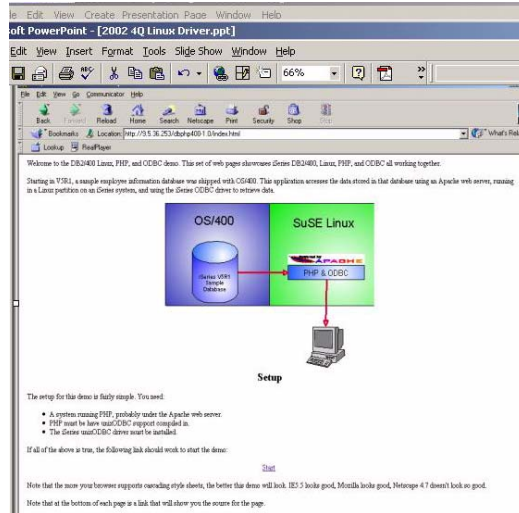


Summary

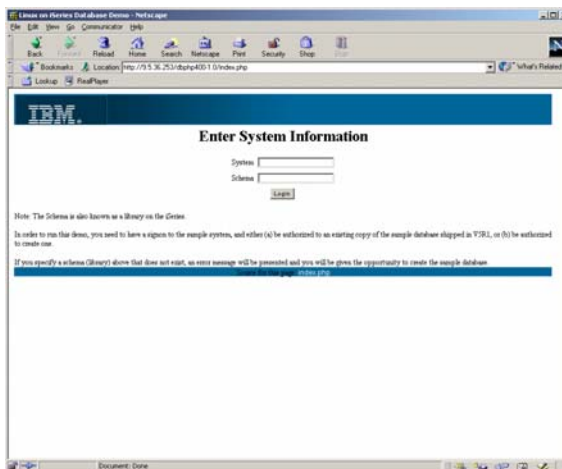
- iSeries Access Family is investing in Linux
- iSeries Access for Linux is a native Linux solution and provides key functions
 - 5250 emulation
 - ODBC driver
- PowerPC and Intel support
- Can also use with **iSeries Access for Web** for a complete client solution



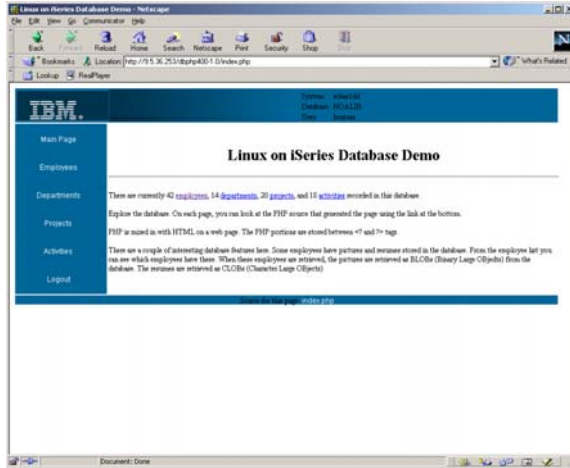
Screen Shot 1



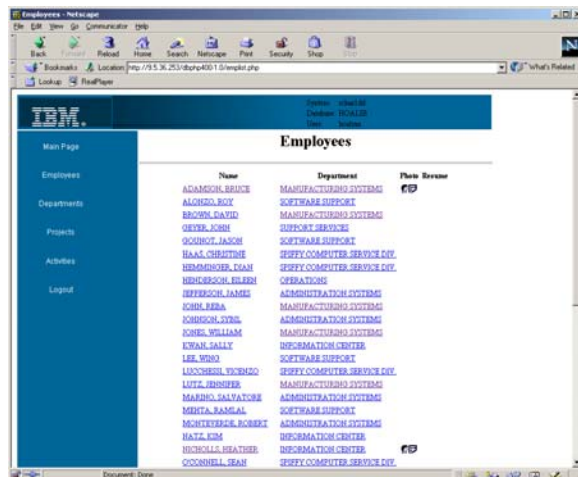
Screen Shot 2



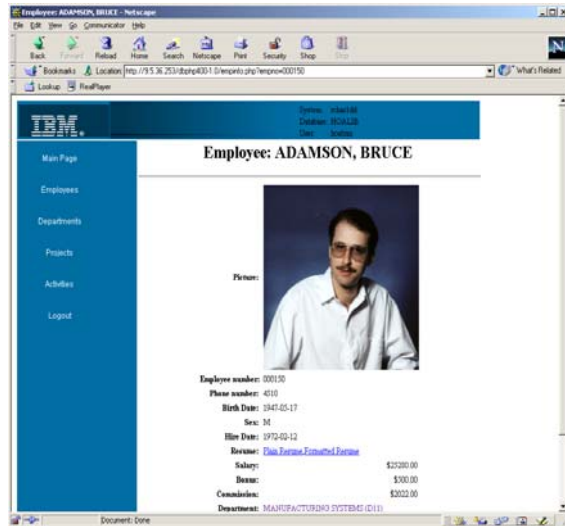
Screen Shot 3



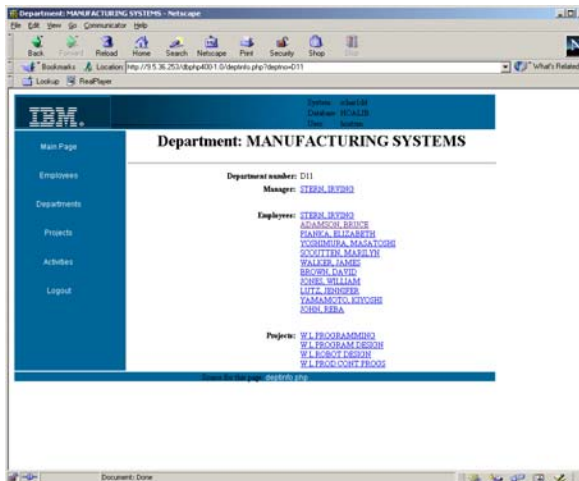
Screen Shot 4



Screen Shot 5



Screen Shot 6





Web References

- Running Linux on the iSeries
 - <http://www.ibm.com/servers/eserver/series/linux/>
- iSeries Access for Linux home page
 - <http://www.ibm.com/servers/eserver/series/access/linux/>
- unixODBC home page
 - <http://www.unixODBC.com/>
- Windows ODBC
 - <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/odbc/hdm/dasdkodbcoverview.asp>
 - <http://www.microsoft.com/data>
- iSeries Access Information Center
 - <http://publib.boulder.ibm.com/series/v5r2/ic2924/index.htm>
- DB2 SQL Reference
 - <http://publib.boulder.ibm.com/series/v5r2/ic2924/index.htm?info/db2/rbafzfst02.htm>
- IBM Redbooks
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