Avaya Business Communications Manager—IVR Upgrade Guide

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Chapter 1: Preface

Scope

Avaya Business Communications Manager (Avaya BCM) with Interactive Voice Response (IVR) capabilities is a communications platform that delivers multimedia voice processing, business telephony applications, and data networking services.

The Avaya BCM-IVR 2.1 Upgrade manual explains how to upgrade an Avaya BCM-IVR 1.X system to an Avaya BCM-IVR 2.1 system. It further explains how to port existing applications to run on the upgraded Avaya BCM-IVR 2.1. This manual is not intended to replace individual software manuals. It is meant only to be used as a supplement to them.

Intended Audience

This manual is intended for both IVR Application Developers and Avaya BCM-IVR System Administrators. This manual assumes that the reader is familiar with:

- Avaya BCM application development;
- site-specific operating procedures relating to the Avaya BCM;
- specific application functions performed by the Avaya BCM; and
- other equipment to which the Avaya BCM may be connected.

Basic knowledge of your operating system software is also assumed.

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Navigation

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The easiest and most effective way to get technical support for Avaya products is from the Avaya Technical Support Web site at http://www.avaya.com/support.

How to Use This Manual

This manual uses many standard terms relating to computer systems, software application functions, and the Internet. However, it contains some terminology that can be explained only in the context of the Avaya Media Processing Server (Avaya MPS). Refer to the Glossary of Avaya Media Processing Server Series Terminology for definitions of Avaya MPS Series specific terms.

Read this manual from start to finish at least once. When you are familiar with the document, you can use the Table of Contents to locate topics of interest for reference and review.

If you are reading this document online, use the cross-reference links (shown in blue) to quickly locate related topics. Position your cursor over the cross-reference link and click once. Click any point in a Table of Contents entry to move to that topic. Click the page number of any Index entry to access that topic page.

Familiarize yourself with various specialized textual references within the manual, see Conventions Used in This Manual on page 10.

Note:
Periphonics is now part of . The name Periphonics, and variations thereof, appear in this manual only in reference to a product (for example, the PERImps package, the perirev command, and so on).

Organization of This Manual

This manual is organized according to the needs and requirements of two distinct Avaya BCM-IVR users: System Administrators and Application Developers.

Chapter 1 — Introduction to the Avaya BCM - IVR Upgrade

Overviews the upgraded Avaya Business Communication Manager (Avaya BCM) with Interactive Voice Response capabilities. Explains how to access documentation on Helmsman.

Chapter 2 — Administrator Upgrade on Windows Workstation

Discusses prerequisites and steps necessary to upgrade the Avaya BCM-IVR PeriView Consolidator workstation.

Chapter 3 — Administrator Upgrade on Avaya BCM 4.0 Platform

Discusses how to manage Avaya BCMs using Business Element Manager. Explains how to add Avaya BCMs to the Business Element Manager administration list.

Chapter 4 — Developer Upgrade on Windows Workstation

Discusses steps necessary to port PeriProducer 2.30 applications to PeriProducer 3.00, as well as porting events and conversion issues.

Chapter 5 — Developer Upgrade on Fedora Workstation

Discusses steps necessary to configure the Fedora workstation to compile C/C++ code for User Defined External Call Functions.

Chapter 6 — Database Access Configuration

Discusses how to configure the Windows workstation for external database access.

Conventions Used in This Manual

This manual uses different fonts and symbols to differentiate between document elements and types of information. These conventions are summarized in the following table.

Table 1: Conventions Used in This Manual

Notation	Description
Normal text	Normal text font is used for most of the document.
important term	The Italics font introduces new terms, highlights meaningful words or phrases, or distinguishes specific terms from nearby text.
`system command`	This font indicates a system command or its arguments. Enter such keywords exactly as shown (that is, do not fill in your own values).
command, condition and alarm	Command, Condition and Alarm references appear on the screen in magenta text and reference the Command Reference Manual, the MPS Developer User's Guide, or the Alarm Reference Manual, respectively. Refer to these documents for detailed information about Commands, Conditions, and Alarms.
`file name / directory`	This font highlights the names of disk directories, files, and extensions for file names. It also shows what is displayed on a text-based screen (for example, to show the contents of a file.)
on-screen field	This font indicates field labels, on-screen menu buttons, and action buttons.
<KEY NAME>	A term that appears within angled brackets denotes a terminal keyboard key, a telephone keypad button, or a system mouse button.
Book Reference	This font indicates the names of other publications referenced within the document.

Notation	Description
cross-reference	A cross-reference appears on the screen in blue. Click the cross-reference to access the referenced location. A cross-reference that refers to a section name accesses the first page of that section.
Note:	Notes identify important facts and other keys to understanding.
	The caution icon identifies procedures or events that require special attention. The icon indicates a warning that serious problems may arise if the stated instructions are not followed implicitly.
	The flying Window icon identifies procedures or events that apply to the Windows operating system only. (1)
	The Solaris icon identifies procedures or events that apply to the Solaris operating system only. (2)

(1): Windows and the flying Window logo are either trademarks or registered trademarks of Microsoft Corporation.

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Solaris and Windows Conventions

This manual depicts examples (command line syntax, configuration files, and screen shots) in Solaris format. Windows-specific commands, procedures, or screen shots are shown when required. The following table lists general operating system conventions used with either the Solaris or Windows operating system.

	Solaris	Windows
Environment	`$PPROHOME`	`%PPROHOME%`
Paths	`$PPROHOME/bin`	`%PPROHOME%\bin`
Command	<command> &	start /b <command>

Two-Button (Windows) vs. Three-Button (Solaris) Mouse

<SELECT>	Left button
<ADJUST>	Left and Right together
<MENU>	Right button

<SELECT>	Left button
<ADJUST>	Middle button
<MENU>	Right button

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Chapter 2: New in this release

The following sections detail what's new in Avaya Business Communications Manager—IVR Upgrade Guide for release 4.0.

Navigation

Features

There are no feature updates in this release.

Navigation

Revision history

May 2007

Standard 01.01. Updates to Advanced Command window graphics.

July 2006

Standard 1.0. Avaya BCM-IVR 2.1 Upgrade Guide is issued for Release 2.1.

Other changes

There are no updates for this release.

Chapter 3: Avaya BCM - IVR 2.1 Upgrade Overview

This chapter covers:

1. The Avaya BCM-IVR 2.1 Upgrade
2. New or updated features of Avaya BCM-IVR 2.1
3. Pre-requisites for the BMC-IVR 2.1 upgrade
4. Transition issues
5. Documentation issues

The Avaya BCM-IVR 2.1 Upgrade

Avaya Business Communications Manager (Avaya BCM) 4.0 is a fully integrated communication system for small businesses, government networks, retail networks, and enterprise branch offices.

The Avaya BCM 4.0 offers interactive voice response capabilities through Interactive Voice Response 2.1 (IVR 2.1). IVR 2.1 is a suite of products that allows businesses to create applications callers can use to access information by responding to a series of prompts through their touchtone phones.

The IVR applications are developed for specific customer needs and in many cases are integrated with databases to enable real-time queries and updates. Some examples of IVR applications are:

Example

- A pharmacy's application that lets customers access their accounts, receive real-time status on their prescription refills, and request prescription refills.
- A bus station's IVR application that lets customers book seats on a trip or review projected departure times.
- A bookstore's application that lets customers hear store hours, purchase books, and check the delivery of an existing order.

The collection of hardware and software that creates and administers IVR applications on Avaya BCMs is collectively referred to as the Avaya BCM-IVR 2.1 system.

New or Updated Features of Avaya BCM-IVR 2.1

In previous Avaya BCM-IVR systems (such as the Avaya BCM-IVR 1.X system), both the Avaya BCM 3.X and the IVR 1.X operated on an Embedded Windows NT platform. The IVR 1.X development and administration tools (PeriProducer 2.X, PeriStudio 1.X, PeriReporter, and PeriView) ran on a Windows NT/2000 platform.

The Avaya BCM-IVR 2.1 system requires both the Carrier Grade Linux (NCGL) platform and the Windows 2000 platform. The Avaya BCM 4.0 operates on the NCGL platform. The Avaya BCM 4.0 runs IVR applications developed and administered with the latest releases of IVR development and administration tools: PeriProducer 3.00, PeriStudio 2.20, PeriView 2.1, and PeriReporter 1.21. These IVR development and administration tools run on the Windows 2000 platform.

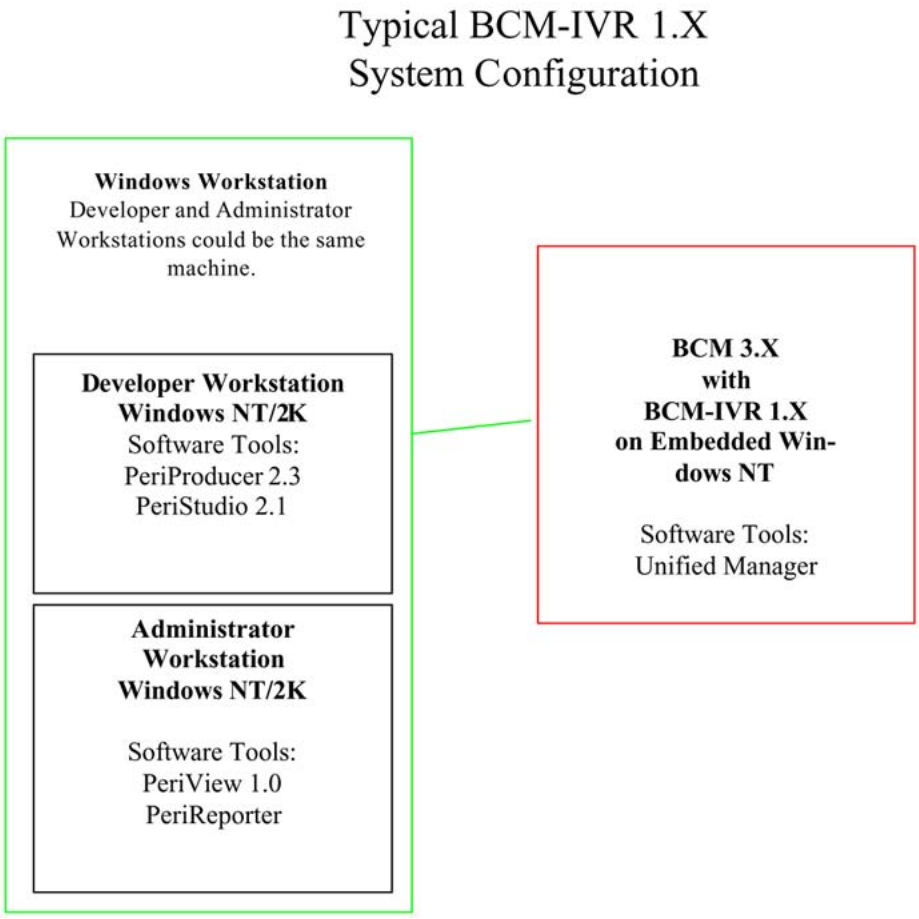
In the Avaya BCM-IVR 2.1 system, Avaya BCMs are managed with Business Element Manager, not Unified Manager (for more information about Business Element Manager, see Avaya BCM 4.0 Networking Configuration Guide).

In the Avaya BCM-IVR 2.1 system, PeriView and PeriView Consolidator reside on a Windows 2000 workstation, and Avaya BCM 4.0 resides on an NCGL workstation. The Avaya BCMs IVR capabilities are managed from any user PC by pointing the user PC web browser to the PeriView/PeriView Consolidator workstation. A third workstation with Fedora Core 3 is required if IVR applications use C/C++ external call functions.

As such, the configuration of the new Avaya BCM-IVR 2.1 system differs from that of the Avaya BCM-IVR 1.X system.

Avaya BCM-IVR 1.X Configuration

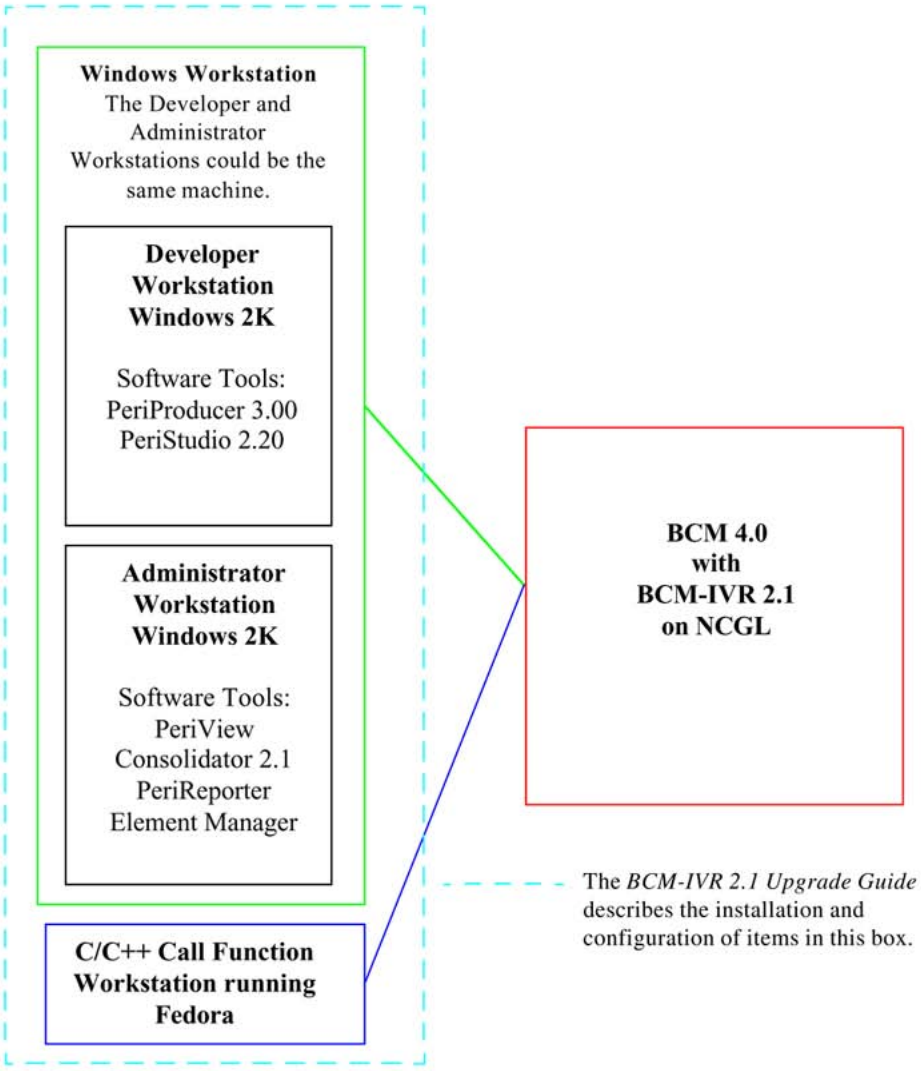
The following figure shows a graphical representation of a typical Avaya BCM-IVR 1.X configuration.



Avaya BCM-IVR 2.1 Configuration

The following figure shows a typical Avaya BCM-IVR 2.1 system configuration.

Typical BCM-IVR 2.1 System Configuration



Prerequisites for the Avaya BCM-IVR 2.1 Upgrade

Application Developer

Application Developers create applications that run on the Avaya BCM-IVR system. Application Developers must upgrade their developer workstation and install Fedora Core 3 to upgrade any external C/C++ Call Functions in existing applications. Developer Upgrade on Windows Workstation on page 81Chapters 4 and 5 are intended for Application Developers.

An Application Developer must obtain the following CDs to upgrade the Avaya BCM-IVR system:

- MPS 2.1 Software, Documentation and Update CD—MPS 2.1 Patch Bundle 9, PeriProducer 3.00, PeriStudio 2.20, PeriView 2.1 and PeriReporter 1.21 and supporting documentation
- Avaya BCM-IVR Toolkit CD—contains Avaya BCM Toolkit for PeriProducer 3.00, NCGL Development Environment, userdb.xml.BCM, Avaya BCM-IVR Integration Supplement, PeriProducer for the Avaya BCM Guide, Avaya BCM-IVR 2.1 Upgrade Guide, ReadMe_1st.

An Application Developer must have a Windows 2000 operating system.

If the IVR applications use C/C++ call functions, an Application Developer must also have a PC with Fedora installed. See Developer Upgrade on Windows Workstation on page 81 and Developer Upgrade on Fedora Workstation on page 87 for more information.

System Administrator

System Administrators monitor and maintain the Avaya BCM-IVR system. System Administrators must uninstall existing PERI packages, install BMC/IVR 2.1 PERI packages, and install PeriView Consolidator. System Administrators are also responsible for managing the Avaya BCMs using Business Element Manager. See Administrator on the Windows Workstation on page 41 and Administrator on the Avaya BCM 4.0 Platform on page 73 for more information.

A System Administrator must obtain the following CDs in order to upgrade the Avaya BCM-IVR system:

- MPS 2.1 Software, Documentation and Update CD—MPS 2.1 Patch Bundle 9, PeriProducer 3.00, PeriStudio 2.20, PeriView 2.1 and PeriReporter 1.21 and supporting documentation
- Avaya BCM-IVR Toolkit CD—contains Avaya BCM Toolkit for PeriProducer 3.00, NCGL Development Environment, userdb.xml.BCM, Avaya BCM-IVR Integration Supplement, PeriProducer for the Avaya BCM Guide, Avaya BCM-IVR 2.1 Upgrade Guide, ReadMe_1st.

A System Administrator must have a Windows 2000 operating system.

Note:

Before proceeding with this upgrade, the System Administrator must obtain ported IVR applications from the Application Developer. See Porting PeriProducer 2.30 Applications to PeriProducer 3.00 on page 81.

Transition Issues

Transition Issues for the Application Developer

In upgrading from Avaya BCM-IVR 1.X to Avaya BCM-IVR 2.1, Application Developers may encounter transition issues due to new or obsolete PeriProducer features.

Database Access Modes

Avaya BCM-IVR 2.1 supports VTCPD and Host database access.

BMC/IVR 2.1 no longer supports native mode or Open Database Connectivity access (ODBC). Existing applications configured for native mode or ODBC access must be reconfigured.

For more information about configuring your Avaya BCM-IVR 2.1 system for database access. See Database Access Configuration on page 91.

New PeriProducer 3.00 Blocks

PeriProducer 3.00 introduces several new toolkit blocks; however, some are not supported in the Avaya BCM environment. The following table lists the new blocks and whether they are supported in the Avaya BCM Environment.

Table 2: New PeriProducer 3.00 Blocks

Block	Function
Abort	Abort input/output
Bridge	Not supported
Call Control	Send data to telephony protocol layer/perform a hookflash (moved from Originate block in PeriProducer 2.30)
Call Conferencing	Not supported
Call Progress Detection	Manage call progress detection functions
Edit Sequence	Manage touch tone input editing and user edit sequences
Line Operations	Perform phone line operations (such as offer call, accept call, get line/application resource from pool)
Media Operations	Not supported
Select Input	Not currently implemented

See the PeriProducer 3.00 User Guide for full descriptions of the blocks.

Blocking/Non-blocking Execution

Many PeriProducer blocks provide the option of choosing blocking (execution waits at that block until it receives success/failure message) or non-blocking (execution continues to next block without waiting for message) execution. A Wait checkbox enables/disables blocking execution for the applicable blocks. See Blocking/Non-blocking Operation in the PeriProducer 3.00 User Guide for details.

Call Progress Detection

Using Call Progress Detection (CPD) is updated in PeriProducer 3.00. CPD is controlled by dynamically enabling and disabling specific tone/event detection in the Call Progress Detection block. All CPD events return to the application as the cpd condition with the specific event

(Busy, Reorder, and so on) in the condition data. See the PeriProducer 3.00 User Guide for details.

PeriProducer 3.00 Block Changes

Many PeriProducer 3.00 blocks have amended or improved function.

Connection IDs (Caller I/O blocks)

Phone line and resource numbers are replaced with Connection IDs (CIDs). Connection IDs indicate the component name and the line number of the connection. For example, the CID mps24.1 indicates the connection is from line one on component mps24. The default Connection ID for the current phone line is available in the System folder's DefaultCID data card. The CID for an operation is supplied by the system (for example, when a resource is allocated).

Accessory Toolkit Blocks

The Table Search, Table Sort, Date Calculations, and Send email blocks are moved from the main toolkit to the accessory toolkit.

Answer Block

Continue on Ring Detect Removed

The Continue on Ring Detect option is removed.

Get Phone Number Options Removed

The Get Dialed Phone Number and Get Caller's Phone Number options are supported only with certain protocols. See the Avaya BCM 4.0 Networking Configuration Guide for more details.

Disconnect Block

Abandoned Call Counter Removed

The MPS does not automatically track system abandoned calls. The Mark as abandoned option is removed. To track abandoned calls, create application statistics and use MPS Reporter to display the reports

System Block

Diagnostic Functions Removed

The diagnostics function is removed.

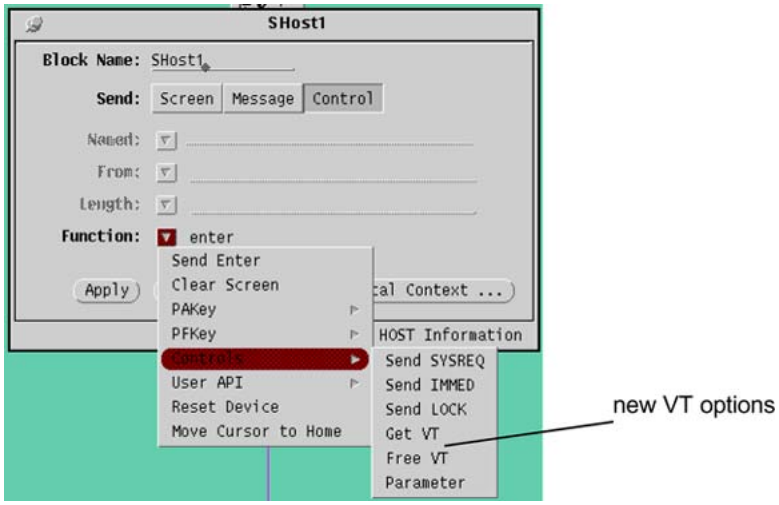
Condition Data

The Get Condition Data function is added. This function replaces using the condition-data call function. Get Condition Data requires a folder with the same structure, data names, and data types expected with the condition.

Send Host Block

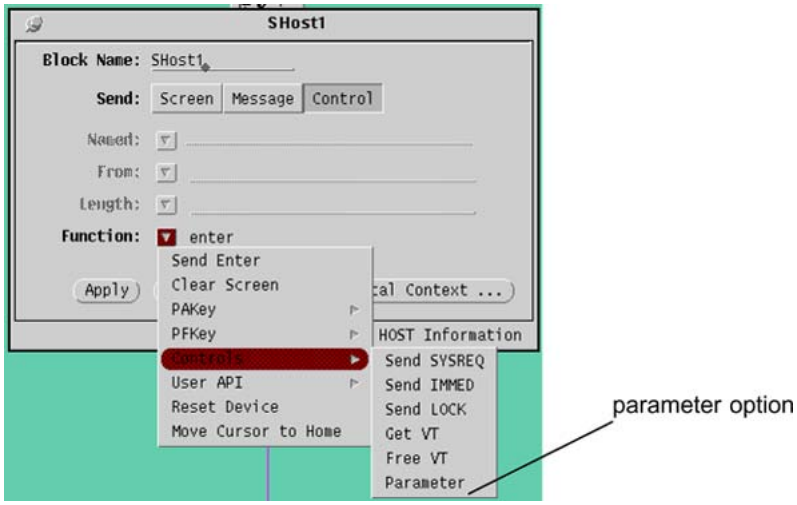
Virtual Terminal (VT) Allocation

VT allocation functions are available from the Send Host block. These functions replace the VT allocation Environment block options.



Setting Host Environment Parameters

Host environment parameters are sent from the Send Host block. This function replaces the Environment block "host" option.



Receive Host Block

Asynchronous Operation

The Asynchronous checkbox is replaced by the Wait checkbox. Receive Host operates asynchronously when the Wait checkbox is unchecked.

Send Fax Block

Fax Composition Removed

The Fax Composition feature is not supported. All controls and options used to create and store composed faxes are removed.

Send Fax from TIFF File

PeriProducer 3.00 supports sending faxes directly from TIFF format files. TIFF faxes no longer need to be imported into a MultiMedia File and accessed by a media storage token.

Fax Mode Removed

PeriProducer 3.00 supports only Group 3 faxes.

Receive Fax Block

Receive Fax Direct into TIFF File

Applications can save an incoming fax directly to a TIFF-format file. In previous versions of PeriProducer, faxes were stored in MultiMedia Files and had to be exported to individual TIFFs.

Local Station ID

The user can specify the Local Station ID (which typically represents the phone number of the station receiving the fax) in the block. The Local Station ID is typically displayed on the transmitting fax machine.

Fax Mode Removed

PeriProducer 3.00 supports only Group 3 faxes.

Originate Block

Moved Functions

All bridging functions are moved to the new 3.00 Bridge Block. Hookflash is moved to the Call Control Block. The End Transfer function is deleted and the user can use the Disconnect block instead.

Record Block

Asynchronous Recording

Asynchronous recording provides an unlimited duration message. Asynchronous recording is explicitly started and stopped by Begin and End functions of the Record block.

Moved Functions

Element deletion functions are moved to the Media Operations block.

Resource Block

Asynchronous Execution Changes

There is no longer an Async checkbox in the Resource block. To perform the resource receive asynchronously, clear the Wait box.

Discontinued Features and Functions

Fax Composition

Fax composition is not supported in PeriProducer 3.00. Faxes to be sent must be created by external applications or received (and stored for later use) by the Avaya BCM.

Hardware Properties Window

The Hardware Properties Window is removed.

Unsupported Resources

PeriProducer 3.00 no longer supports the following resources:

- mps
- abb
- asdi
- ast
- iwr
- ppd
- modem
- mts
- iscp
- ctx
- lcr

Obsolete Functions

The Media Operations block in PeriProducer has rendered obsolete the file-to-message, message-to-item and message-to-file functions.

Other PeriProducer Changes

Enhanced Condition Data

Condition Data is now returned as a data structure consisting of different field/value pairs. To access the expanded condition data, use the System block's "Get Condition Data" function and specify the appropriate response folder (templates provided in %PPROPATH%\sample \folders). To access all of the condition data, the folder must have data cards defined as the same name and type as the associated condition data field. The data for one field only can be obtained by specifying a datacard whose name matches the desired field.

Note:

The condition data for many conditions have a Status field. The Status field value is automatically copied into the System folder's ConditionData card.

Environment Options

Many PeriProducer 2.30 Environment options are rendered obsolete or replaced by new environment options, block built-in functions or both, in PeriProducer 3.00. The following table lists the 2.30 Environment options and the analogous 3.00 option (if any). Comments are provided where appropriate.

Table 3: Environment Options Conversions

2.30 Environment Option	3.00 Equivalent
Phone Environment	
answer	Unsupported as environment option. Use the Answer block (Answer function) to answer a call.

2.30 Environment Option	3.00 Equivalent
first	DtmfFirst (Application and System Environment options)
inter	DtmfInter (Application and System Environment options)
keepterm	Unsupported as environment option. Use the "Retain" option (for the termination character) in Edit Sequence block.
termchar	Unsupported as environment option. Use the Edit Sequence block to enable/set a termination character.
total	LineTotalCall (Application and System Environment options)
typeahead	Unsupported
Phone Line Task Environment	
backsp	Unsupported as environment option. Use the Edit Sequence block to enable/set a backspace edit sequence.
delete	Unsupported
eXtext	Unsupported. Use the Edit Sequence block to enable/set user edit sequences.
Phone Resource Server Environment	
prs	Unsupported
tstop	Unsupported as environment option
Message Recording Environment	
intersil	RecInterSil (Application and System Environment options)
Call Progress Detection Environment	
cpansup	Unsupported
pickup	Unsupported
Speech Management Environment	
clear	Supported for legacy applications only. Use the Abort block with the "Caller I/O Only" option enabled.
vioabort	Unsupported as environment option. Use the Abort block.
Host Environment	
er	er

2.30 Environment Option	3.00 Equivalent
freevt	Supported for legacy applications only. Use the Send Host block "Free VT" (in Control > Function > Controls) option.
getvt	Supported for legacy applications only. Use the Send Host block "Get VT" (in Control > Function > Controls) option.
headermode	headermode
hostctl	hostctl
intime	intime
parameter	Supported for legacy applications only. Use the Send Host block "parameter" (in Function > Controls) option.
refer	refer
rfno	rfno
session	session
setaid	setaid
unlocks	unlocks
usepool	usepool
Advanced Phone Line Management	
phone	Unsupported as environment option
Optional Exception Conditions	
rngback	Unsupported as environment option
uedit3	Unsupported as environment option (in the context of taking a digital system out of wait for an outdial complete message)
Generic Environment Options	
Phone Line Manager Options	Superseded by "Application and System Options"
Vengine Options	Vengine Options
VENGINE Environment	
alarmdbtask	alarmdbtask
apprestart	apprestart
centurymark	centurymark
debug	debug
deltimedcall	deltimedcall

2.30 Environment Option	3.00 Equivalent
hnowait	Unsupported (a corresponding VENGINE runtime option is available)
intermsg	intermsg
maxmessage	Unsupported
mode	mode
notice	notice
numset	numset
rscertime	rscertime
rscintime	rscintime
setvpsline	setvpsline
softterm	softterm
speak	speak
timedcall	timedcall
unnotice	unnotice
vmstimedcall	vmstimedcall
vpsrcvtime	vpsrcvtime
webtimeout	webtimeout

Conditions

When a PeriProducer 2.30 application is opened in 3.00, PeriProducer attempts to automatically convert handle conditions to their counterparts in 3.00. Condition conversions shown with a preceding dollar sign ("$") are displayed in the application as the 2.30 condition but are automatically converted to the appropriate 3.00 condition at runtime.

The following table lists the 2.30 condition, the corresponding 3.00 condition (if any), and, if applicable, how PeriProducer 3.00 converts the condition when a 2.30 application is ported to 3.00.

Table 4: Conditions Conversion

2.30 Condition	3.00 Condition	Conversion
abend	abend	abend
addfail	importfail w/Status "ErrInUse" in condition data	$addfail

2.30 Condition	3.00 Condition	Conversion
addsucc	importcmp	importcmp
altlinkdown	altlinkdown	altlinkdown
ansfail	answerfail	answerfail
asrdet	asrdet	asrdet
asyncdata	Unsupported	
asyncfail	Unsupported	
autofail	detinputfail	detinputfail
autotim	autotim	autotim
avserr	avserr	avserr
badoperation	badoperation	badoperation
badparameter	badparameter	badparameter
calltim	calltim	calltim
carloss	Unsupported	
ccs7cc	ccs7cc	ccs7cc
chartim	getinputfail w/Status "ErrInter" field in condition data	getinputfail
cmrhigh	Unsupported	
cmrlow	Unsupported	
comfail	comfail	comfail
conn	answercmp	answercmp
crefer	Unsupported	
crepeat	Unsupported	
crepmax	Unsupported	
cticond	cticond	cticond
ctidown	ctidown	ctidown
ctifail	ctifail	ctifail
ctiup	ctiup	ctiup
ctxcc	Unsupported	
ctxfailcc	Unsupported	
ctxokcc	Unsupported	
cvoice	Unsupported	

2.30 Condition	3.00 Condition	Conversion
dcdown	Unsupported	
dcup	Unsupported	
deadlock	deadlock	deadlock
delcomp	delcmp	delcmp
delfail	delfail	delfail
dialtn	Unsupported	
disable	Unsupported	
disc	Dependent upon event that caused disc condition.	
	disc (caller hangup)	$disc
	disccmp (system-initiated disconnect)	$disc
discfail	discfail w/Status field in condition data	$discfail
dtmfzl	recordfail w/Status "ErrZeroLengthDTMF" in condition data	recordfail
dupkey	dupkey	dupkey
dupvalidx	dupvalidx	dupvalidx
enable	Unsupported	
endfail	discfail	$endfail
endfile	endfile	endfile
error	error	error
ertimeout	Dependent upon event that caused ertimeout condition	
	ertimeout (gen'd by VENGINE)	$ertimeout
	hrcvmapfail w/Status "ErrTimeout" in condition data (failed receive map)	$ertimeout
	hrcvtxtfail w/Status "ErrTimeout" in condition data (failed receive text)	$ertimeout
expired	expired	expired
faxdet	faxdet	faxdet
forcefree	forcefree	forcefree
forward	Unsupported	

2.30 Condition	3.00 Condition	Conversion
fromphone	fromphone	fromphone
frstim	getinputfail w/Status "ErrFirst" in condition data	getinputfail
ftomfail	Unsupported	
ftomsucc	Unsupported	
getfail	Dependent upon event that caused getfail condition	
	getfail (gen'd by VENGINE)	$getfail
	getrsrcfail (failed resource get request)	$getfail
	rcvfaxfail w/Status "ErrNoFaxAvail" in condition data (failed receive fax when fax not available)	$getfail
	sndfaxfail w/Status "ErrNoFaxAvail" in condition data (failed send fax when fax not available)	$getfail
getvtfail	hgetvtfail	hgetvtfail
getvtpass	hgetvtcmp	hgetvtcmp
gotres	Dependent upon event that caused gotres condition	
	getrsrccmp	$gotres
	rcvfaxcmp	$gotres
	sndfaxcmp	$gotres
green	Unsupported	
hctloff	hctloff	hctloff
hctlon	hctlon	hctlon
heldres	Unsupported	
hkfcomp	hookflshcmp	hookflshcmp
hkffail	hookflshfail	hookflshfail
hostasyncevt	hostasyncevt	hostasyncevt
hostdown	hostdown	hostdown
hostfail	Dependent upon event that caused hostfail condition	
	hrcvmapfail w/Status "ErrNoData" or "ErrTimeout"	$hostfail

2.30 Condition	3.00 Condition	Conversion
	in condition data (failed to receive map)	
	hrcvtxtfail w/Status "ErrNoData" or "ErrTimeout" in condition data (failed to receive text)	$hostfail
	hsndmapfail (failed to send map)	$hostfail
	hsndtxtfail (failed to send text)	$hostfail
	hsndaidfail (failed to send AID key)	$hostfail
hostup	hostup	hostup
hstatdata	hstatdata	hstatdata
idle	Unsupported	
inf	Dependent upon event that caused inf condition	
	inf (gen'd by VENGINE)	$inf
	rcvfaxfail w/Status "ErrNoFaxAvail" in condition data (failure to receive fax)	$inf
	recordfail w/Status "ErrZeroLengthDTMF" or "ErrZeroLengthSilence" in condition data (failure to record CMR message)	$inf
intertimeout	intertimeout (gend' by VENGINE)	$intertimeout
invreq	invreq	invreq
ioerr	ioerr	ioerr
iscpf	iscpf	iscpf
isdncc	Unsupported	
iupdbusy	Unsupported	
iupdcomp	Unsupported	
iupdfail	Unsupported	
lengerr	lengerr	lengerr
linkdown	linkdown	linkdown

2.30 Condition	3.00 Condition	Conversion
lockfail	lockfail	lockfail
logdeny	logdeny	logdeny
lost	Unsupported	
marshall	mailshall	marshall
mmfhigh	mmfhigh	mmfhigh
mmflow	mmflow	mmflow
modvar	modvar	modvar
mpscc	Unsupported	
mpsinfo	Unsupported	
mpsoc	Unsupported	
mpsof	Unsupported	
mtoffail	exportfail	exportfail
mtofsucc	exportcmp	exportcmp
nilobjref	nilobjref	nilobjref
nonexistobj	nonexistobj	nonexistobj
norecfound	norecfound	norecfound
norestart	norestart	norestart
nospace	nospace	nospace
notfnd	notfnd	notfnd
notimpl	notimpl	notimpl
notlogon	notlogon	notlogon
notopen	notopen	notopen
oa	speakcmp w/Status "Abort" in condition data	speakcmp
oc	Dependent upon event that caused oc condition	
	speakcmp w/Status "Done" in condition data (completed speak request)	$oc
	sndfaxcmp (completed send fax)	$oc
	sndrsrccmp (completed send resource)	$oc
of	Dependent upon event that caused of condition	

2.30 Condition	3.00 Condition	Conversion
	of (gen'd by VENGINE)	$of
	sndfaxfail w/Status "ErrNoFaxAvail" in condition data (failed send fax)	$of
	sndrsrcfail (failed send resource)	$of
	speakfail (failed speak request)	$of
ofaxdet	Unsupported	
orberr	orberr	orberr
oscoc	sndrsrccmp	
oscof	sndrsrcfail	
outbad	origfail w/Status "ErrInvalidLineState" in condition data	origfail
outbsy	origfail w/Status "ErrBusy" in condition data	origfail
outcomp	origcmp	origcmp
outfail	origfail w/Status "ErrBusy", "ErrInvalidLineState", ErrNoAnswer", or "ErrRejected" in condition data	$outfail
outnoa	origfail w/Status "ErrNoAnswer" in condition data	origfail
outrej	origfail w/Status "ErrRejected" in condition data	origfail
outvoa	Unsupported	
pgid	pgid	pgid
pgml	pgml	pgml
pgun	pgun	pgun
prsfree	Dependent upon event that caused prsfree condition	
	prsfree (gen'd by VENGINE)	$prsfree
	freersrccmp (completed free resource)	$prsfree

2.30 Condition	3.00 Condition	Conversion
qiderr	qiderr	qiderr
qzero	qzero	qzero
rcverr	rcvrsrcfail	$rcverr
rcvnull	Dependent upon event that caused rcvnull condition	
	rcvnull (gen'd by VENGINE)	$rcvnull
	hrcvmapfail w/Status "ErrNoData" in condition data (failed receive map)	$rcvnull
	hrcvtxtfail w/Status "ErrNoData" in condition data (failed receive text)	$rcvnull
rcvoice	Unsupported	
rdcdown	Unsupported	
rdcup	Unsupported	
rdisable	Unsupported	
red	Unsupported	
refbad	transferfail w/Status "ErrInvalidLineState" in condition data	transferfail
refbeg	transfercmp	transfercmp
refcan	disccmp	$refcan
reffail	transferfail w/Status "ErrInvalidLineState" or "ErrRejected" in condition data	$reffail
refrej	transferfail w/Status "ErrRejected" in condition data	transferfail
reftim	calltim	$reftim
renable	Unsupported	
reorder	Unsupported	
resumefail	resumefail	resumefail
rgreen	Unsupported	
ring	alertcmp	alertcmp
rinfail	alertfail	alertfail

2.30 Condition	3.00 Condition	Conversion
rlost	Unsupported	
rngback	Unsupported	
rred	Unsupported	
rscoc	rscoc	rscoc
rscof	rscof	rscof
rsilence	Unsupported	
rvoice	Unsupported	
rxdcdown	Unsupported	
rxdcup	Unsupported	
rxdisable	Unsupported	
ryellow	Unsupported	
sentcp	sndtonecmp	sndtonecmp
serverdown	serverdown	serverdown
setfail	ctrlrsrcfail	$setfail
setres	ctrlrsrccmp	ctrlrsrccmp
silence	Unsupported	
silzl	recordfail w/Status "ErrZeroLengthSilence" in condition data	recordfail
softterm	softterm	softterm
sqlerr	sqlerr	sqlerr
sslfail	sslfail	sslfail
stoptim	Unsupported	
stpring	Unsupported	
tcapcc	tcapcc	tcapcc
tftprecfail	tftprecfail	tftprecfail
tftprecsucc	tftprecsucc	tftprecsucc
tftpsendfail	tftpsendfail	tftpsendfail
tftpsendsucc	tftpsendsucc	tftpsendsucc
timeres	timeres	timeres
toomanyrows	toomanyrows	toomanyrows
tophonefail	tophonefail	tophonefail

2.30 Condition	3.00 Condition	Conversion
ttdata	getinputcmp	getinputcmp
ttdet	ttdet	ttdet
ttfail	getinputfail w/Status "ErrFirst" in condition data	$ttfail
uedit0 - uedit3	uedit0 - uedit3	uedit0 - uedit3
unexdata	unexdata	unexdata
unexhost	unexhost	unexhost
unexphone	unexphone	unexphone
valueperr	valueperr	valueperr
voice	Unsupported	
vrto	vrto	vrto
webfail	webfail	webfail
webtimeout	webtimeout	webtimeout
xdisable	Unsupported	
xmtcomp	Unsupported	
xmtfail	Unsupported	
yellow	Unsupported	

Miscellaneous

VRAM Language

VRAM is no longer supported.

Downward Porting of.ppr Source Code

Source code cannot be ported to previous versions of PeriProducer.

MPS Release Level

You must use PeriProducer 3.00 on MPS 2.1 or later.

Transition Issues for the System Administrator

Minor changes to PeriView and PeriView Consolidator impact how System Administrators administer IVR scripts on the Avaya BCMs; however, no functionality has been lost (see the PeriView 2.1 Users Guide).

Note:
System Administrators now manage Avaya BCMs through Business Element Manager (see the Avaya BCM 4.0 Networking Configuration Guide).

Documentation Issues

Issue

Documentation currently refers to hardware as the MPS.

Wherever the documentation uses MPS, assume that this refers to the Avaya BCM-IVR, unless otherwise noted.

Chapter 4: Administrator on the Windows Workstation

This chapter covers:	
1.	Windows Workstation Operating System Upgrade
2.	Avaya BCM-IVR 1.X Uninstall Procedures
3.	Avaya BCM-IVR 2.1 Installation Procedures
4.	Avaya BCM-IVR 2.1 Toolkit Installation
5.	PeriView 2.1 and PeriView 2.1 Consolidator Installation
6.	Launching Applications in PeriView

Windows Workstation Operating System Upgrade

If either the Application Developer workstation or the System Administrator workstation is currently running on Windows NT, both workstations must be upgraded to the Window 2000 operating system. For more information about upgrade prerequisites, see Prerequisites for the Avaya BCM-IVR 2.1 Upgrade on page 19.

Avaya BCM-IVR 1.X Uninstall Procedures

Uninstall Procedures with MPS 2.1 Software and Document CD

If Avaya Business Communications Manager (Avaya BCM) IVR 1.X is already on the Windows Workstation, follow these procedures to remove the Avaya BCM-IVR 1.X PERI packages prior to installing Avaya BCM-IVR 2.1.

Example

1. Ensure PERI packages are installed on the box by either:
    a. running the following command:

    ```
    C:\perl -S perirev.plx outfile=STDOUT
    ```

    The preceding command produces an output similar to the following sample.

    ```
    PERIase     4.7.1

                        PERIMPSPatch Bundle 7
                        PERIrel5Patch Bundle 27
                        BundleCutDate-20031007
                        PkgCutDate-20020122

    PERIfw      1

                        PERIMPSPatch Bundle 7
                        PERIrel5Patch Bundle 27
                        BundleCutDate-20031007
                        PkgCutDate-20011214

    PERIgase    1.0.0

                        PERIMPSPatch Bundle 7
                        PERIrel5Patch Bundle 27
                        BundleCutDate-20031007
                        PkgCutDate-20020104

    PERIglobl   1.1.1
    ```

```
                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20010611

PERIgrs         2.2

                                PkgCutDate-20030729

PERIperl        1.0.1

                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20020116

PERIplic        1.1.1

                                PERIMPSPatch Bundle 7
                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20021004

PERIppro        2.30

                                PERIMPSPatch Bundle 7
                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20010427

PERIpstu        2.20

                                PERIMPSPatch Bundle 7
                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20010427

PERIrdb         1.2

                                PERIMPSPatch Bundle 7
                                PERIrel5Patch Bundle 27
                                BundleCutDate-20031007
                                PkgCutDate-20020117

PERIview        1.0.0

                                PERIMPSPatch Bundle 7
                                PkgCutDate-20020516
```

b. or by selecting Setting > Control Panel > Add/Remove.

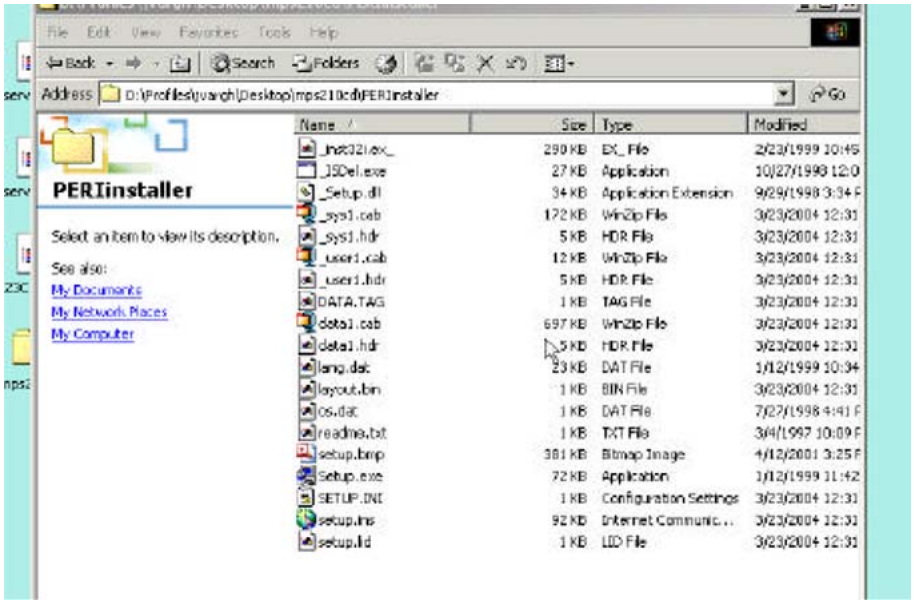
The Add/Remove list contains the list of all PERI packages to be uninstalled.

2. Back up old license files by copying C:\Program Files\\PERIplic\etc\plservrc to a safe location.

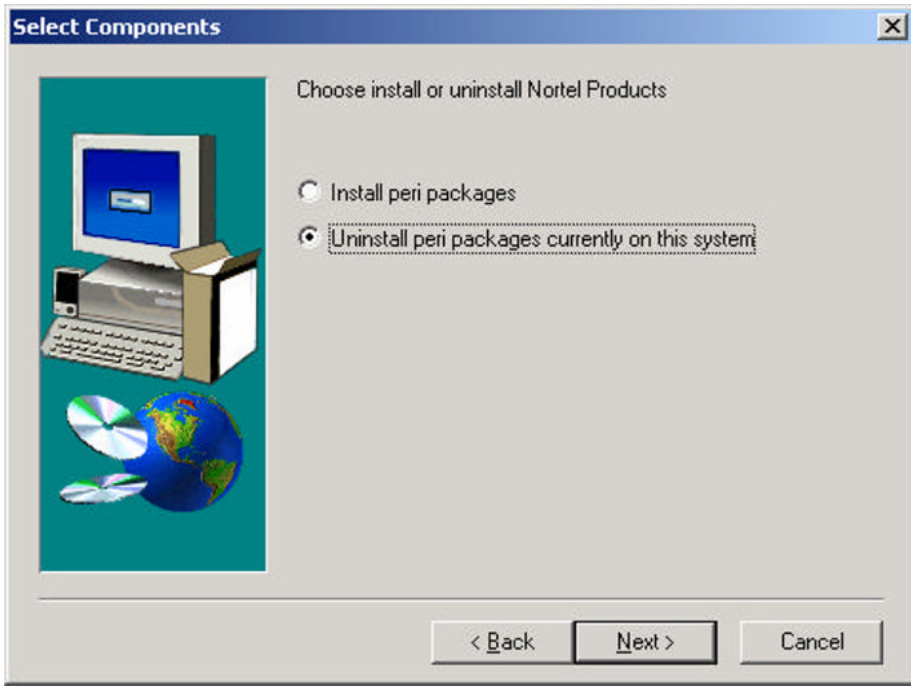
Note:

If you are upgrading your operating system from Windows NT to Windows 2000, back up old license files to an external media other than the Windows Workstation.

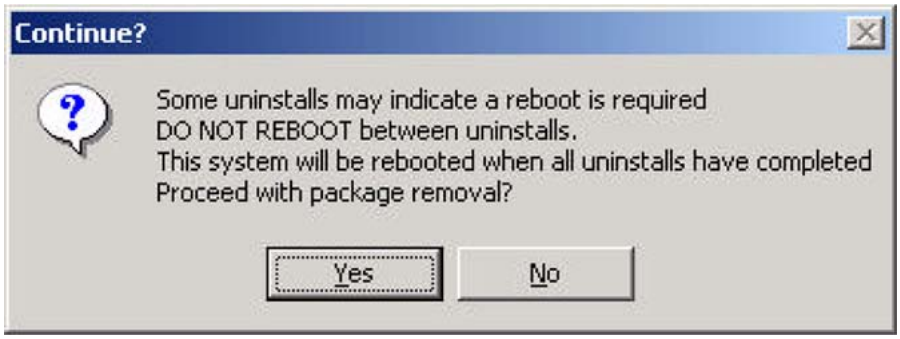
3. Insert the MPS 2.1 Software, Documentation and Update CD and run PERIinstaller\setup.exe.



4. Select Uninstall when the Select Components window appears.



5. The following window appears. Select YES.



6. After the system has rebooted, select Add/Remove Programs from the Control Panel menu to confirm that all PERI packages are removed.

Avaya BCM-IVR 2.1 Installation Procedures

The installation of the Avaya BCM-IVR 2.1 is a three-part process:

Example

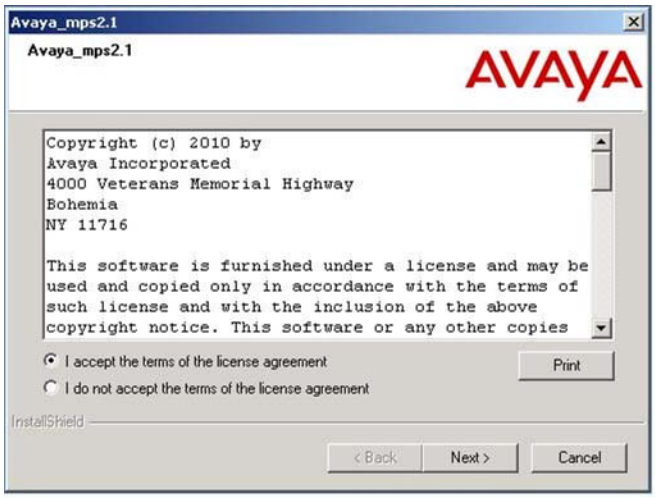
1. Installation of PeriProducer 3.00 and PeriStudio 2.20
2. Installation of the Avaya BCM-IVR 2.1 Toolkit
3. Installation of the License

Note:
During these installation procedures, you may be prompted to reboot a number of times. As well, the system may reboot automatically after installing a number of packages.

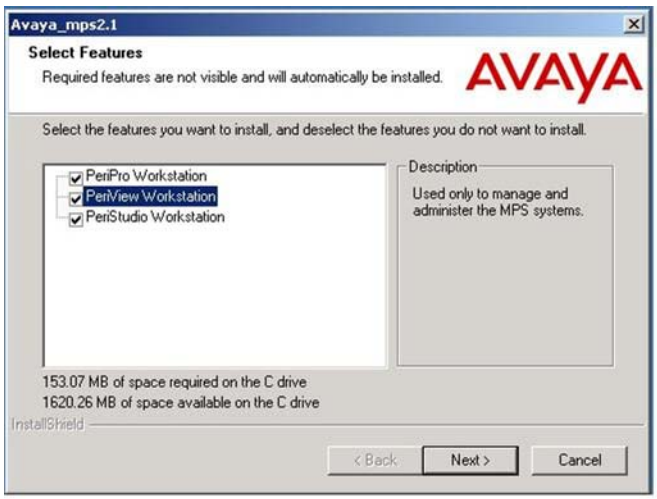
Installing PeriProducer 3.00 and PeriStudio 2.20

Example

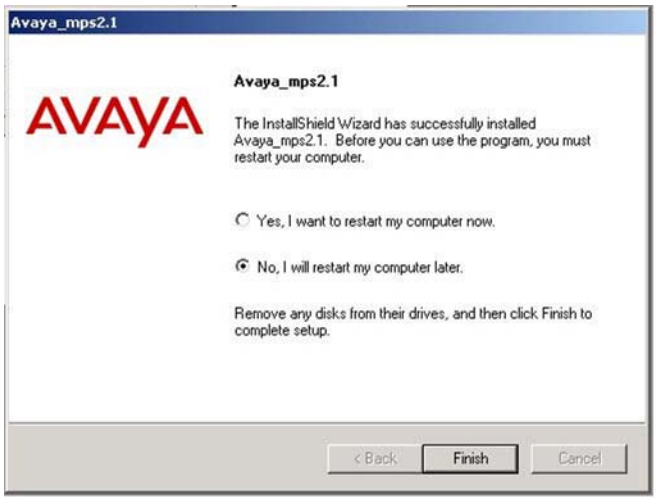
1. From the MPS 2.1 Software, Documentation and Update CD, run PERIinstaller/setup.exe.
2. Select Install when the Select Components window appears.



3. The Configurations window appears. Select the configuration you wish to install and click Next.



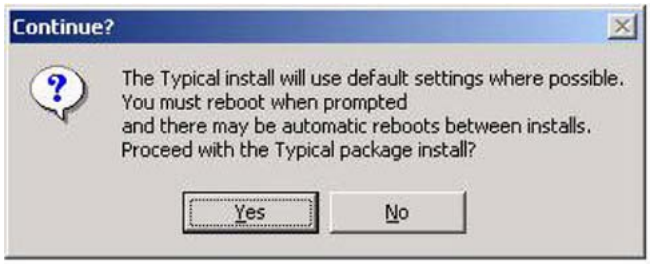
4. Select Typical when prompted to select the type of installation. Click Next.



Note:

highly recommends Typical installation. Only users with the most advanced understanding of Avaya BCM-IVR systems and PERI packages should attempt Custom installation.

After selecting Typical Installation, the following window appears.



Click Yes.

In a Typical Installation, the PERI packages install in the following order:

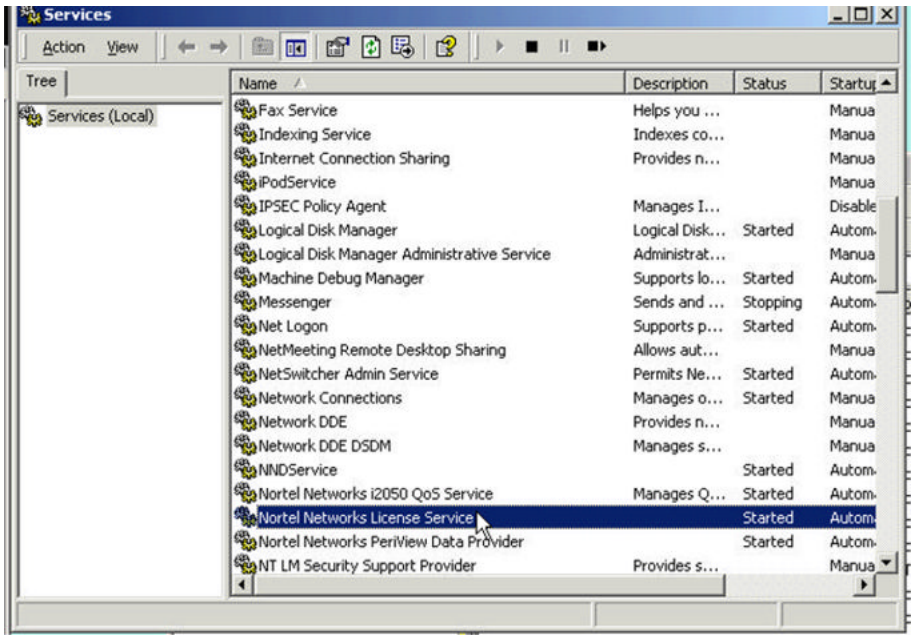
```
PERIperl > Auto Reboot > PERIfw > PERIglobl > PERIgrs >
PERIppro > PERIpstu > PERIplic > PERIrdb > Auto Reboot
```

5. From the MPS 2.1 Software, Documentation and Update CD, install any PERI patch or patch bundles (for example, MPS2.1Patch_Bundle_9.exe) in the Patch folder. If the patch or patch bundle installs successfully, the following message appears:

6. If the Windows Workstation is used as a statistics collector node (see MPS 2.1 PeriReporter User Guide), install any patches in the Patch > Collector folder on the MPS 2.1 Software, Documentation, and Update CD.
7. When all of the patch bundles (if any) have been successfully installed, open the Services window.

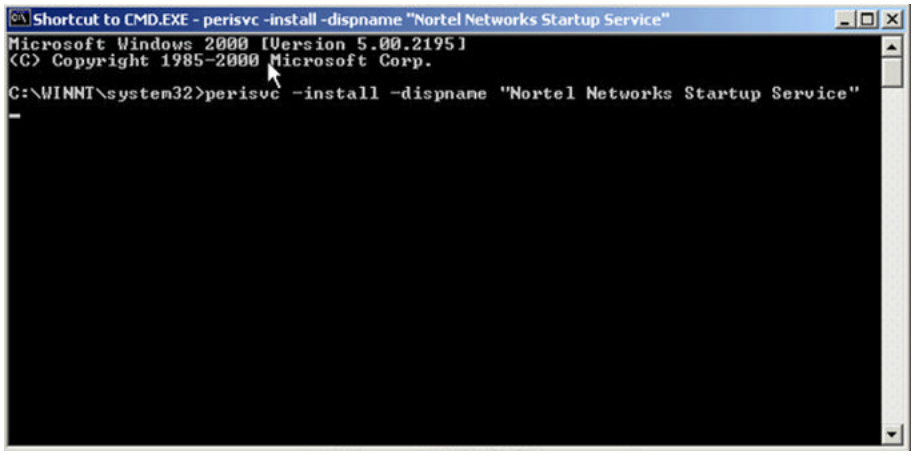
   Note the presence of the Networks License Service and the PeriView Data Provider Service. The Networks Startup Service is not present.

   You must manually install the Networks Startup Service.



8. Install the Startup Service by entering the following command:

   ```
   perisvc -install -dispname " Networks Startup Service"
   ```



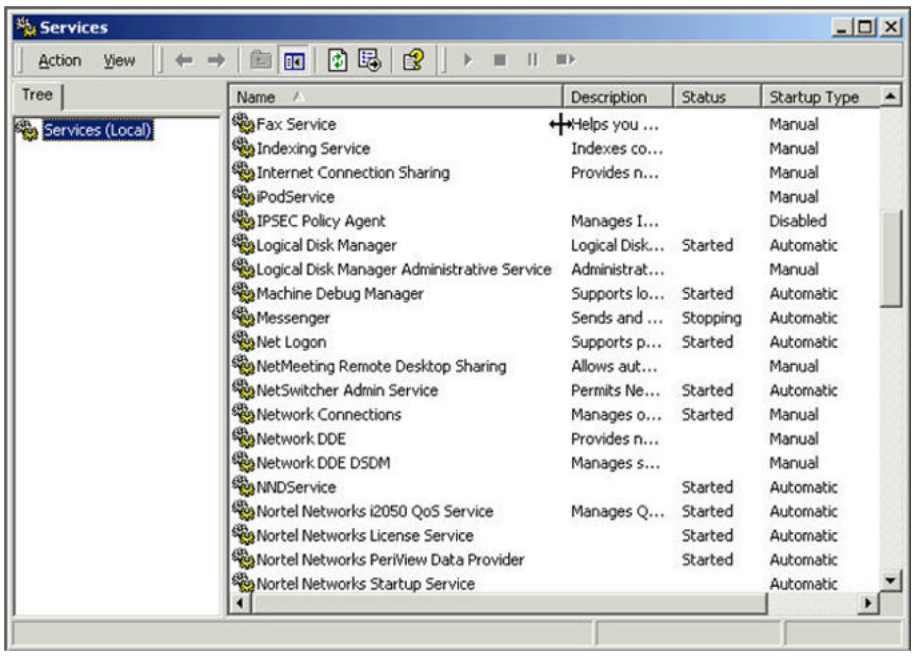
9. Confirm that srp is running by entering the following command:

   ```
   srp -status
   ```

   The preceding command produces an output similar to the following:

   ```
   C:\WINNT\system32>vsh
   vsh#common.0,gen/JVARGH-2 {1} -> srp -status
   NODE:PORT    USER     PID    LINE STATE   ENTERED  STATE   FLAGS   CMDLINE
   JVARGH-2:5999 SYSTEM       15900    -RUNNING  Sep 15  15:52:40
   C srp
   ```

   Confirm that Networks Startup Service is running by opening Services.



10. Ensure PERI packages are installed on the Windows workstation by running the following command:

```
C:\>perl -S perirev.plx outfile=STDOUT
```

```
C:\>perl -S perirev.plx outfile=STDOUT

PERIase     5.0.0
                        MPS2.1Patch_Bundle_9
                        BundleCutDate-20050223
                        PkgCutDate-20020917

PERIfw      1
                        MPS2.1Patch_Bundle_9
                        BundleCutDate-20050223
                        PkgCutDate-20011214

PERIglobl   2.2.0
                        MPS2.1Patch_Bundle_9
                        BundleCutDate-20050223
                        PkgCutDate-20020917

PERIgrs     2.2
```

		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20030729
PERIperl	1.0.1	
		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20020116
PERIplic	1.2.0	
		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20030213
PERIppro	3.00	
		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20021017
PERIpstu	2.20	
		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20030220
PERIrdb	2.0	
		MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate-20030310

Avaya BCM-IVR 2.1 Toolkit Installation

Introduction

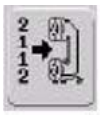
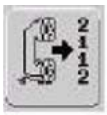
When all the PERI packages for Avaya BCM-IVR 2.1 are successfully installed, you can install the Avaya BCM-IVR 2.1 Toolkit.

Note:

If you already had the Avaya BCM-IVR Toolkit installed prior to upgrading to Avaya BCM-IVR 2.1, recommends that you remove it prior to installing the Avaya BCM-IVR 2.1 Toolkit. Previous versions of Avaya BCM-IVR Toolkit were not removed during the uninstall procedures described in Uninstall Procedures with MPS 2.1 Software and Document CD on page 42.

The Avaya BCM-IVR Toolkit is a graphical user interface (GUI) designed to allow applications to perform Avaya BCM platform-specific operations. The Avaya BCM-IVR Toolkit contains the feature extensions shown in Table 5: Avaya BCM-IVR Toolkit Feature Summaries on page 52.

Table 5: Avaya BCM-IVR Toolkit Feature Summaries

	Set Call Data: Associates data (for example, PIN, Credit Card Number, and so on) with a specific call. Up to five strings of data can be stored per call.
	Get Call Data: Retrieves data that was previously stored using Set Call Data.
	Park Call: Suspends a call so that another device on the Avaya BCM system can retrieve the call. A parked call is connected to either a silence audio stream or the Music On Hold input of the Avaya BCM until it is retrieved.
	Check Park Status: Checks the status of a parked call in the system. The Check Park Status operation indicates whether a timeout has occurred, the call has been automatically unparked and returned to the application, or the caller has disconnected.
	Begin Page: Attaches the voice port to a paging system. When combined with the Park function, Avaya BCM-IVR system parks a call and issues a page advising personnel of the call (and the code to retrieve it).
	End Page: Disconnects the voice port from the paging system.

Note:

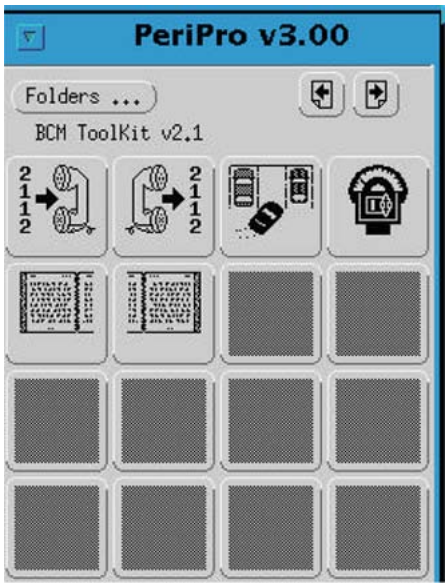
For more information about the functionality of the Avaya BCM-IVR Toolkit, see the PeriProducer Toolkit for the Avaya BCM-IVR.

Installing the Avaya BCM-IVR Toolkit

Example

1. On the Avaya BCM-IVR Toolkit CD, open READ_1st.htm.
2. Click the BCM Toolkit link to execute the toolkit installation.
3. Reboot the system.

The Avaya BCM-IVR Toolkit has six block functions.



License Service Installation

The following steps apply to users who are upgrading from IVR 1.X tools to IVR 2.1 tools (PeriProducer 2.1 and PeriStudio 2.1 to PeriProducer 3.00 and PeriStudio 2.20). Users who are installing IVR 2.1 for the first time should consult the IVR Installation and Configuration Guide.

Example

1. Obtain the MAC address of the IVR workstation where the IVR development tools (for example, PeriStudio 2.20 and PeriProducer 3.00) reside by issuing the following command at the dos prompt:

   ```
   c:\> plicnum
   ```

The plicnum command produces an output containing the MAC address of the workstation.The command output is similar to the following sample output:

```
Interface Address (Interface #0) --> 0:6:5b:da:51:3f
Interface Host Name --> BCMWKSTN-1
```

Record the MAC address shown in the Interface Address field.

2. Contact Technical Support at 1-800-4. Select Option 5 > Option 1. Tell the Technical Support prime that you need to produce a Avaya BCM PeriProducer keycode or Avaya BCM PeriStudio keycode (license files). These files are necessary to enable License Service installation.You must provide the Technical Support prime with the following information:

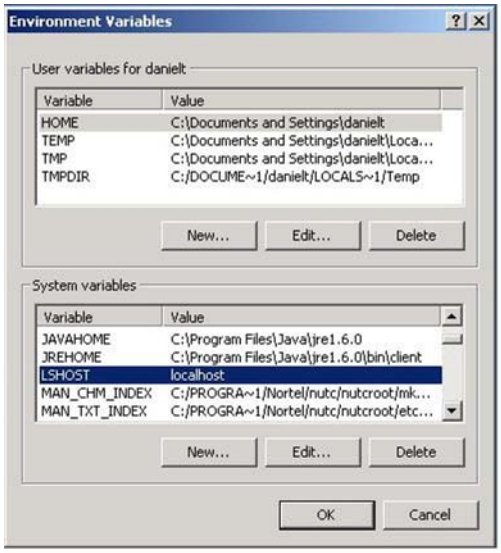
   - The MAC address of the workstation where the IVR development tools reside.
   - The existing IVR 1.X license file that you backed up to a safe place. See instructions 2 on page 44. You must send the existing license file by email to the Technical Support prime.
   - The authorization numbers you received when you purchased the PeriProducer (NTAB4211) and PeriStudio (NTAB4210) tools.

   The Technical Support prime will send you the necessary keycode for license service installation by email after receiving all the necessary information.

3. When you receive the keycode file, save it to:

   `c:\Program Files\\PERIplic\etc`

4. Select Start > Settings > Control Panel > System. Point the LSHOST System variable to the license server. In the following example, the local host is BCMWKSTN-1:



5. Select Settings > Control Panel > Admin Tools > Services and start the licensing service.

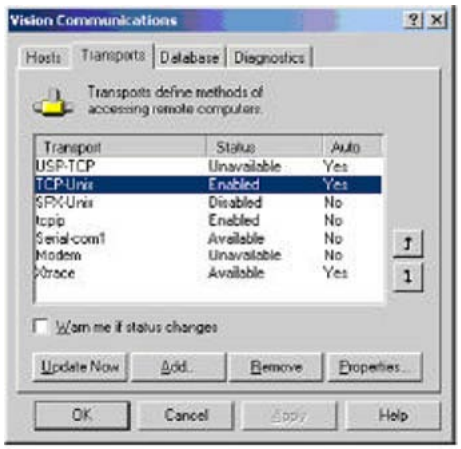
6. Confirm that the license server obtained the appropriate licenses and activated them on the workstation by entering the command:

   C:\>plicmon <hostname>

   The preceding command produces an output similar to the following sample output from a workstation with hostname BCMWKSTN-1:

```
C:\>plicmon BCMWKSTN-1
Available Licenses from Server : BCMWKSTN-1
Product: PERIPRO 1.1
Licensed to ethernet: 0:6:5b:da:51:3f
Maximum users is: 355  Refresh every 360 seconds
Product: PERISTUDIO 1.3
Licensed to ethernet: 0:6:5b:da:51:3f
Maximum users is: 355  Refresh every 360 seconds
Product: plicd 1.2
Licensed to ethernet: 0:6:5b:da:51:3f
Maximum users is: 355  Refresh every 360 seconds
```

7. Select Start > Settings > Control Panel > Vision Communications > Tranports and confirm that TCP-Unix is enabled.



8. Restart the XVision server.
9. Go to Start > Programs > and launch the licensed package.

PeriView 2.1 and PeriView 2.1 Consolidator Installation

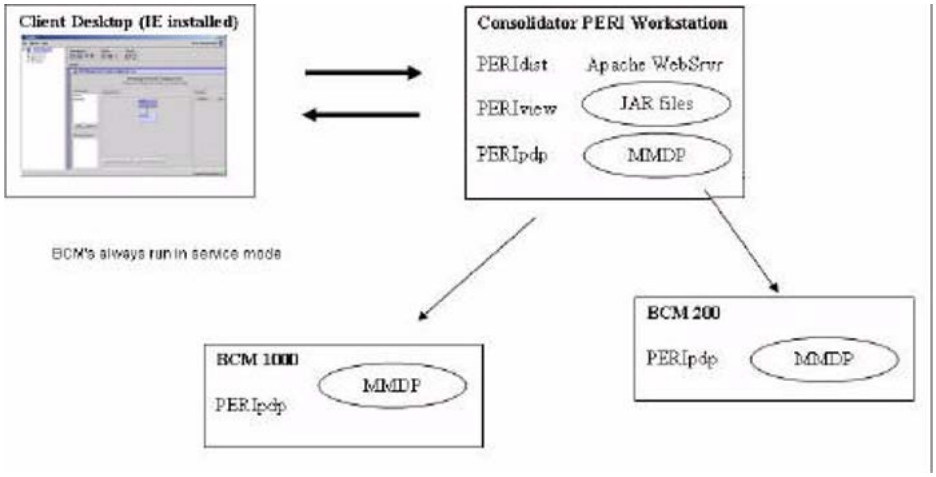
Overview

PeriView 2.1 is an integrated systems management application suite that provides full administration and control over Avaya BCM self-service platforms. It is used by Avaya BCM-IVR 2.1 System Administrators to manipulate and view network activity and to deploy and maintain applications in the network environment.

PeriView Consolidator is the communications hub for Avaya BCM-IVR system administration. The System Administrator remotely manages the Avaya BCM-IVR system by pointing any User PC web browser to the PeriView Consolidator workstation. The PeriView Consolidator workstation communicates with and collects data from the Avaya BCMs. The System Administrator also administers the Avaya BCM-IVR 2.1 system directly from the PeriView Consolidator workstation.

For additional information, see Avaya BCM-IVR 2.1 Configuration on page 17.

The PeriView Consolidator Workstation runs both the Apache Web Server and the MPS Manager Data Provider (MMDP). The PeriView Consolidator MMDP communicates with MMDPs running on the Avaya BCMs and collects information.

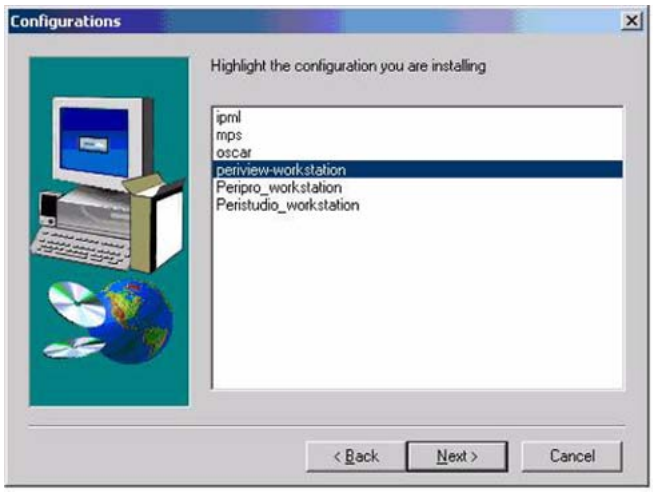


The Avaya BCM MMDPs always run in service mode. An MMDP process in service mode allows another, higher-level MMDP process such as PeriView Consolidator to establish a constant and persistent connection.

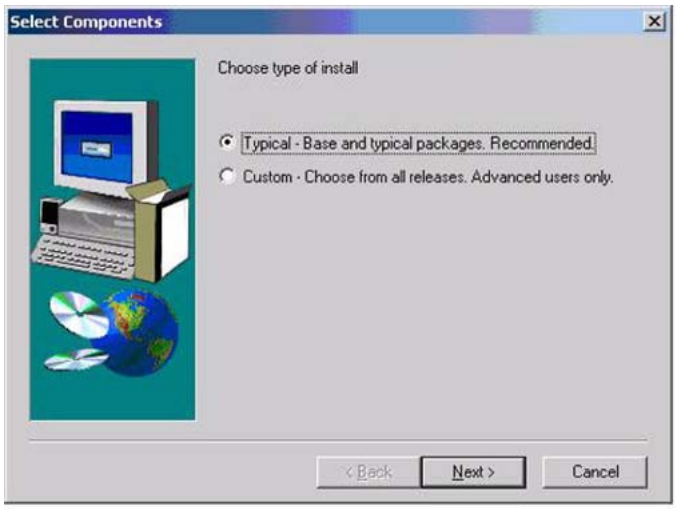
Installing Avaya BCM-IVR 2.1 PeriView Consolidator

Example

1. From MPS 2.1 Software, Documentation and Update CD, select Preinstall and install the JAVA runtime or SDK.
2. From the MPS 2.1 Software, Documentation and Update CD, select PERIinstaller/setup.exe.
3. Select periview-workstation.



4. When prompted to select an installation type, select Typical.



When the following message appears, click Yes.

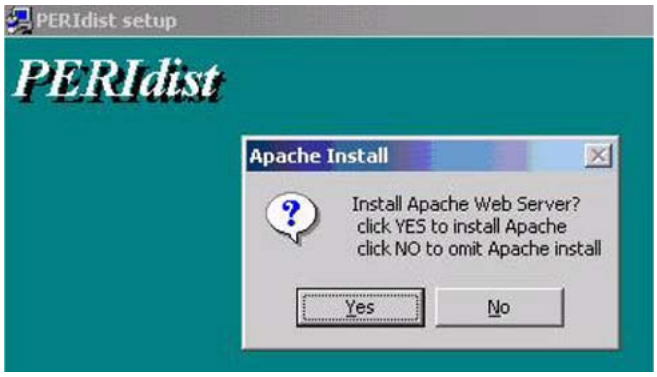
During a Typical PeriView Consolidator installation, packages are installed in the following order:

```
PERIperl > Auto Reboot > PERIfw > PERIglobl > PERIgrs > PERIppro >
PERIpstu > PERIplic > PERIrdb > PERIpdp > PeriView > Auto Reboot
```

Note:

If PeriView Consolidator is being installed on the Avaya BCM-IVR 2.1 Developer Workstation, only PERIpdp and PeriView need to be installed because the other packages were installed in the PeriProducer and PeriStudio upgrade steps. See Installing PeriProducer 3.00 and PeriStudio 2.20 on page 46.

5. Select Yes to Apache Web Server installation during the PERIdist installation if Apache Web Server is not already installed on the PeriView Consolidator Workstation.



6. Select Yes when prompted to install web-based PeriView during the PeriView installation.

Note:

You may be required to stop the Microsoft Internet Information Server during the installation of web-based PeriView.

7. Install any PERI service patches on the MPS 2.1 Software, Documentation and Update CD (for example, MPS2.1Patch_Bundle_9.exe). When the following message appears, patches are successfully installed:

Click OK.

8. Confirm installation of PeriView and PERIpdp 2.1 from the command line by entering:

```
C:\>perl -S perirev.plx outfile=STDOUT
```

C:\>perl -S perirev.plx outfile=STDOUT		
PERIpdp	2.10	MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate_20030523

PERIview	2.10	MPS2.1Patch_Bundle_9 BundleCutDate-20050223 PkgCutDate_20021002

9. In C:\Program Files\\PERIpdp\etc, back up the userdb.xml file.
10. Copy the file userdb.xml.BCM from the Avaya BCM-IVR Toolkit CD to overwrite

    `C:\Program Files\\PERIpdp\etc\userdb.xml.`

    The userdb.xml.BCM file contains the administrative plugins required for Avaya BCM-IVR management.
11. Restart Apache and PeriView Data Provider services.

Ensure the PeriView Consolidator host name appears in C:\Program Files\ \PERIpdp\etc\mmdp.cfg, as shown here:

```
mmdpconfig=WIN2K
.  .
ipcsrpconnection=WIN2K
```

12. If you are managing the Avaya BCM-IVR system from a browser located outside the local host, change permissions in

    `C:\ProgramFiles\\PERIdist\apache\conf\httpd.conf`

```
allow from all
#
#   deny fromm all
```

13. From Services, restart Apache web browser.
14. Ensure PeriView Consolidator is running by pointing the Apache web browser to the PeriView URL:

    http://<Consolidator IP>/periview/Periview.html

a. In the UserID box, enter Administrator.
b. In the Password box, enter root.

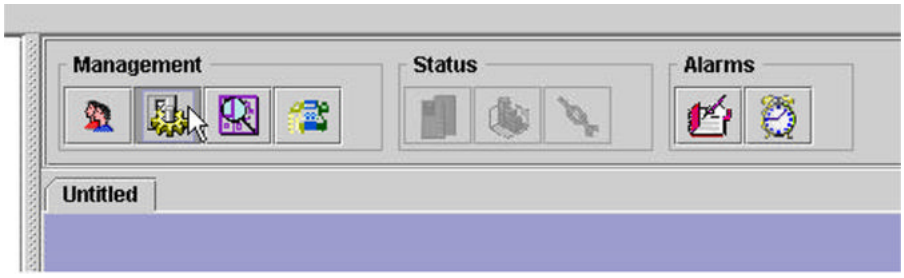
c. Check that the Host box contains the PeriView Consolidator IP address.

d. Check that the Port box contains "9191".

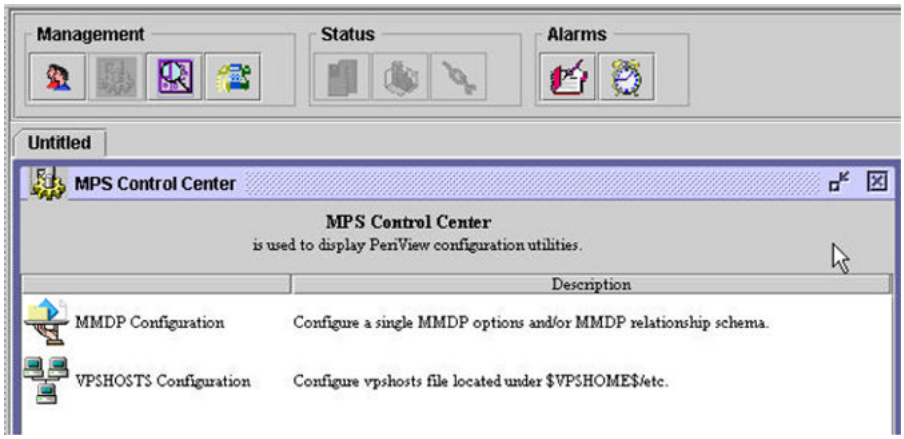
e. Click OK to log on.

You are now ready to add the Avaya BCM nodes to the system.

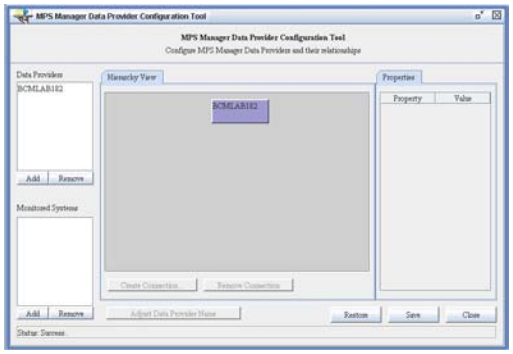
15. Click Control Center on the Management toolbar.



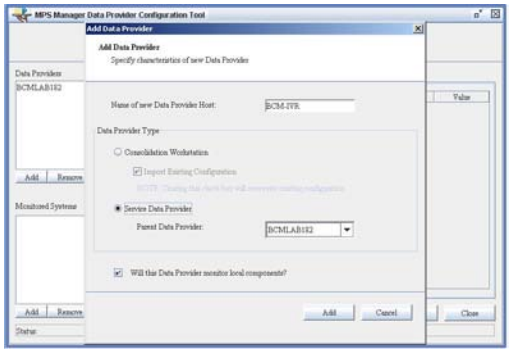
16. Select MMDP Configuration.



17. Click Add to add a data provider.



18. In the Add Data Provider dialog box, enter the host name of the new data provider (for example, Avaya BCM1000) in the Data Provider Name box.



Note:

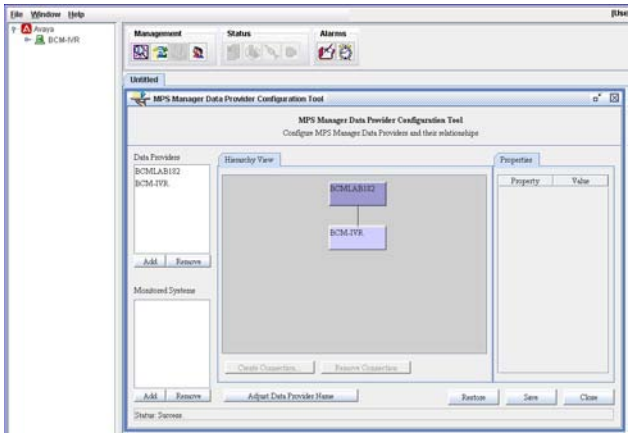
To ensure the Data Provider host name translates to its corresponding IP address, make a DNS entry or place an entry in the consolidator host file:

```
C:\winnt\system32\drivers\etc\hosts
```

19. Select the Avaya BCM1000 as the Service Data Provider by selecting Service Data Provider. Select the PeriView Consolidator workstation as the Parent Data Provider.
20. At the bottom of the window, select the Will the Data Provider monitor local components checkbox. This triggers the Avaya BCM1000's MMDP process to connect to the local srp to get state information.
21. Click Add.

    The MPS Manager Data Provider Configuration Tool window appears showing a hierarchy of two MMDPs. The PeriView Consolidator MMDP appears above the Avaya BCM1000 MMDP, indicating that it is the parent service provider.

    Select Avaya BCM1000 from the Data Providers list box in the upper left of the window or in the hierarchy. The Avaya BCM1000 is listed as a monitored system.
22. Click SAVE. If the information from the subsequent steps is entered correctly, the Avaya BCM1000 IP address and node are contacted. The icons representing the Avaya BCM-IVR Service Data Providers (i.e. Avaya BCM1000) turn green when a connection is established.



Launching Applications in PeriView

This section describes how to launch an IVR application from the user PC and send it to the Avaya BCM. The section includes the following procedures:

Example

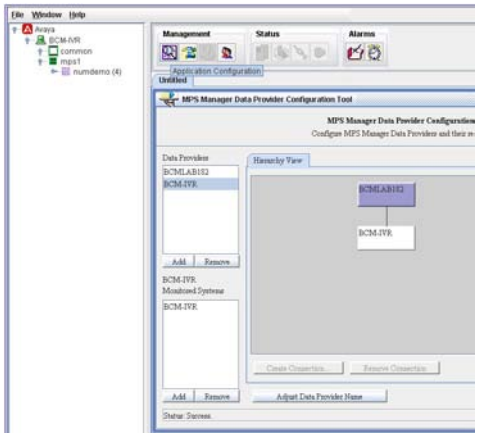
- Loading application .vex files. See Loading Application .vex files on page 63.
- Loading user-defined call function files. See Loading User Defined Call Function Files on page 66.
- Assigning and starting applications. See Assigning and Starting Applications on page 67.

Loading Application .vex files

Prior to launching an application in PeriView, ensure that all system connections are established and running. All elements of the system (such as the Avaya BCMs and the Windows host workstation) that are running appear as green icons in the left area of the PeriView launch screen.

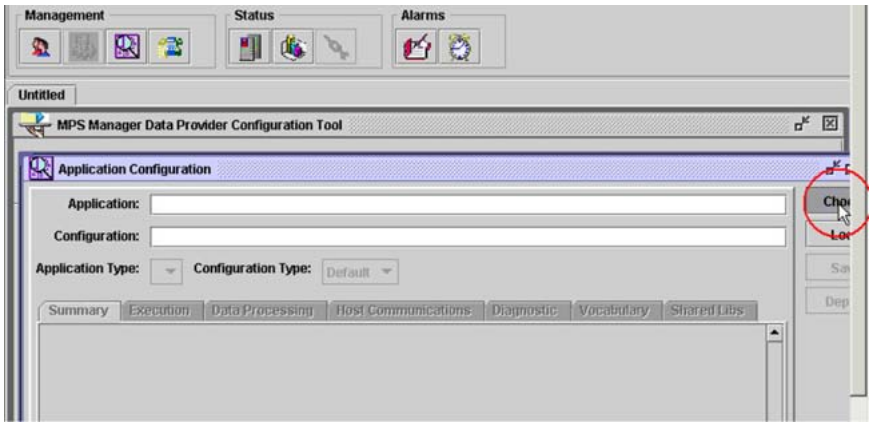
Example

1. Ensure Windows host SRP is running using Settings > Control Panel > Services Startup.
2. Launch PeriView.
3. In the PeriView launch screen, click Application Configuration to start the IVR setup.

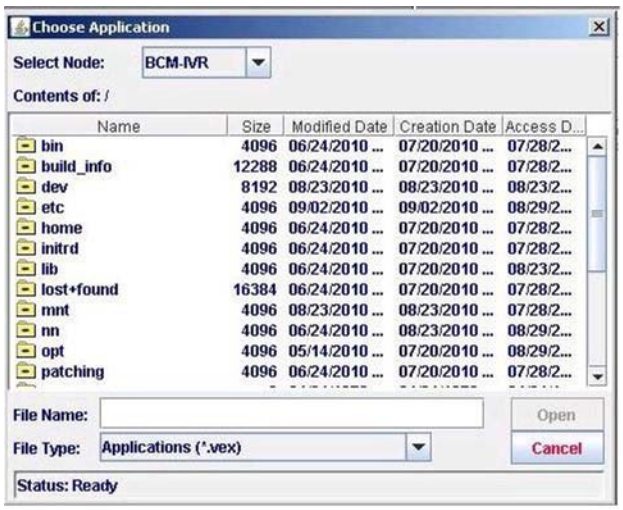


In the preceding fiugure, the Windows host workstation is JVARGH. The icon representing the host worktation JVARGH is green in the left area of the PeriView launch screen.

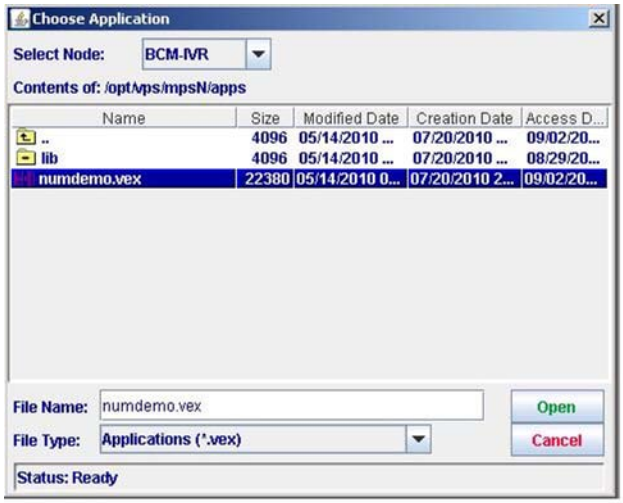
4. Click Choose. The Choose Application window appears showing folders on the selected node.



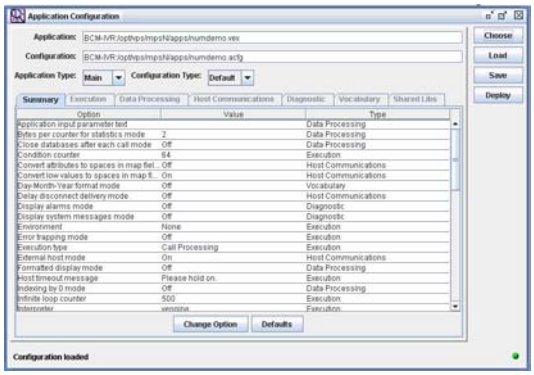
5. From the Select Node list, select the Windows host.



6. Browse the .vex folder. In the following figure, the .vex folder is located in C:\Program Files\\PERIppro\sample and contains only one application (numdemo.vex). Files with .vex extensions are the compiled output of PeriProducer source files.



7. Select the desired .vex file. Click Load then click Save.



Note:

Note that PeriView automatically creates the . acfg file when a .vex file is loaded to the Application Configuration utility.

Note:

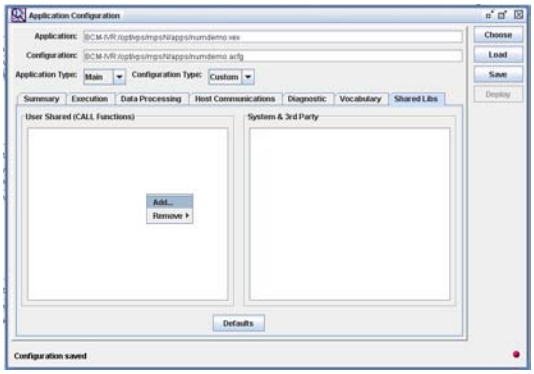
Note that you cannot have two MPS components with the same component number of the same network.

Loading User Defined Call Function Files

Code for User Defined Call Functions is compiled on a Fedora NCGL workstation. A .so file is generated and sent to the Windows host for transfer to the Avaya BCM. C/C++ Call Function files are those with .so extensions. See Building C/C++ Call Functions Libraries on page 88.

To deploy User Defined Call Functions (C/C++ Call Function files) to the Avaya BCM, click Change Option in the Application Configuration window.

Click Add. Browse the Windows host folder where .so files are located and select the desired .so file.



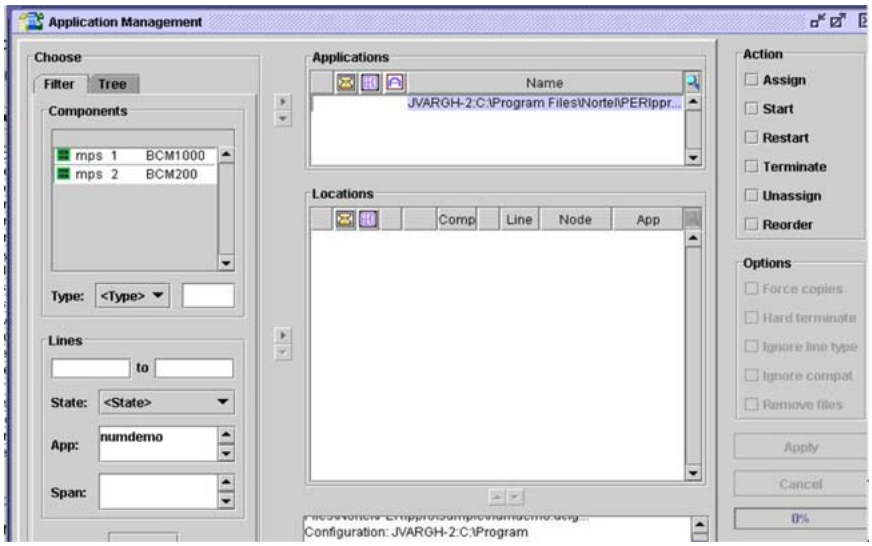
Click Deploy to assign the .so file to the Avaya BCM.

Assigning and Starting Applications

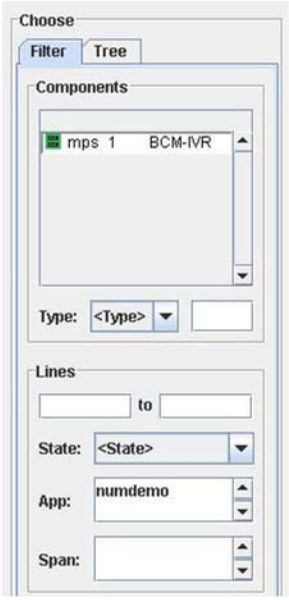
Example

1. Return to the PeriView launch screen and click APPLICATION MANAGEMENT. The Application Management window appears.

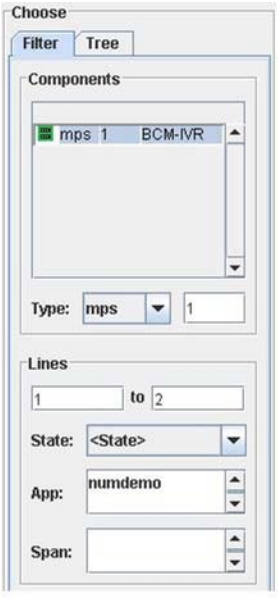
   In the Choose pane of the Application Management window, you can select the desired Avaya BCM nodes and line numbers



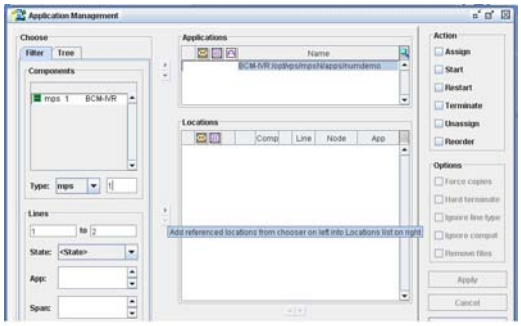
2. In the Choose field, select the Filter tab and select the desired Avaya BCM component from the Components list.



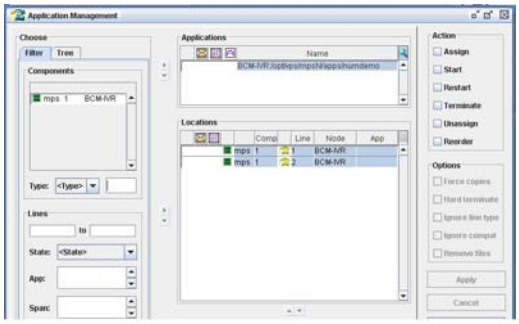
3. Enter the Avaya BCM component number in the TYPE box.
4. In the LINES boxes, select the lines where the IVR application runs. In the following example, the IVR application runs on lines 1 to 2:



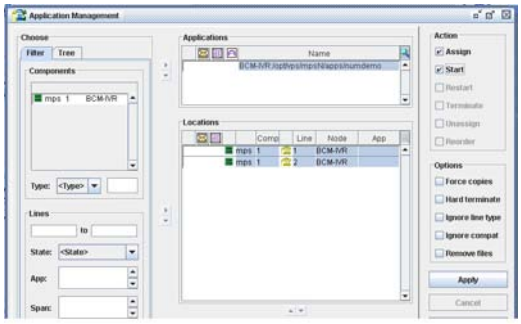
5. Select the application to be deployed to the Avaya BCM from the APP list.
6. To enter the information in the Choose pane in the for a location listed in the Locations list, select the desired selection in the Locations list.



The application selected is represented by a Telephone icon in the Locations list. Note that the Telephone icon is yellow. This indicates that no applications are currently running on the selected Avaya BCMs.



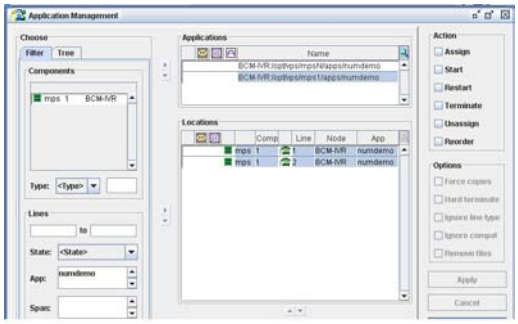
7. In the Action pane, select Assign and Start.



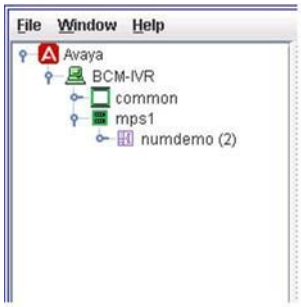
Note that the application Telephone icon is yellow, indicating that no application is currently running on the selected Avaya BCM ports.

8. Click Apply to activate the selected application to the desired Avaya BCM ports.

   The application Telephone icon changes from yellow to green when the application is successfully assigned and started.



The PeriView launch screen shows the application running on two Avaya BCM ports.



To validate the IVR application, use any phone connected to your Avaya BCM system to call the IVR DN. If you do not know the IVR DN, proceed to step 9.

9.

Note:

You can obtain the IVR DN by using the vsh command.

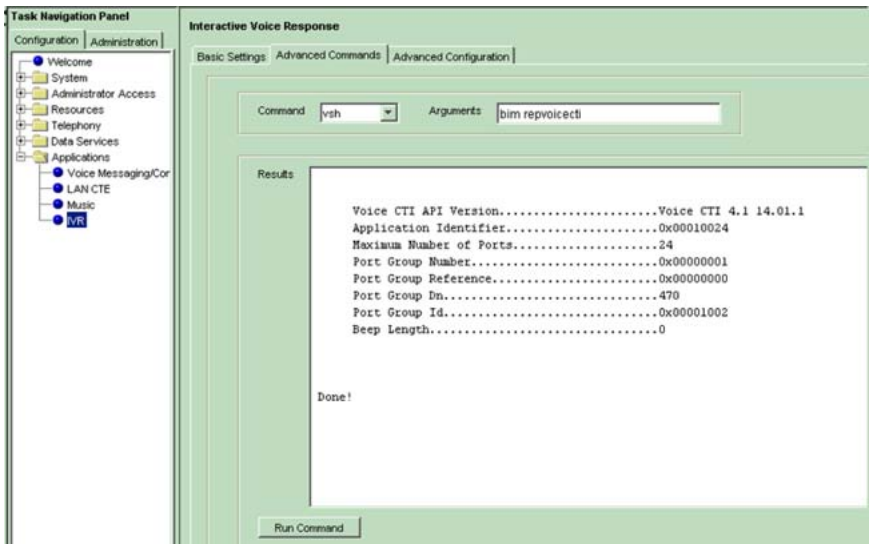
a. From the Interactive Voice Response panel, select the Advanced Commands tab. The Advanced Commands tab appears.

b. From the Command list, select the vsh command.

c. In the Arguments box, type the arguments you want to add to the vsh command (bim repvoicecti).

d. Click Run Command. The output appears in the Results panel.

The IVR DN appears in the Port Group DN line of the output.



When you obtain the IVR DN, validate the IVR application by using any phone connected to your Avaya BCM to call the IVR DN.

Chapter 5: Administrator on the Avaya BCM 4.0 Platform

This chapter covers:

1. Numbering Components using Business Element Manager
2. Enabling Host Communications with Business Element Manager

Numbering components using Business Element Manager

Business Element Manager is a management application for performing all day-to-day Avaya Business Communications Manager (Avaya BCM) administration, configuration and management functions. Business Element Manager resides on the System Administrator's Windows 2000 workstation.

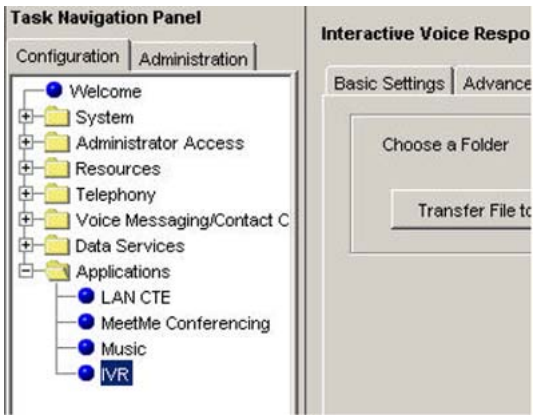
Using Business Element Manager's graphical user interface, the System Administrator can easily configure and manage Avaya BCM nodes—whether from a PC directly connected to the Avaya BCM or over a LAN, internet, or dial-up connection (ISDN or analog).

With Business Element Manager, all management tasks, including configuration changes, alarm monitoring, adding features with keycodes and managing backups, can be performed remotely.

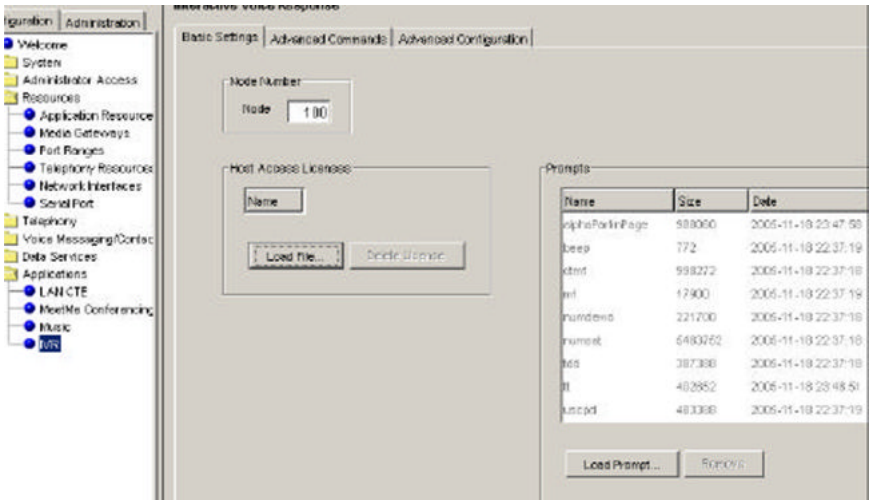
In order to manage the Avaya BCMs using Business Element Manager, the Avaya BCMs must added to Business Element Manager's administration list.

Example

1. Launch Business Element Manager.
2. In the Task Navigation pane, expand the Applications folder and select IVR.



3. The Interactive Voice Response window with three tabs appears. Select Basic Settings.



To administer many IVR systems on different Avaya BCMs, IVR systems must be assigned different node numbers. To change a node number, type in the new number and select the Tab key on your keyboard to exit from the box.

4. IVR service shuts down and restarts after a node number change.

Enabling Host Communications with Business Element Manager

The IVR Keycode files enable host access. You do not have access to IVR Host Access Service without loading the necessary Keycode files in Business Element Manager.

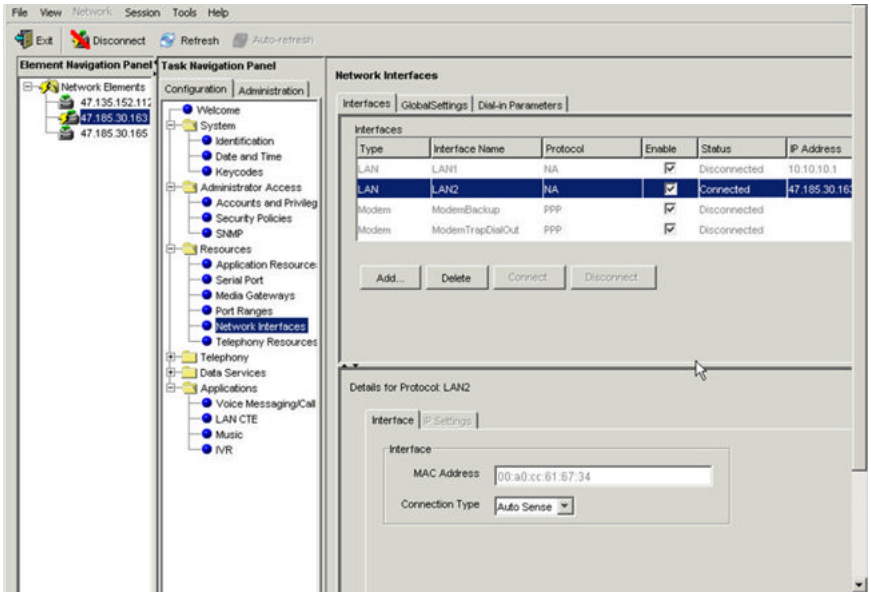
The keycode files (license files) for Host Access Licensing in Avaya BCM/IVR 2.1 are different from those in Avaya BCM/IVR 1.X.

Contact your Technical Support organization to obtain the new license file for host access.

Prior to contacting your Technical Support organization, obtain the MAC address for the Avaya BCM interface that communicates with the Host:

Example

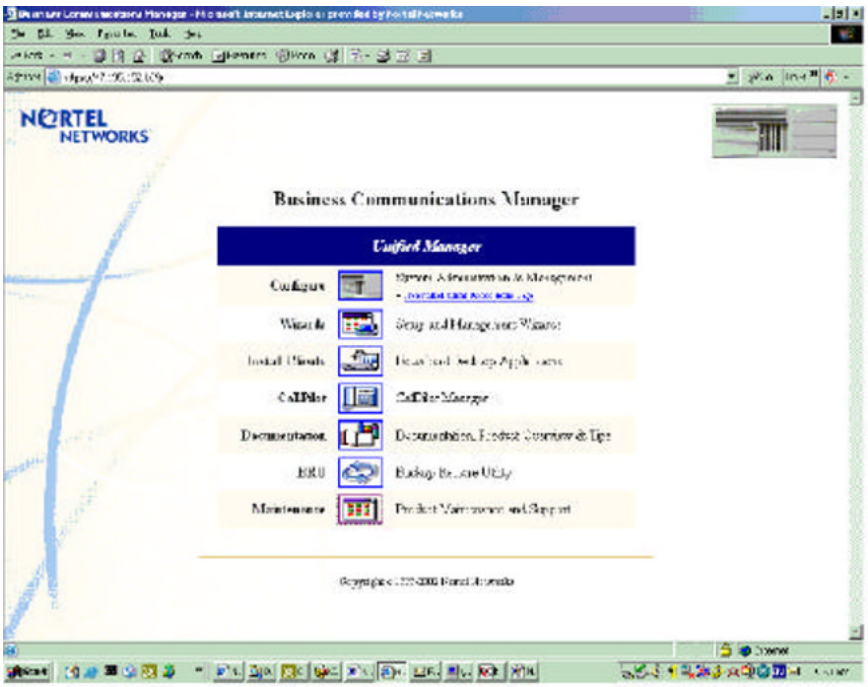
1. Launch Business Element Manager
2. In the Task Navigation Panel, click the Configuration tab.
3. Expand the Resources folder and click Network Interfaces.
4. Select the LAN interface you want to use to communicate with the external host (for example, LAN 1). The Details for Protocol appears with the Interface tab displayed
5. Record the information that appears in the MAC Address box. This is the MAC address of your Avaya BCM.



Retrieving existing Host Communications License File

Example

1. Create a shared folder on the PC that will receive the Host Communications License File from the Avaya BCM.
2. Log on to Unified Manager on your Avaya BCM 3.X system.



3. Click Maintenance.

4. Select Attach Shared Volume . Select the shared folder you created in Retrieving existing Host Communications License File so it can be accessed by the Avaya BCM.

5. Return to the Maintenance page and select Execute a Command. Copy the Host Communications License File from the Avaya BCM to the shared folder that you previously created by entering the command in the Command box.

Getting and Applying the License File

To acquire the license file, contact Technical Support (1-800-4). Select option 5 > option 1.

Tell the Technical Support prime that you need assistance in producing a keycode for Avaya BCM/IVR. When you are connected with a Level 2 Keycode Support Prime, tell the support prime that you need to produce a Avaya BCM Host Communications keycode (license file).

To receive the Avaya BCM Host Communications keycode, you must provide the Level 2 Keycode Support Prime with the following:

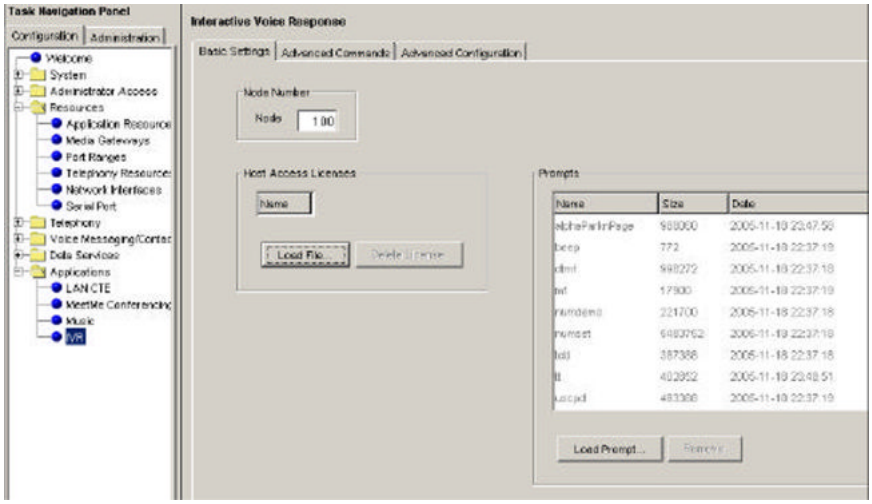
Example

- the Avaya BCM MAC address
- the existing IVR 1.X license file (you must send an email with the existing license file attached to the Level 2 Keycode Support Prime)
- the Authorization numbers obtained from purchasing the PeriProducer (NTAB4211) and PeriStudio (NTAB4210).

When you receive an email containing the keycode from the Level 2 Technical Support Prime, you are ready to load the keycode to the Keycode directory in Business Element Manager.

Example

1. Launch Business Element Manager.
2. In the Task Navigation panel, select the Configuration tab.
3. Expand the Applications folder and click IVR.
4. Enter the node number for the IVR.
5. Click Load File in the Host Access Licenses pane and load the keycode received from the Level 2 Technical Support Prime.



After the keycode is installed, the IVR service restarts automatically. You can now make IVR configuration changes, if any.

For IVR configuration changes, see the Interactive Voice Response Installation and Configuration Guide.

For Avaya BCM configuration changes, see the Avaya BCM 4.0 Configuration and Installation Guide.

Application Resources

For more information about Application Resources, including Service Manager, Keycode, IVR Advanced Commands, and the Advanced Commands Settings screen, see the Interactive Voice Response Installation and Configuration Guide.

Chapter 6: Developer Upgrade on Windows Workstation

This chapter covers:

1. Porting PeriProducer 2.30 Applications to PeriProducer 3.00
2. Porting Events
3. Conversion Logs
4. Known Conversion Issues
5. Assign and Start PeriProducer 3.00 Applications

Porting PeriProducer 2.30 Applications to PeriProducer 3.00

To upgrade to PERI products on the Windows Workstation, see Administrator on the Windows Workstation on page 41.

Avaya Business Communications Manager (Avaya BCM) 4.0 runs IVR applications that are developed with and use PeriProducer 3.00.

PeriProducer 3.00 supports legacy (PeriProducer 2.30) applications. The legacy applications are converted automatically when they are loaded into PeriProducer 3.00.

Application Porting Considerations

Consider the following when porting the legacy applications:

Example

- Make a copy of the source file and port the copy.
- Back up the source file on another system, external media, or both.
- Save the ported copy as a different name (such as <original_name>300).

Converting Standard PeriProducer 2.30 Applications to PeriProducer 3.00

Applications that used the standard PeriProducer 2.30 are automatically converted by PeriProducer 3.00. No other setup or configuration procedures are required to convert the PeriProducer 2.30 legacy applications.

Load into PeriProducer 3.00

Load the PeriProducer 2.30 application into PeriProducer 3.00 as you would any other application. Conversion takes place automatically. The PeriProducer logo indicates that the application is changed and needs to be saved.

Using the PeriProducer Command Line to Port Applications

Use the following command line syntax to convert a legacy application:

peripro -c <application>

The preceding command converts the selected .ppr file to an executable .vex file.

For example, to convert numdemo.ppr, enter peripro -c numdemo. You can also use filename wildcards (e.g. peripro -c num*) to batch-convert applications. The previous example converts all applications in the current directory whose names start with num.

Porting Events

During application porting, the following events occur:

Example

- Conditions and environment options are converted when possible. See Other PeriProducer Changes on page 27. See PeriProducer for the Avaya BCM for more information about Avaya BCM-specific changes to PeriProducer.
- Blocks are converted to their nearest possible counterparts in 3.00. See PeriProducer 3.00 Block Changes on page 22. See PeriProducer for the Avaya BCM for more information about Avaya BCM-specific changes to PeriProducer.
- Resources are rendered obsolete. See PeriProducer for the Avaya BCM for more information about Avaya BCM-specific changes to PeriProducer.
- The original file is renamed by changing its extension to .p2x
- The PeriPro 2.30 Runtime Behavior is enabled by default. See the PeriProducer User Guide for more information about the 2.30 Runtime Behavior option.
- A file with name conversionlog_ <application> .txt is created and contains messages pertaining to the conversion process. A similar file is created with the extension .html and is in HTML format.

Conversion Logs

The conversion logs are detailed lists of issues encountered during conversion of PeriProducer 2.30 applications to PeriProducer 3.00. The conversion logs are written to the same directory as the source (2.30) application. The logs are named conversion_a ppname .txt (in plain text format) and conversion_ appname .html.

Each log entry indicates an application function that required some translation to become PeriProducer 3.00-compatible. A conversion log is divided into three categories:

Example

1. Information: An information message indicates a conversion event that does not affect the functionality of the application. For example, an information message generates from the conversion of a 2.30 condition name to a new 3.00 condition

name. The application containing the condition reacts the same way in PeriProducer 3.00; however, it uses a different condition name.

2. Warning: A warning message indicates that an application successfully converted but may not work as expected in 3.00. A typical warning message generates to indicate an obsoleted block setting that does not affect application function.
3. Severe: This category indicates something requiring manual application editing for the application to run under PeriProducer 3.00. Severe messages can include:
   - using unsupported features or resources. See PeriProducer for the Avaya BCM for more information about features and resources that are not supported in the Avaya BCM environment.
   - using obsolete environment settings, conditions, system datacards that do not have an equivalent in PeriProducer 3.00. See Discontinued Features and Functions on page 26 for more information.

Known Conversion Issues

Set Resource Label in 2.30

PeriProducer 2.30 uses a Resource block Set operation to change the external resource (for example, OSCAR) label. PeriProducer 3.00 converts the Resource (Set) block to an Environment block that sets the RscLabel parameter and enables the Wait option.

If the Resource (set) block had the failure connector enabled, the Environment block has the failure connector enabled and connects to the same failure path as in the 2.30 application.

If the 2.30 application explicitly handled the setfail (or setres) condition for a Resource set (instead of using the failure connector), you must manually edit the converted application to explicitly handle the envfail (or envcmp) condition. The setfail (or setres) condition in 2.30 automatically converts to ctrlrsrcfail (or ctrlrsrccmp) in 3.00. If the resource label change fails in 3.00, the envfail condition occurs, not the ctrlrsrcfail.

Unsupported 2.30 Resources

Several resources from PeriProducer 2.30 are not supported in PeriProducer 3.00. See Unsupported Resources on page 26 for more information. When an unsupported resource is encountered during conversion, the unsupported resource is reported in the conversion log file. In the application, the resource is changed from the resource name to "Unsupported" in

the associated Resource block. Depending on the resource type, you may not be able to use the application with PeriProducer 3.00.

Resource Block Conversions

If Wait is enabled or a failure connector is available on a 2.30 Resource block, Wait is enabled on the 3.00 converted block.

Flushing the Speak Prompt Buffer

The PeriProducer 2.30 System block Start Reprompt List function flushes the list of previously spoken output. This function is still supported in PeriProducer 3.00. However, recommends that to flush the output list buffer, use a Resource block with the Resource field set to Player, the CID field set to System.Default.CID, the Operation set to Control, and the Send From field set to System.Constants.Flush. This suggestion action appears in a 2.30 application's conversion log file.

System Transfer Connection ID Datacard

PeriProducer 3.00 introduces the system datacard TransferCID. The system returns the Connection ID (CID) of the line that is used for a transfer operation back to the TransferCID datacard. TransferCID must not be used in PeriProducer 3.00-native applications to specify a CID for a transfer operation.

Note:
TransferCID is populated only if the transfer operation is performed synchronously (Originate block with Wait enabled). If Wait is not enabled, TransferCID stays empty.

During 2.30 to 3.00 conversions, PeriProducer may use TransferCID in this capacity (to specify a CID instead of receiving a value from the system). However, this is done only when converting applications.

Assign and Start PeriProducer 3.00 Applications

See Launching Applications in PeriView on page 63.

Chapter 7: Developer Upgrade on Fedora Workstation

This chapter covers:

1. Overview
2. Installing Fedora
3. Installing IVR Plugin Development Environment
4. Building C/C++ Call Functions Libraries

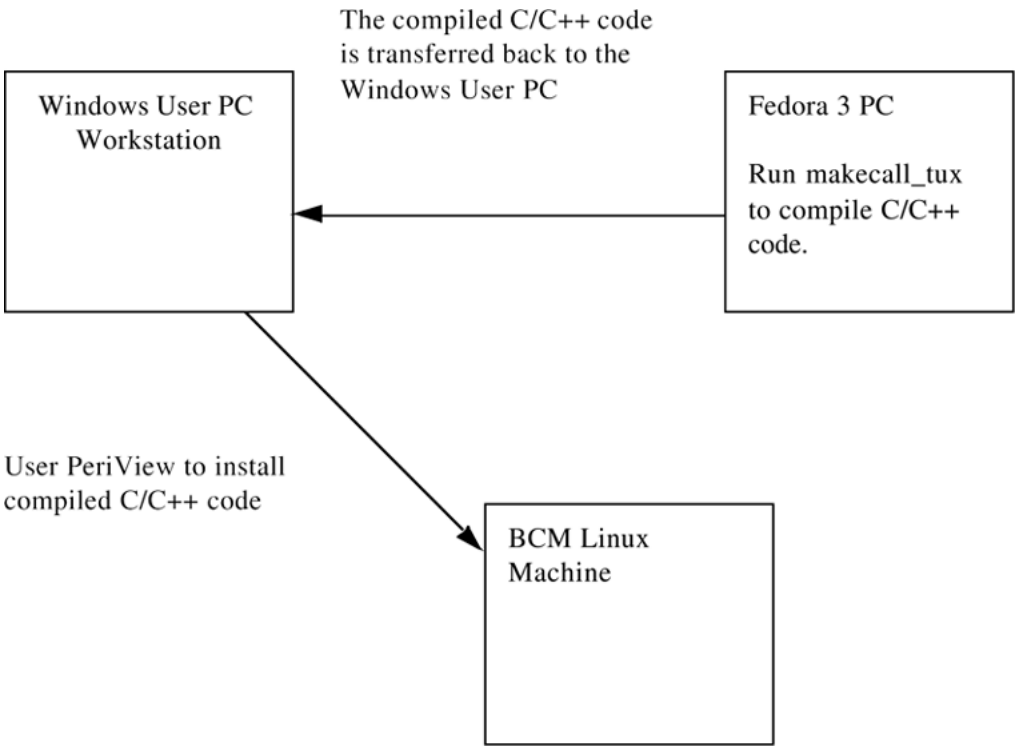
Overview

Some application developers create their own Call Functions using the C-language to supplement the base language constructs.

To run applications that use User Defined Call Functions, Call Functions must be compiled into shared libraries to be available to VENGINE at runtime. In the Avaya Business Communications Manager (Avaya BCM)/IVR 2.1 system, Call Functions must be compiled on a Fedora workstation using the makecall script. Compiled code is then transferred to the Windows workstation to run on the Avaya BCM.

For more information about User Defined Call Functions, see User Defined Call Functions in the PeriProducer Environment.

The following graphic shows the path to incorporating user-defined call functions in the Avaya BCM/IVR 2.1 system:



Installing Fedora

Fedora Core 3 is available for download at http://fedora.redhat.com.

Installing IVR Plugin Development Environment

Transfer the .tgz file on the Avaya BCM/IVR Toolkit CD to the /tmp directory on the Fedora Core 3 machine.

Building C/C++ Call Functions Libraries

Example

1. On the Fedora Core 3 machine, log on as root (or use sudo) and then change to the root directory: cd /
2. Extract the .tgz file:

```
tar xzf /tmp/.tgz (or sudo tar xzf /tmp/.tgz)
```

3. Log on again as a regular user and access the IVR Plugin development environment in /usr/local/.

   A directory tree is available in /usr/local//README.

4. To build the example, go to the /usr/local//examples directory:

   ```
   cd /usr/local//examples
   ```

makecall_tux Tool

The makecall_tux tool compiles C/C++ code into .so files that are transferred to the Windows workstation to run on Periview:

```
makecall_tux [-C libname.a] [-d] {failname[.c[pp]...}
```

The following options are available with the makecall_tux tool:

Option	Description
-C libname.a	Library name. Defaults to /usr/local//examples/lib/libcall.a
-d	Prepare to sue debugger dbx [tool]
-u	"ccopt". C compiler options
-l	"ldopt". ld link options

Note:
For help on using the makecall_tux tool, type: ./makecall_tux

```
Usage: makecall_tux [-C libname.a] [-d] {filename[.c[pp]] ...}
-C libname.a       library name (default /home/loucksv/lib/libcall.a)
-d                 prepare to use debugger dbx[tool]
-u '"ccopt"'       C compiler options
-l '"ldopt"'       ld link options
```

Example

1. To compile the sample, type:

   ```
   ./makecall_tux new-function.c
   ```

The output appears in the /usr/local//examples/lib directory.

2. To compile your own code, run the makecall_tux command with your own file name. For example:

   The lib directory must exist before running makecall_tux.

Chapter 8: Database Access Configuration

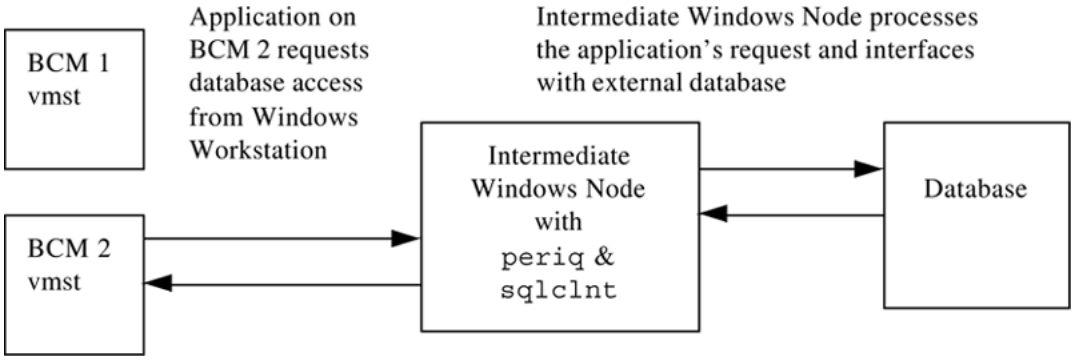
This chapter covers:

1. Overview
2. Configuring periq on the Windows Node
3. Configuring sqlclnt on the Windows Node

Overview

Some applications require access to external databases. Avaya Business Communications Manager (Avaya BCM) IVR 2.1 supports Host database access and VTCPD. The system is configured so that database requests from applications running on Avaya BCMs are relayed to an intermediate Windows node where periq and sqlclnt are running. The Windows node retrieves the information and relays it back to the application running on the Avaya BCM.

The following graphic shows the interaction between the application on the Avaya BCM, the intermediate Windows node, and the external database.



To configure the Avaya BCM-IVR 2.1 system for database access, periq and sqlclnt must run on the Windows node. Both periq and sqlclnt are installed as components of perirdb in a TYPICAL installation on the Windows workstation. See Administrator on the Windows Workstation on page 41 for more information. The Windows workstation can serve as the intermediate Windows node.

To run the database access configuration, additional components are needed from the latest MPS 2.1 Patch Bundle and additional database patches on the MPS 2.1 Software, Documentation and Update CD.

VMST 3 on the Avaya BCM Node

Ensure vmst is running on the Avaya BCM node where the applications requiring database access are running. The following command produces an output showing the list of active vmst ports and the attached Avaya BCM components:

```
[root@BCM1000 root]#vvpsactive
```

[root@BCM1000 root]# vvpsactive Dec 6 21:55:33 Service(Port) PID Component(number) Flags ========== vmst(1) 26437 BCM1000.2 (#2) Connected: vastimer(66) vastimer(66) 26224 Connected: vms(1)

Install Patches on the Windows Node

To configure remote database access, you must install all the patches found in the Patches Remote Database folder on the MPS 2.1 Software, Documentation and Update CD. Install the patches (if any) by double clicking on the executable files in the folder.

Configuring periq on the Windows Node

To configure periq on the Windows Node, you must edit the gen.cfg file. The following figure shows a sample gen.cfg file:

```
#
# All executables listed in this file should support the NT convention
# for srp-triggered termination.  If you do not know what this means,
# please do not add any entries to this file.
# NAME       NODE  PORT  is-VOS-CLASS  PRI  COMMAND LINE
# alarmd      -     -       1           0   alarmd
configd       -     -       1           0   configd
conout        -     -       1           0   conout
psched        -     -       0           0   "psched -run"
nriod         -     -       1           0   nriod
#vastimer     -     -       0           0   vastimer
#screendaemon -     -       0           0   screendaemon
pmgr          -     -       1           0   pmgr
#vsupd        -     -       0           0   vsupd
#periweb      -     -       0           0   periweb
proxy         -     -       0           0   "proxy -S ccss -L cons  -l info -k 10 -n"
#
#
#periq_bcm1000 -    -       0           0   "periq -s ccss -v bcm1000:1 -a sqlclnt
-q odbc1 -mt"
```

```
#sqlclnt_bcmpso-    -       0           0   "sqlclnt -v 1 -N bcm1000 -s 221 -U
MG2gojitTV3Rd3X8M
#
#
#periq_bcmpso  -    -       0           0   "periq -s 17 -v bcmpso:2 -a sqlclnt -q
odbc2 -mt"
#sqlclnt_bcmpso-    -       0           0   "sqlclnt -v 2 -N bcmso -s 222 -U
MG2gojitTV3Rd3X8M
```

In the gen.cfg file, make the following entry for periq:

```
periq -v NodeA:3 -s16 -a sqlclnt -q odbcq32
```

The preceding command starts periq and connects the Windows node to vmst number 3 (running on the host Avaya BCM) through port 16. Port 16 is the default port for periq and is configured in $ASEHOME/etc/services. The preceding command also restarts sqlclnt services and sets the queue name as odbcq32.

The following table lists periq attributes and their descriptions:

Table 6: periq Attributes

Attribute	Description
-v[host:]vps	host and vps number
-s #	port number to vms
-P poll	new connection poll (default 15 seconds
-q [name:]#	[queue name:] number of tellers
-m {g|f}	not route GET or FREE to tellers
-m i	free tellers on ISSUE FREE from app
-m r	return undelivered message to tellers
-m t	time message flow
-a {rsc|ports}	announce restart to service
-X {a|s}	debug message flow (full or short form)
-X 1	debug queueing
-r {device|file}	redirect output (to /dev/tty#,/dev/console)
-H	help

Configuring sqlclnt on Windows Node

In the gen.cfg file, make the following entry for sqlclnt:

```
sqlclnt -v 3 -s 230 -N nodeA -u sa/peri@database -m odbc -q odbcq32
-P 16 -Q 5
```

This command specifies the system to start the sqlclnt service and connect it to vmst 3 on Node A through port 230. Port 230 is one of many available to sqlclnt and is configured in $ASEHOME/etc/services. The unencrypted connection string to the database is sa/peri@database. Database mode is ODBC and sqlclnt is part of queue odbcq32. The sqlclnt service communicates with periq through port 16 with a ping rate of 5 seconds.

The following table lists sqlclnt attributes and their descriptions:

Table 7: sqlclnt Attributes

Attribute	Description
-v #	vps number
-s port	port number to use
-N host	VMS host machine (default - local)
-P port	PeriQ port (default - any)
-m queue_type	'oracle', 'sybase', 'odbc', 'db2' or 'mssql'
-q name	associated queue name
-u [<usr>[/<passwd>] [@<server><odbc dsn %OEM>]]	RDBMS connect string. If connect string contains @ or /, use \ \ as escape character.
-U cryptstring	Crypted RDBMS connect string
-l directory	Enable SQL Timing, specify directory path to place log files
-S backup	user/psswd@server backup/fail over server. If connect string contains @ or /, use \\ as escape character
-B crypststring	Crypted RDBMS connect string for backup/fail over server
-c AUTOCOMMIT	Enable AUTOCOMMIT
-x Transaction Timeout	Transaction Timeout for a database Query (ODBC)
-L Login TimeOut	Login TimeOut (ODBC)
-T poll	new server connection poll (default 20 seconds)
-R #	number of re-cycle attempts (default forever)
-Q ping rate	Set ping rate for retrying connection to vmst (default 60 seconds)
-X {s|n}	debugging level
-r {dev|file}	redirect output
-H	help

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Special Characters

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