SAMSUNG

SEC-IVRv1520-QUICK-GUIDE

IVR Quick Guide (How to Install, Configure and Run)

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Revision	Date	Author	Details
00	Oct 2007	ACD/IVR Team	Initial Draft
01	May 2008	ACD/IVR Team	Call Recorder, Supervisor added

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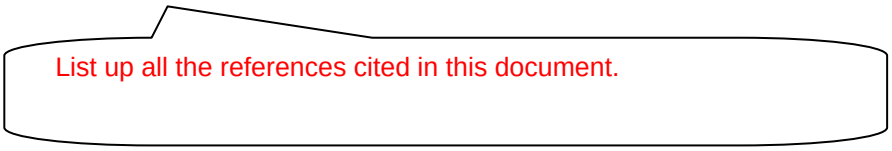
Acronyms

ACD	Automatic Call Distributor
RAD	Recorded Announcement Device
IVR	Interactive Voice Response
MMC	Man Machine Communication
TTS	Text-To-Speech

References

1) Author. Date of print. title. volume number. edition. Print agency. company. Document title. version number. date.
2) <committee name>.<industry standard>.<version number>.<date>
...



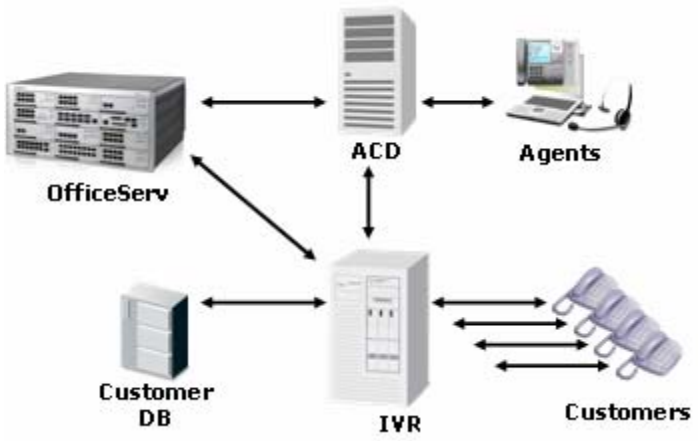
1. Overview

This document describes how to install, configure and run the OfficeServ IVR.

1.1 S/W Architecture

As depicted in the Figure 1, the IVR consists of the five modules.

- Engine: self menu scenario (shortly, scenario) execution and monitoring
- Scenario Builder: scenario management
- Call Recorder: call recording
- Supervisor: web-based configuration and administration
- System Configuration: IVR system configuration



[Figure 1] Architecture

1.2 Features

Table 1 provides the definition of terminologies used in OfficeServ ACD and IVR

Terminology	Definition / Description
Split	Unit of call routing, group of agent with like skill/level
Group	management-purposed pool of splits
Division	management-purposed pool of groups
Queue	The place where the calls stay while waiting for the next available agents. Split and queue are 1-to-1 mapped
Queue ID (or Split ID)	Queue (Split) Identifier. For queued call, different wait comfort message can be set per queue ID in the RAD or IVR

Message ID	For CLI/DID routing, there's an option whether to play welcome message before sending the call to the destination split. If message ID is configured, the call which satisfies CLI/DID routing condition is routed to RAD or IVR to play the greet message.
Service Code	When the caller enters DTMF input, IVR determines the service code with which the target split to request the agent is determined. The mapping between the service code and split is registered in the ACD Supervisor
Default Split	System default split where the call without destination split is routed. For example, the call with no or invalid queue ID, service code, message ID is routed to the default split.
IVR call	Call routed to the IVR to listen to the greeting message message
IVR queue	A pool where the calls routed to the RAD/IVR wait for the available RAD/IVR ports.

[Table 1] ACD/IVR Terminologies

Three basic routing rules of ACD are the following.

- CLI: If caller's number (CLI) is a specific number registered, then route the call to the corresponding split.
- DID: If caller's dialed number (DID) is a specific number registered as DID routing, then route the call to the corresponding split
- IVR: Pass the call to the IVR to listen to the welcome message and get the DTMF input to determine the destination split.

From OfficeServ perspective, there are five ports configured for ACD

- Trunk port: the port where the customer call to ACD bypasses through
- ACD gateway port: the port where the customer call to ACD arrives
- ACD queue port: the port where the customer call waits for the available agents
- IVR port: the port where the customer call is cared by RAD/IVR for greet message or wait comfort message
- Agent port: the port where the agent phone is configured

A customer call to ACD passes through the trunk port and is transferred to the ACD G/W. If the routing rule configured per trunk port needs the IVR/RAD service, the call is transferred to the IVR port to listen to the message. If no message service is needed, the call is transferred to the ACD queue port to wait for the available agent of the target split. The call waiting in the ACD queue port goes to IVR port to listen to wait comfort message at every queue message interval configured per split (queue). After finishing the wait comfort service, the call returns to the ACD queue port. When

an agent becomes available in the target split, the call is transferred to the agent port (idle extension port).

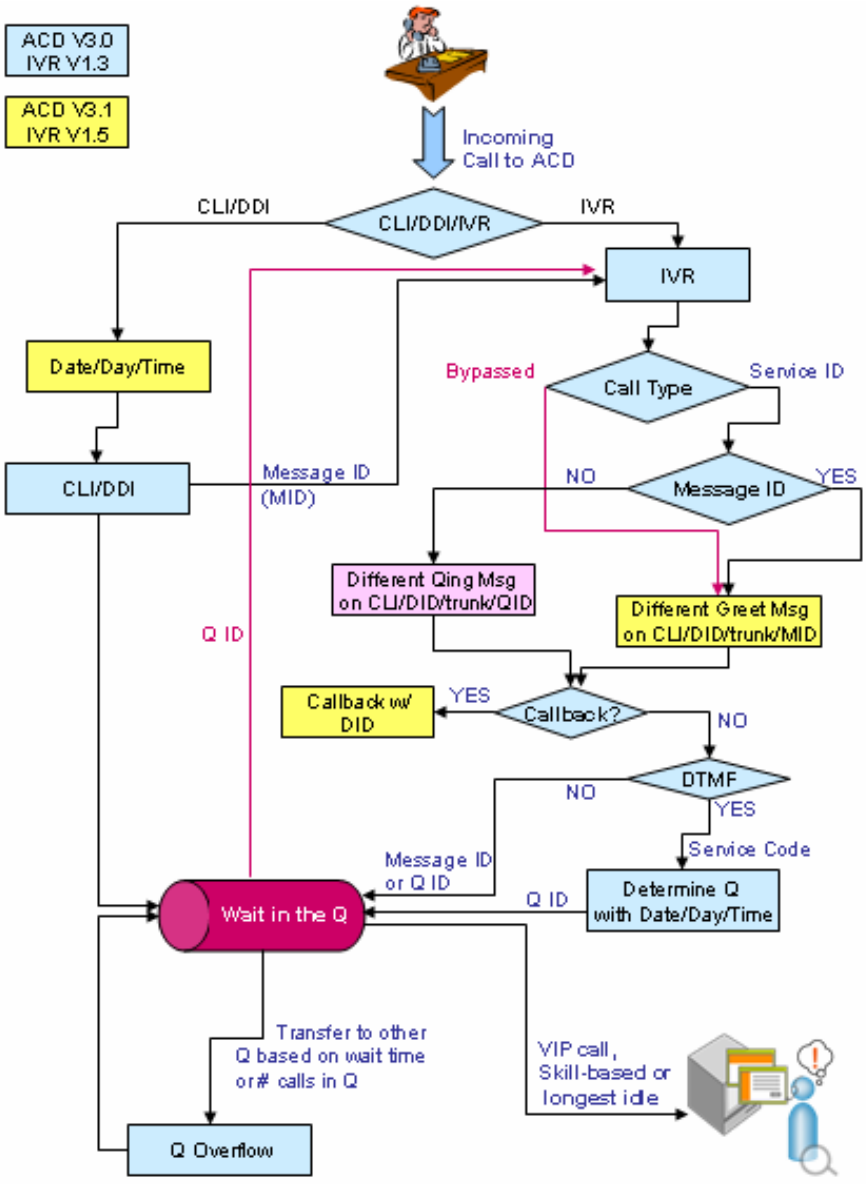
By Definition, the call which isn't sent to the ACD queue port for agent request is called "IVR call". The call which is sent to the ACD queue port is called ACD call wherever the call is disconnected (e.g. call disconnected at IVR port while listening the wait comfort message is classified as "ACD call"). The callback request call is classified "ACD call" since the callback request is submitted to each corresponding ACD split.

Table 2 describes all routing combinations available on trunk ports. If the IVR is not used with ACD, only the first four routing rules will be available.

Routing	Description
CLI	If caller's number is found in the CLI routing list, route the call to the target split. Otherwise, route the call to the default split. When the CLI routing is applied, if the message ID is available the call is routed to RAD or IVR to play the welcome massage before routed to the target split.
DID	If DID number is found in the DID routing list, route the call to the target split. Otherwise, route the call to the default split. When the DID routing is applied, if the message ID is available the call is routed to RAD or IVR to play the welcome massage before routed to the target split.
CLI → DID	If caller's number is found in the CLI routing list, route the call to the target split. Otherwise, check the DID routing list. If DID number is found in the DID routing list, route the call to the target split. If neither CLI routing nor DID routing is available, route the call to the default split
DID → CLI	If DID number is found in the DID routing list, route the call to the target split. Otherwise, check the CLI routing list. If CLI number is found in the CLI routing list, route the call to the target split. If neither DID routing nor CLI routing is available, route the call to the default split
IVR	Route the call to IVR. When the IVR self menu is completed, the call is routed back to the ACD split depending on the service code which is determined by the DTMF input, or routed back to the specific agent number. If no service code (or agent number) is available or valid, the call is routed to the default ACD split.
CLI → IVR	Apply the CLI routing. If CLI routing is not available, apply IVR routing.
DID → IVR	Apply the DID routing. If DID routing is not available, apply IVR routing.

CLI → DID → IVR	Apply the CLI routing. If CLI is not available, apply DID routing. If DID routing is not available also, apply IVR routing.
DID → CLI → IVR	Apply the DID routing. If DID is not available, apply CLI routing. If CLI routing is not available also, apply IVR routing.

[Table 2] Basic Routing Combinations



[Figure 2] ACD/IVR Call Flow *(not up-to-date)*

Figure 2 illustrates the call flow between ACD Server, IVR and Agent. When a new call arrives at ACD gateway port, if IVR routing is configured, the call is routed the IVR. In the IVR, the target split

is determined based on the caller's input via DTMF digits. Integrated with customer DB, the caller's personal information such as customer ID, customer level, and customer type is searched, authorized and transferred to the Agent program.

When new call arrives at the IVR port, the Engine determines its type and triggers the corresponding event for processing the call. There are four events triggered based on the incoming call type.

- DEFID: Greet message for IVR routing call from ACD
- QUEID: Per-split wait comfort message for ACD queued calls
- MSGID: Per-message-ID Greet message for CLI/DID routing call from ACD
- OFF HOOK: IVR direct or incoming call from UCD

1.2.1 Engine

- Various prompt options (See Figure 2)
  - Call types
    - New call WITHOUT target split
    - New call WITH target split thru Message ID determined by CLI/DID
    - Queued call
  - Different messages per CLI/DID/trunk
  - Call routing to VMS (SVMi or IP-UMS)
  - Operable either with ACD[1] or UCD
- TTS (Text-To-Speech)
- Commercial customer DB integration through ODBC
- Data transfer to ACD for personalized call service
  - Callback
  - Customer information (customer level, customer ID, etc.)
  - Target ACD queue ID based on DTMF detection
- Monitoring
  - Port status
  - Call flow
  - DTMF detection

1.2.2 Scenario Builder

- Two views for scenario
  - GUI View and Code View (XML)
- Scenario management
  - Create/Modify/Delete
  - Upload to (Download from) DB

[1] For playing voice prompts, the ACD can use either of RAD (Recorded Announcement Device) or .

- Scenario simulation
  - Compile
  - Debug with break point

1.2.3 Call Recorder

- Call types
  - VoIP/PSTN
- Recording method
  - Intrusion
  - Port mirroring (*2008 Fall*)
- Recording Type
  - On demand (request upon IVR Supervisor or ACD Agent)
  - Total (*2008 Fall*)

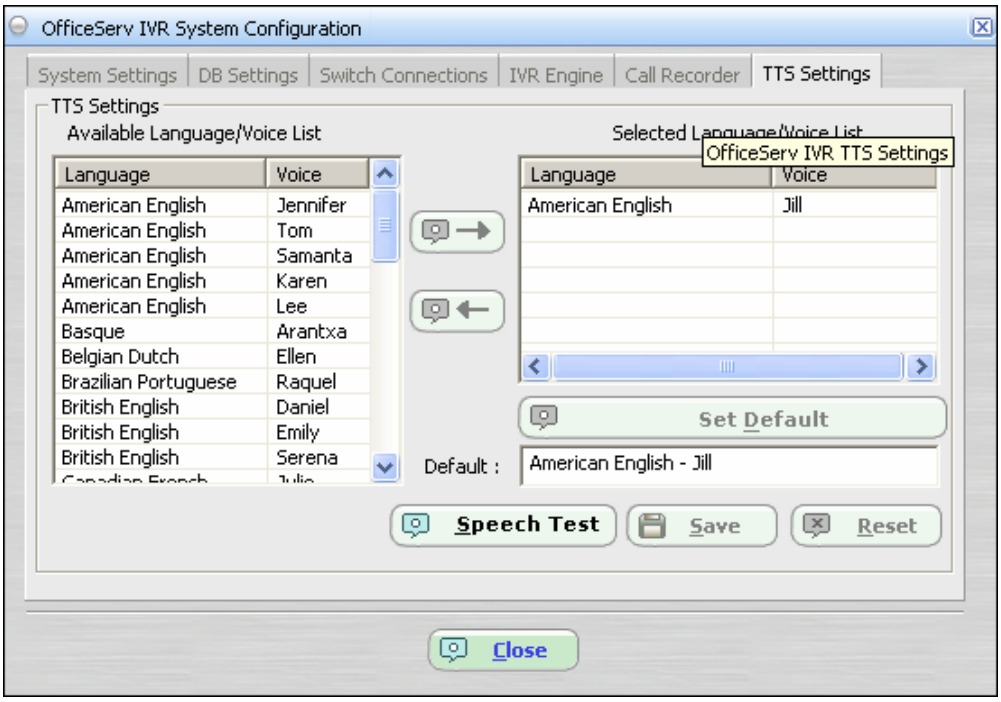
1.2.4 Supervisor

It provides web-based configuration, administration and execution of IVR system.

- Scenario management
  - Create/Modify/Delete
  - Upload to (Download from) DB
- Engine administration
  - Scenario execution
  - Port monitoring
  - Call statistics
- Call Recording
  - Recording device configuration
  - Call recording with status monitoring
  - Call record history search
- System configuration

1.2.5 System Configuration

- IVR configuration: CODEC, ACD linkage, etc.
- Switch configuration
- TTS configuration
- License management
- Log management



[Figure 3] System Configuration

1.3 General Specification

- Language: English
- OfficeServ: 7200 and 7400 (MP V4.21 or above)
- DB: SQL Server/Express
- Operating System: Windows NT, XP, 2003 Server, Vista
- Required S/W: .Net Framework 1.1 or, IIS (Internet Information Server), OfficeServ Link V3.0.0.3 (March 10, 2008), OfficeServ ACD V3.1
- H/W Specification:

1.4 License Policy

- # switches (*2009-2010*)
- # IVR ports
- # TTS processors
- # TTS languages

1.5 Organization

This document is organized as the following.

Chapter 2. Preparation

Chapter 3. Installation

Chapter 4. Configuration

Chapter 5. Creating IVR Scenario

2. Preparation

2.1 MMC for ACD Integration

Note: The MCP Version should be V4.21 or above.

MMC	Description
841	Set feature license From SIP STACK ALLOW, set # SIP trunk and # IVR/UMS ports
857	Assign virtual slot to IVR/UMS (usually C4:S9)
225	For each IVR/UMS ports, set the type (IVR or UMS) ***Note: IVR port number should be greater than UMS port number***
820	Set unique Link ID
206	Barge-in type // for call recording NO BARGE-IN ⇐ WITH (or WITHOUT) TONE
501	Set the recall time • #71 Recall Wait Time: ringing time at source after recall before transferred to default operator group • #77 Transfer recall time: ringing time at destination before recall
724	Check the numbering plan • Trunk number • Station number • Virtual extension number • IVR/UMS number
601	**Station group setting for ACD G/W, Queue and IVR(UMS)** Set 5001 for ACD G/W • Ring Type: DISTRIBUTED • Next Port: 5039 • Assign members with virtual extension numbers obtained from MMC 724 • Max simultaneous new calls + 5 Set 5002 for ACD Queue • Ring Type: DISTRIBUTED • Assign members with virtual extension numbers obtained from MMC 724 Set 5039 for IVR • TYPE: BI-VMS • Ring Type: DISTRIBUTED • Assign members with IP-UMS numbers obtained from MMC 724
701	COS Content (01) - Usable Feature and set 19 EXT FWD ⇐ YES 23 FORWARD ⇐ YES 37 OUT TRSF ⇐ YES 38 OVERRIDE ⇐ YES 55 SECURE ⇐ NO 66 VM REC ⇐ YES

	68 VMS REC ⇐ YES
830	Set System IP ADDR • Set MCP IP address • Set MCP G/W IP address • Set the CTI Server IP (OfficeServ Link IP) • Set IP-IVR Server IP
831	• Set MGI IP address • Set MGI G/W IP Address.
835	MGI DSP Option Address • Set MGI3 – CODEC E.g. G.729 –20ms • DTMF Type ⇐ OUTBAND *Note* G.723 is not supported in IVR
102	No FWD setting for Agent station
207	Set ACD G/W, Queue Ports to 'Normal Port' (NO 'VMAA Port')
722	**For agent station, set one call button (no incoming call while the agent is busy)**

[Table 3] MMC for ACD/IVR (Single-Switch)

2.2 MMC for UCD Integration

** V1.5.2.0 doesn't support the integration with UCD*

MMC	Description
206	Barge-in type // for call recording NO BARGE-IN ⇐ WITH (or WITHOUT) TONE
501	Set the recall time • #71 Recall Wait Time: ringing time at source after recall before transferred to default operator group • #77 Transfer recall time: ringing time at destination before recall
600	OPERATOR GROUP • Set the default operator group • e.g. 1: 5000
724	Check the numbering plan • Station (extension) number • MGI number • IVR number
601	**Station group setting for UCD, Default Operator and IVR** Set 5000 for default operator group • Ring Type: DISTRIBUTED • Type: Normal • Overflow Time (time before transferring to the next group)

	• Next port: None (the group to transfer next) • Group Transfer Time • Group busy: Off (in case of all members are busy, whether to consider the group is busy or not) • Assign members with extension numbers obtainable from MMC 724 Set 5001 for UCD Queue • Ring Type: DISTRIBUTED • Type: UCD Group • Overflow Time • Next port: 5000 (default operator group) • Group Transfer Time • Group busy: On • Assign members with extension numbers obtainable from MMC 724 Set 5039 for IVR port group • TYPE: BI-VMS • Ring Type: DISTRIBUTED • Assign members with IVR port numbers obtainable from MMC 724
701	COS Content (01) - Usable Feature and set 19 EXT FWD ⇐ YES 23 FORWARD ⇐ YES 37 OUT TRSF ⇐ YES 38 OVERRIDE ⇐ YES 55 SECURE ⇐ NO 66 VM REC ⇐ YES 68 VMS REC ⇐ YES
830	Set System IP ADDR • Set MCP IP address • Set MCP G/W IP address • Set the CTI server (OS Link) IP • Set IVR Server IP
831	• Set MGI IP address • Set MGI G/W IP Address.
835	MGI DSP Option Address • Set MGI3 – CODEC E.g. G.729 –20ms • DTMF Type ⇐ OUTBAND *Note* G.723 is not supported in IVR
607	UCD group option • #0 FIRST MSG: the first message to play in case all the members are busy • #1 SECOND MSG: the second message to play in case all the members are busy • #2 EXIT CODE: the digit for Message Termination on Digit • #3 RETRY COUNT: # repetition for SECOND MSG

	• #4 FINAL DEST: in case no member is available after playing max SECOND MSG, the destination to transfer • #6 UCD RECL: MOH (Music On Hold) interval between SECOND messages • #7 MOH SOURCE • #8 WRAP-UP: transition time for the member before get the new call • #11 AGENT PIN #: pin number for the agent to log on the UCD group • #12 GBUSY NEXT ⇐ ON It determines whether to transfer to the next port without waiting for OVERFLOW TIME (MMC 601) in case of all agents are busy.

[Table 4] MMC for UCD/IVR (Single Switch)

2.3 MMC for Multiple MGI Cards

The following are the MMC checklist for setting multiple MGI cards.

MMC	Description
601	Register all UMS Dial No. (e.g. 8651-8666) to a station group (e.g. 5039) with BI-VMS type
615	Add all MGI Dial No. (e.g. 3801-3816) to every item in MMC 615 sub-menu USER
724	Register MGI Dial No. (e.g. 3801-3816) and UMS Dial No. (e.g. 8651-8666)
806	Check if the switch recognizes all MGI cards
831	Check the IP addresses of all MGI cards
835	Check the MGI DSP option CODEC = G.729 -20ms

[Table 5] MMC for Multiple MGI Cards

2.4 Microsoft IIS

The MS IIS v5.0 or higher is required to run the IVR Supervisor

2.5 .Net Framework

IVR requires .NET Framework v1.1 or higher. If .Net Framework is installed before IIS then run “aspnet_iisreg.exe” which is located in the framework directory under the Windows OS directory,

```
C:\WINNT\Microsoft.NET\Framework\v1.1.4322\aspnet_iisreg.exe –i
```

2.6 Microsoft SQL Server or Express

Note: You can skip this section if MS SQL is already running on your system.

This section will describe how to install, configure and run the MS SQL Express 2005.

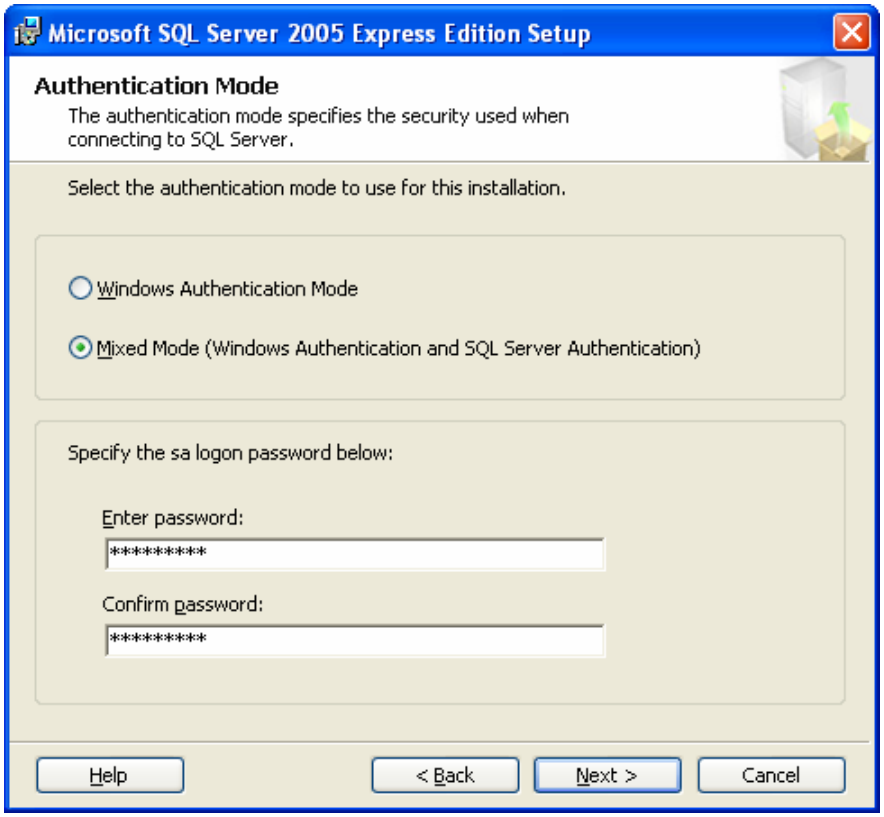
(1) Download and install Windows Installer V3.1

To download setup, visit http://www.microsoft.com/downloads/details.aspx?FamilyID=889482fc-5f56-4a38-b838-de776fd4138c&DisplayLang=en

(2) Download and install SQL Express.

To download setup, visit http://www.microsoft.com/downloads/details.aspx?FamilyID=220549b5-0b07-4448-8848-dcc397514b41&displaylang=en

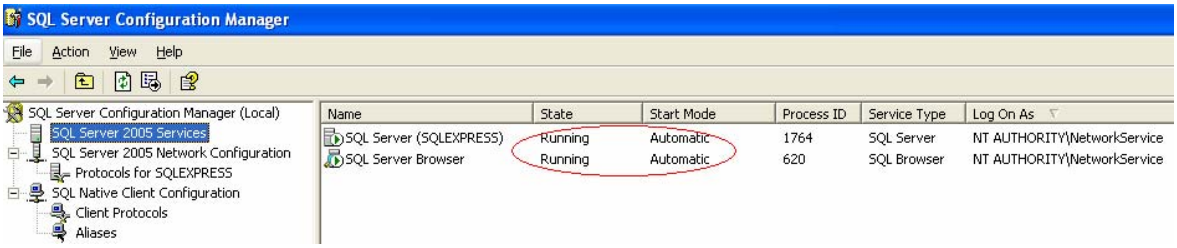
(3) During SQL installation, set the Authentication Mode to SQL Server and Windows Authentication.



(4) Allow remote connection

For more information, visit http://support.microsoft.com/default.aspx?scid=kb;EN-US;914277

(5) From SQL Server Configuration Manager, set the Start Mode of Server to *Automatic.*

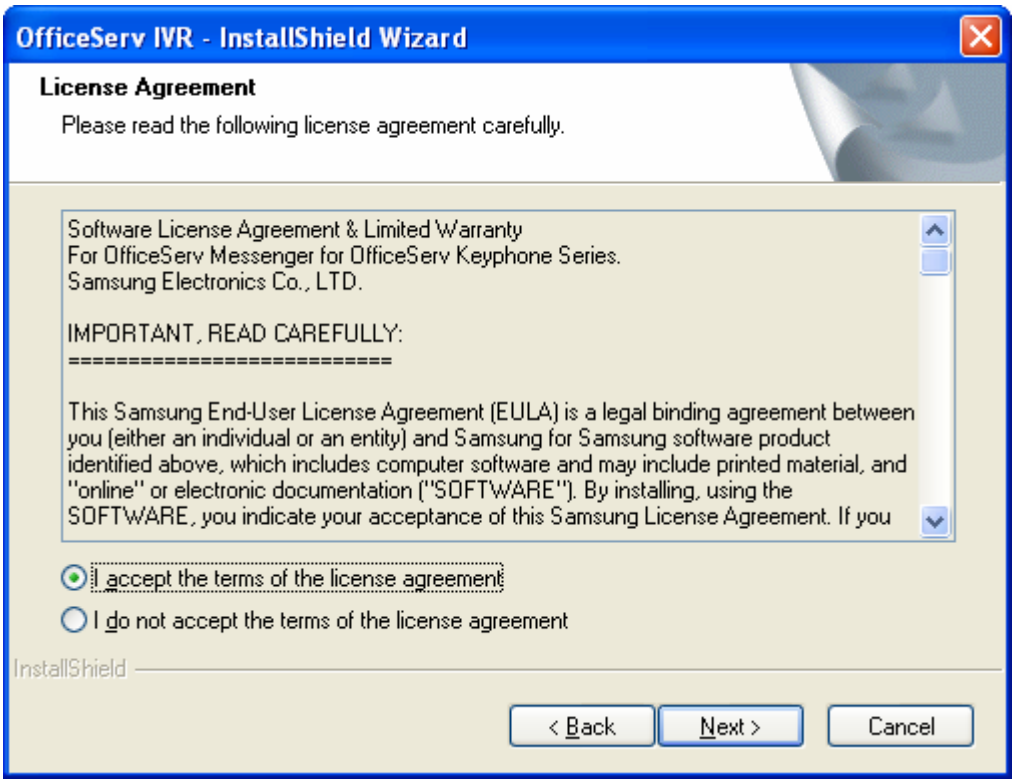

SQL Server Configuration Manager
File
Action
View
Help
SQL Server Configuration Manager (Local)
SQL Server 2005 Services
SQL Server 2005 Network Configuration
Protocols for SQLEXPRESS
SQL Native Client Configuration
Client Protocols
Aliases
Name
State
Start Mode
Process ID
Service Type
Log On As
SQL Server (SQLEXPRESS)
Running
Automatic
1764
SQL Server
NT AUTHORITY\NetworkService
SQL Server Browser
Running
Automatic
620
SQL Browser
NT AUTHORITY\NetworkService

3. Installation

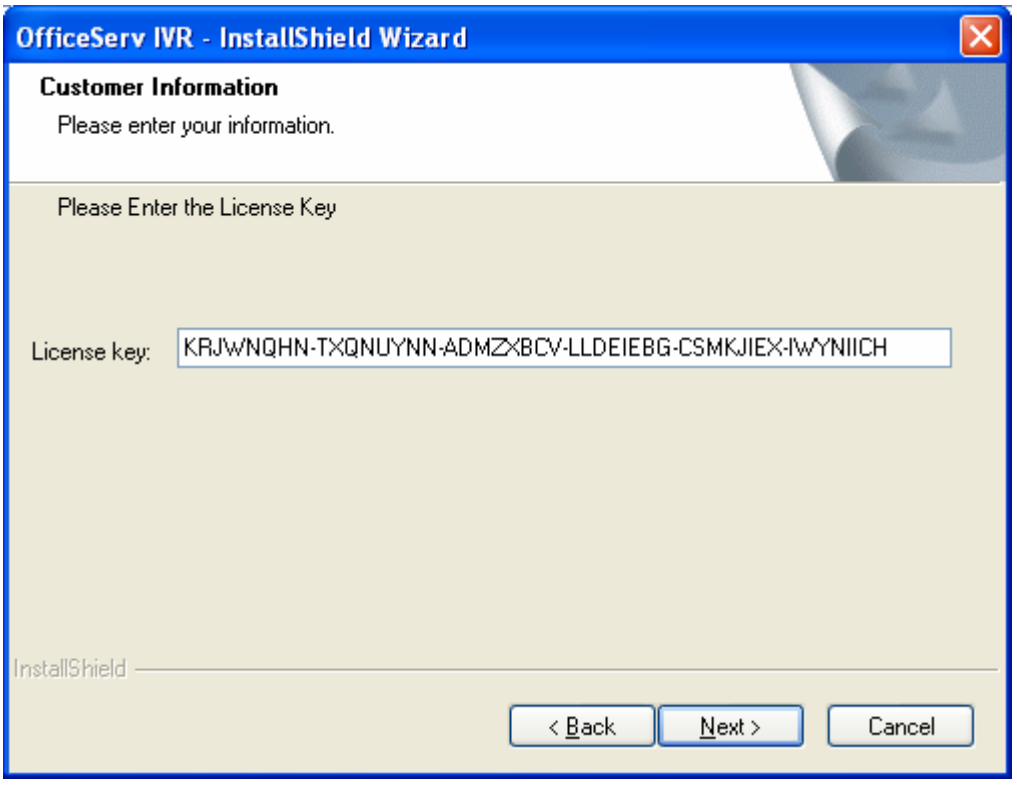
(1) From IVR folder, double click setup.exe

(2) Click Next

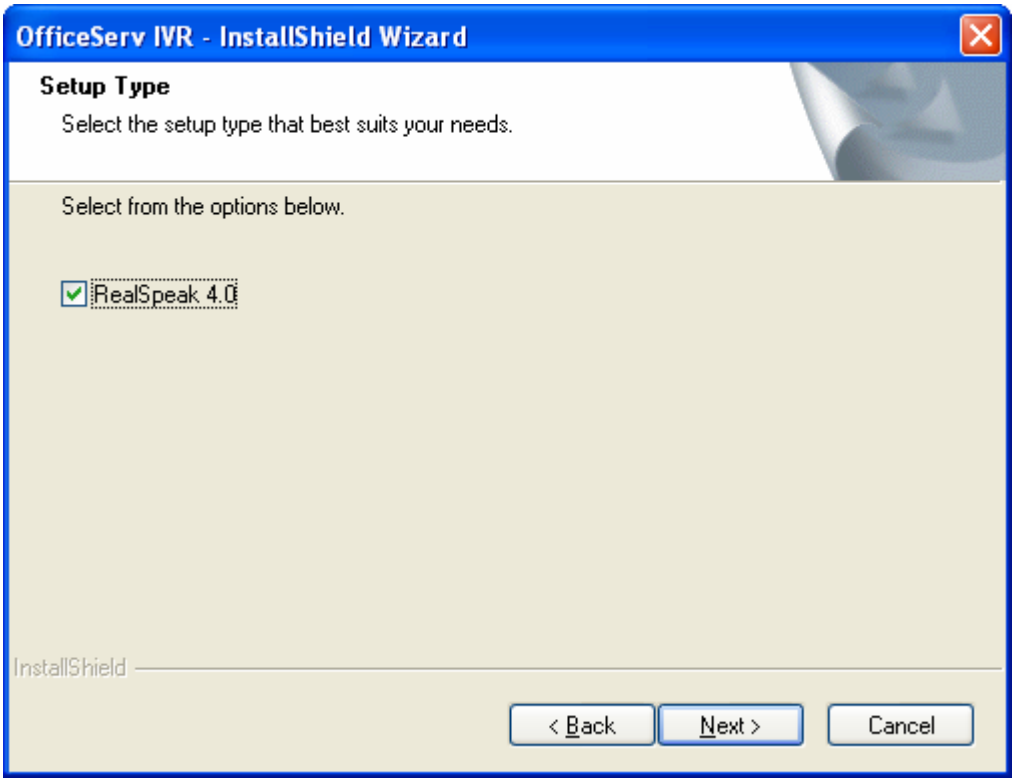
(3) Agree with User License Agreement and click Next



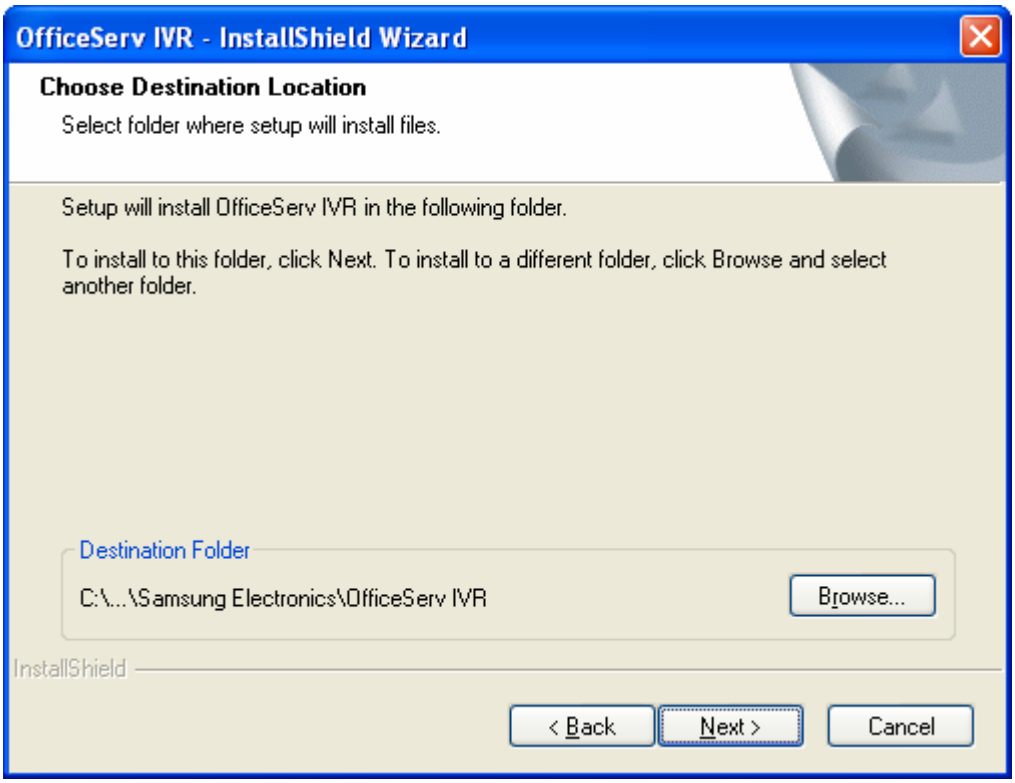
(4) Enter license key and click Next



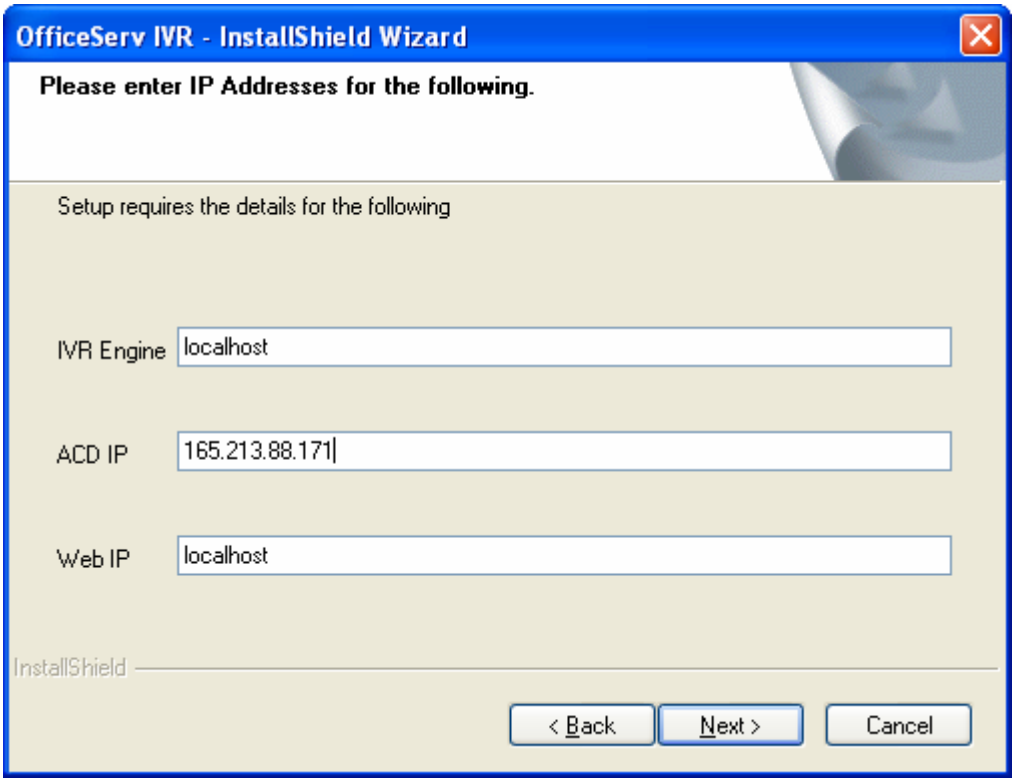
(5) Check the checkbox to install RealSpeak 4.0 (TTS) and click Next



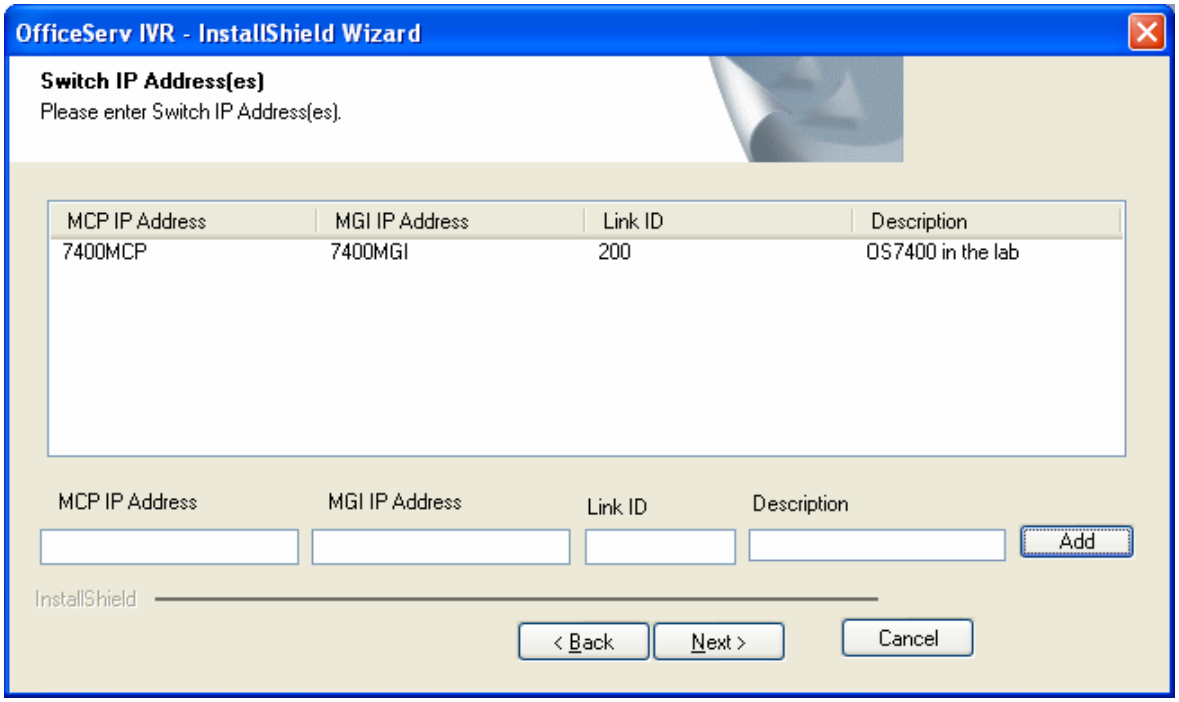
(6) Choose IVR installation folder and click Next



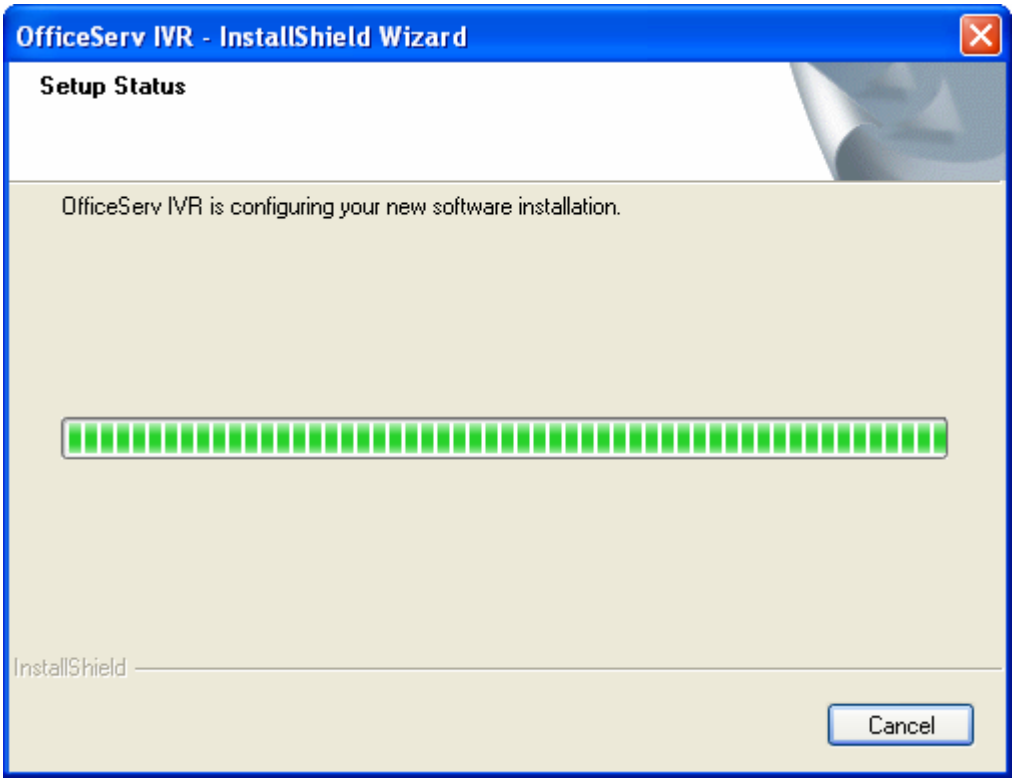
(7) Enter ACD IP (or DNS name) and click Next



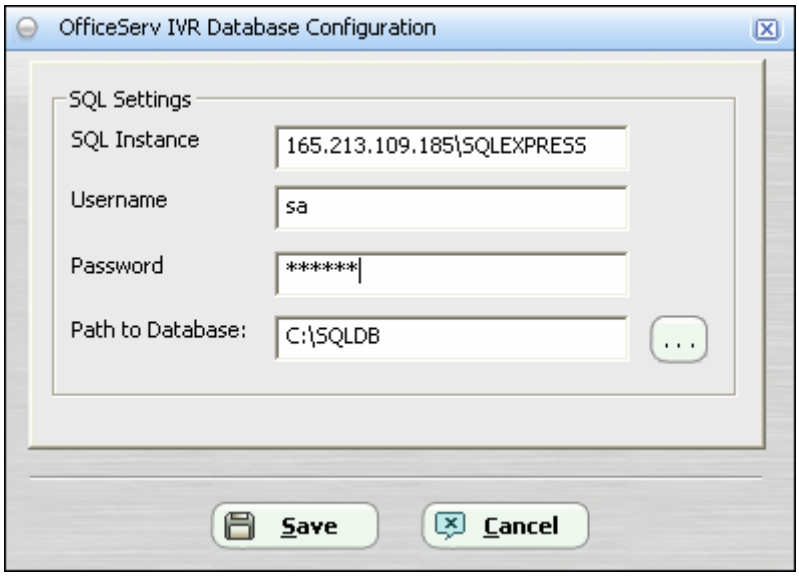
(8) Enter switch information and click Next



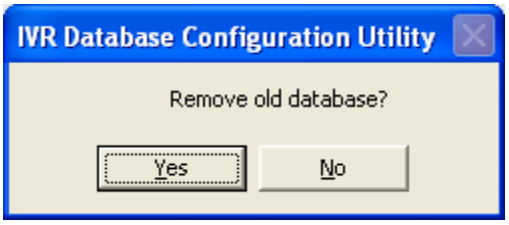
(9) Wait while IVR is configuring



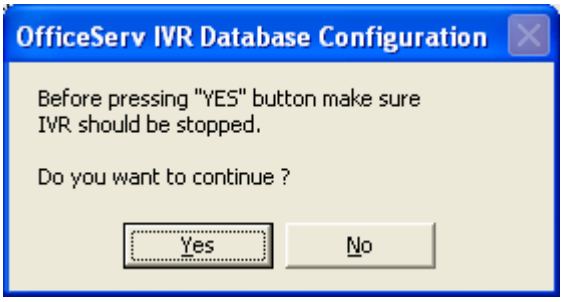
(10) Enter DB instance name, login ID (***sa*** or ***sa privilege account***), and password.
For SQL Express, the instance name is ***SQLEXPRESS***. Click Save.



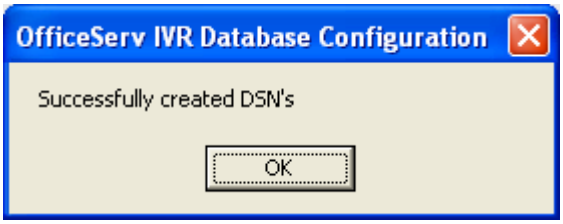
(11) Click Yes to delete existing IVR Database



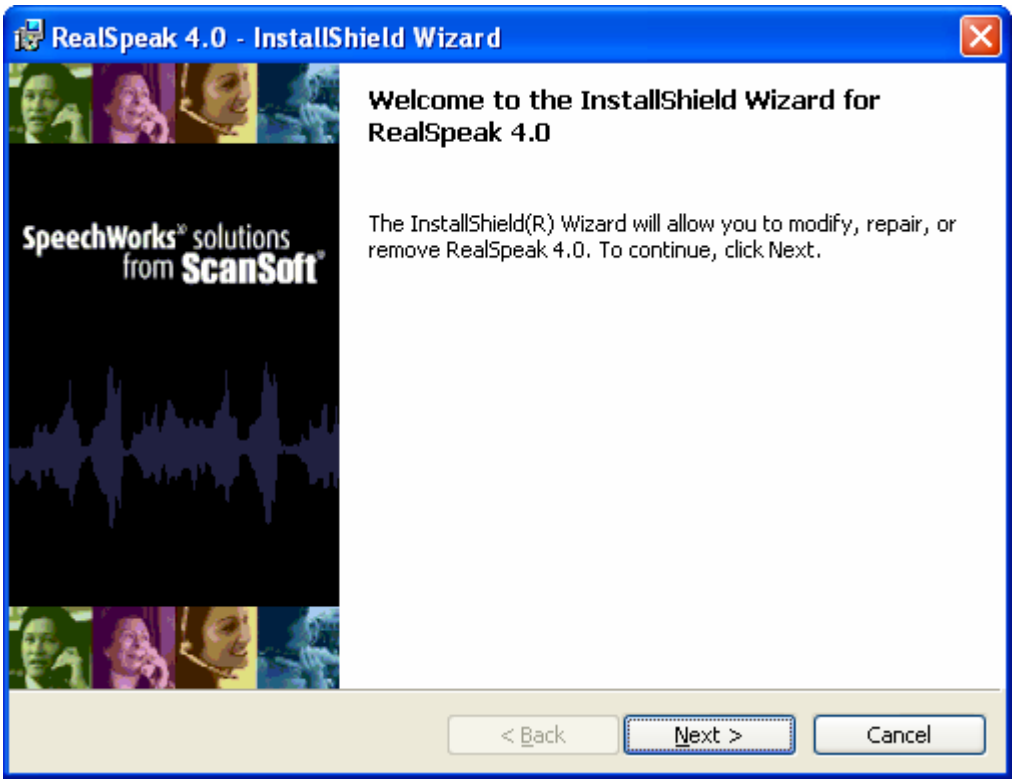
(12) Click Yes



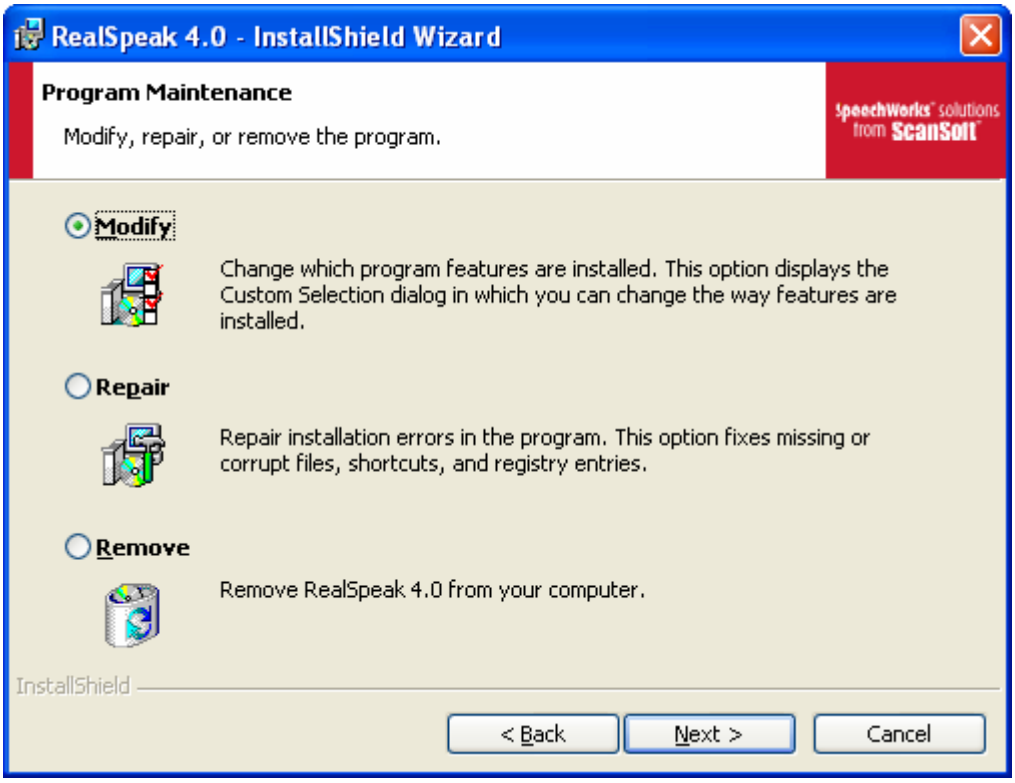
(13) Click OK



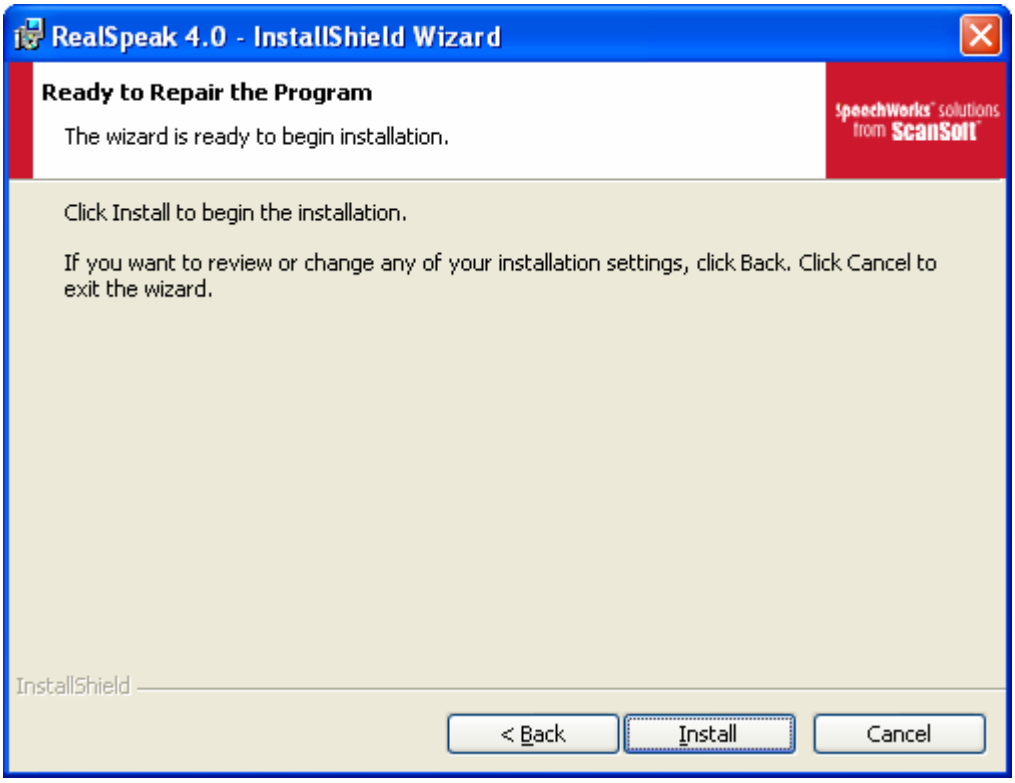
(14) Click Next to install, modify, repair or remove RealSpeak setup.exe



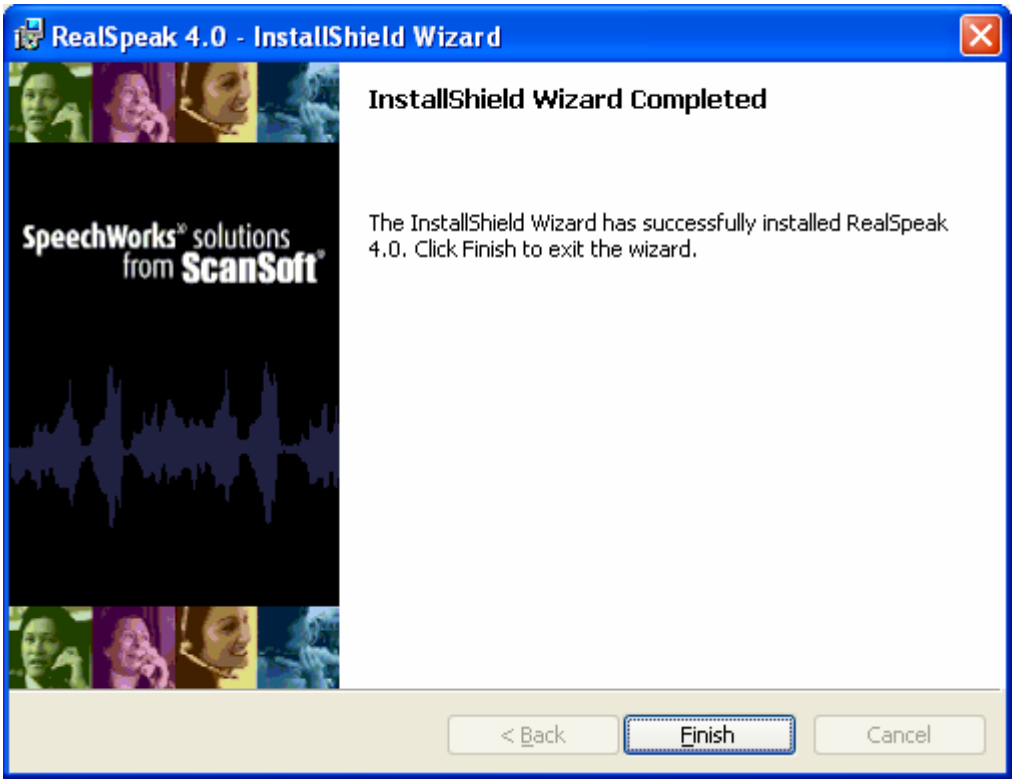
(15)Choose RealSpeak setup option



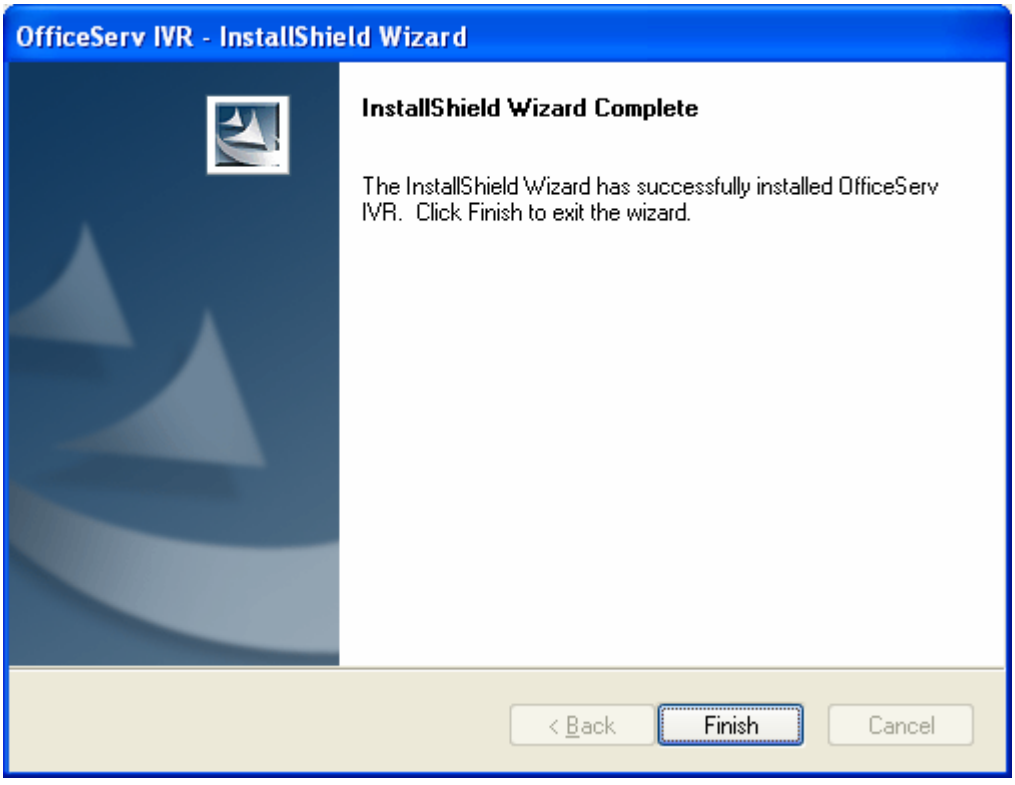
(16) Click Install



(17) Click Finish



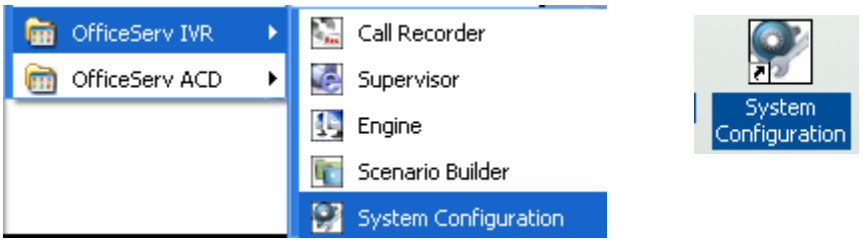
(18) Click Finish



(19) Install RealSpeak 4.0 language pack as many as licensed.

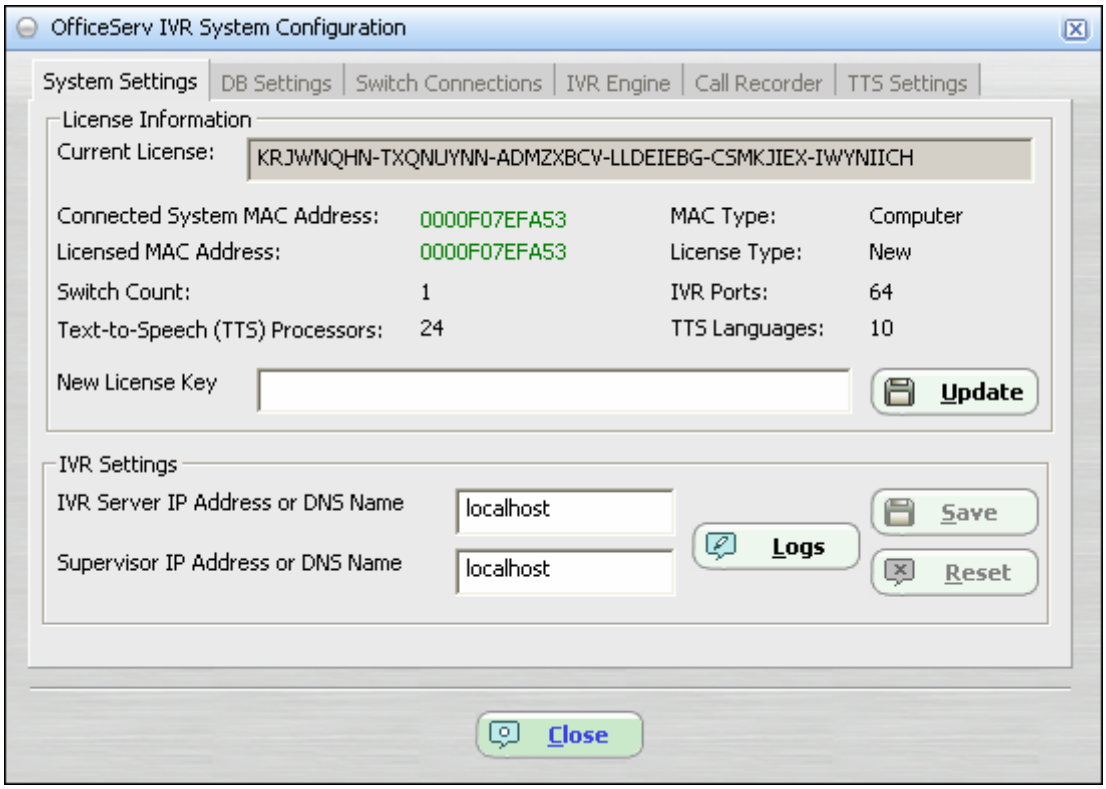
4. Configuration

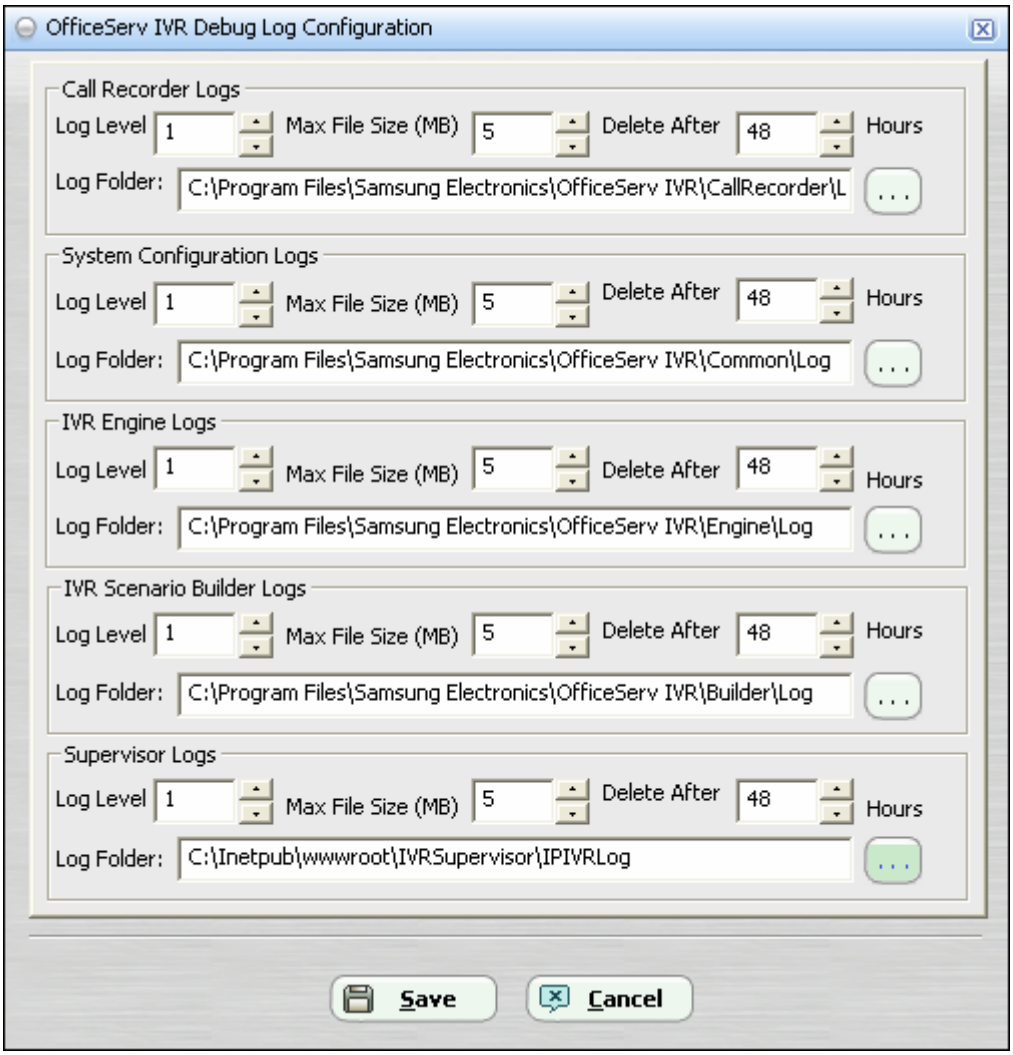
To configure the IVR, from the Programs menu or desktop, start the IVR System Configuration.



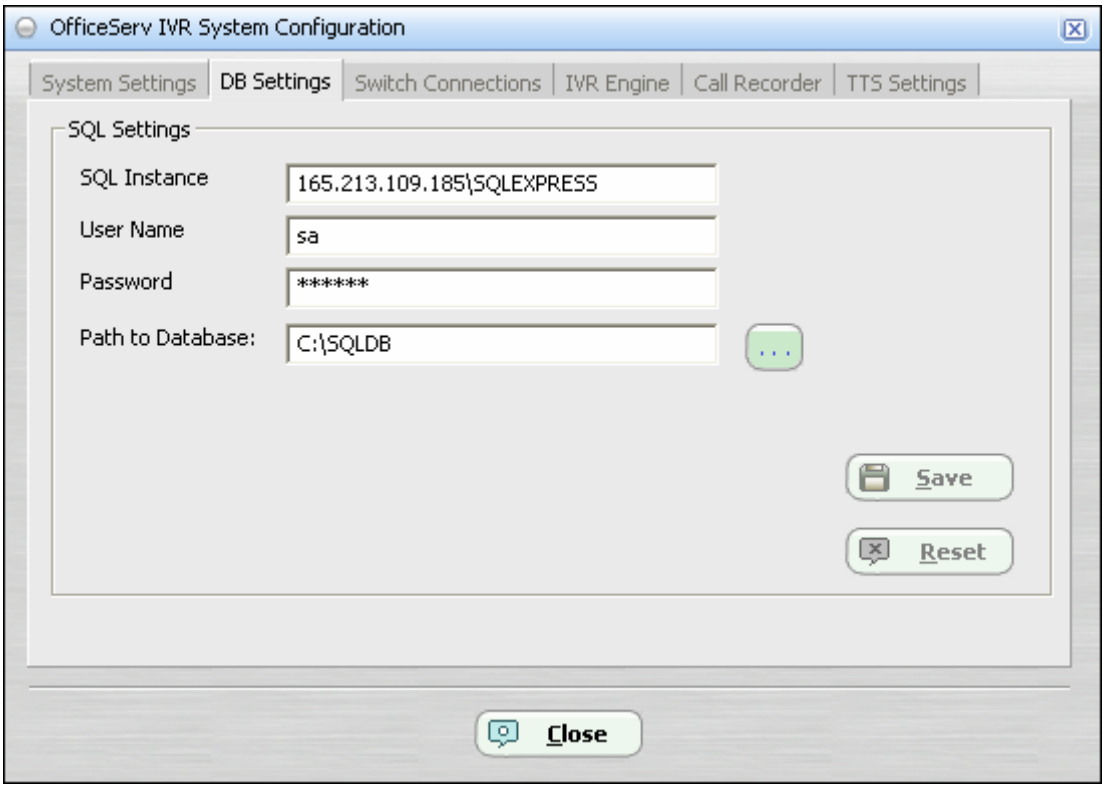
From each tab of IVR System Configuration, configure the IVR as the following:

- System Settings
  - License update
  - Log level settings (0 - 5, 0: NONE, 5: HIGH)

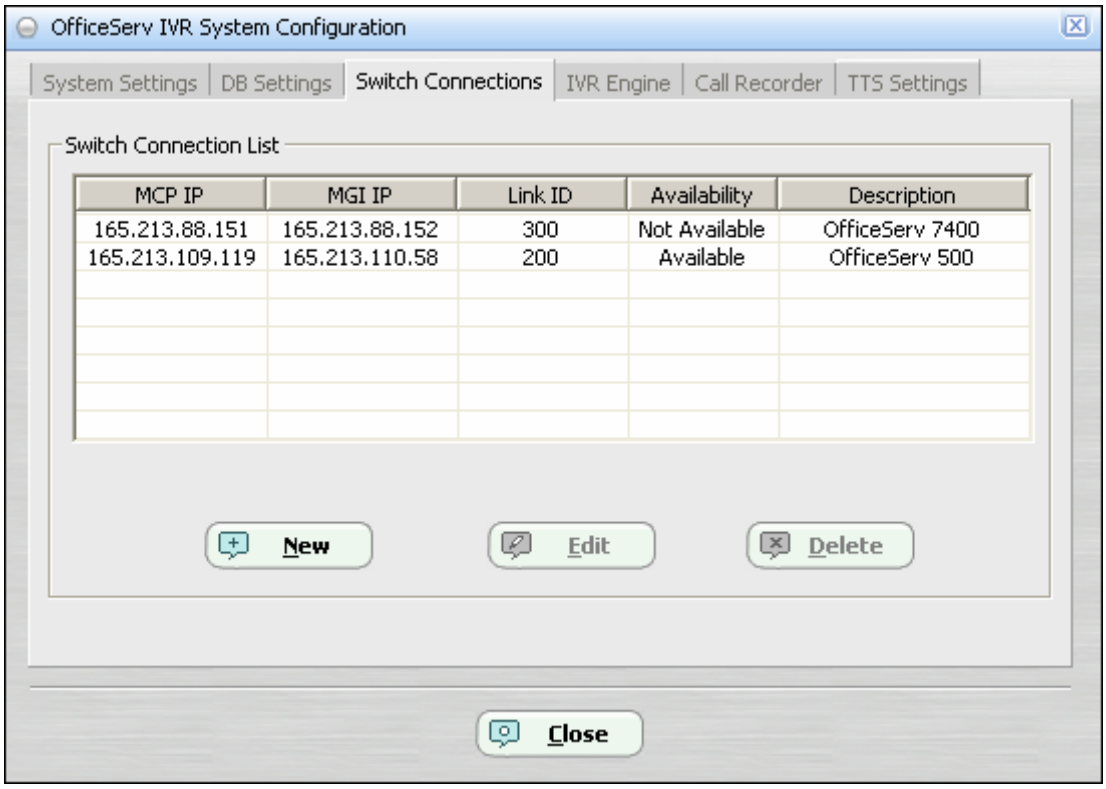



OfficeServ IVR Debug Log Configuration
Call Recorder Logs
Log Level 1
Max File Size (MB) 5
Delete After 48
Hours
Log Folder: C:\Program Files\Samsung Electronics\OfficeServ IVR\CallRecorder\L
System Configuration Logs
Log Level 1
Max File Size (MB) 5
Delete After 48
Hours
Log Folder: C:\Program Files\Samsung Electronics\OfficeServ IVR\Common\Log
IVR Engine Logs
Log Level 1
Max File Size (MB) 5
Delete After 48
Hours
Log Folder: C:\Program Files\Samsung Electronics\OfficeServ IVR\Engine\Log
IVR Scenario Builder Logs
Log Level 1
Max File Size (MB) 5
Delete After 48
Hours
Log Folder: C:\Program Files\Samsung Electronics\OfficeServ IVR\Builder\Log
Supervisor Logs
Log Level 1
Max File Size (MB) 5
Delete After 48
Hours
Log Folder: C:\Inetpub\wwwroot\IVRSupervisor\IPIVRLog
Save
Cancel

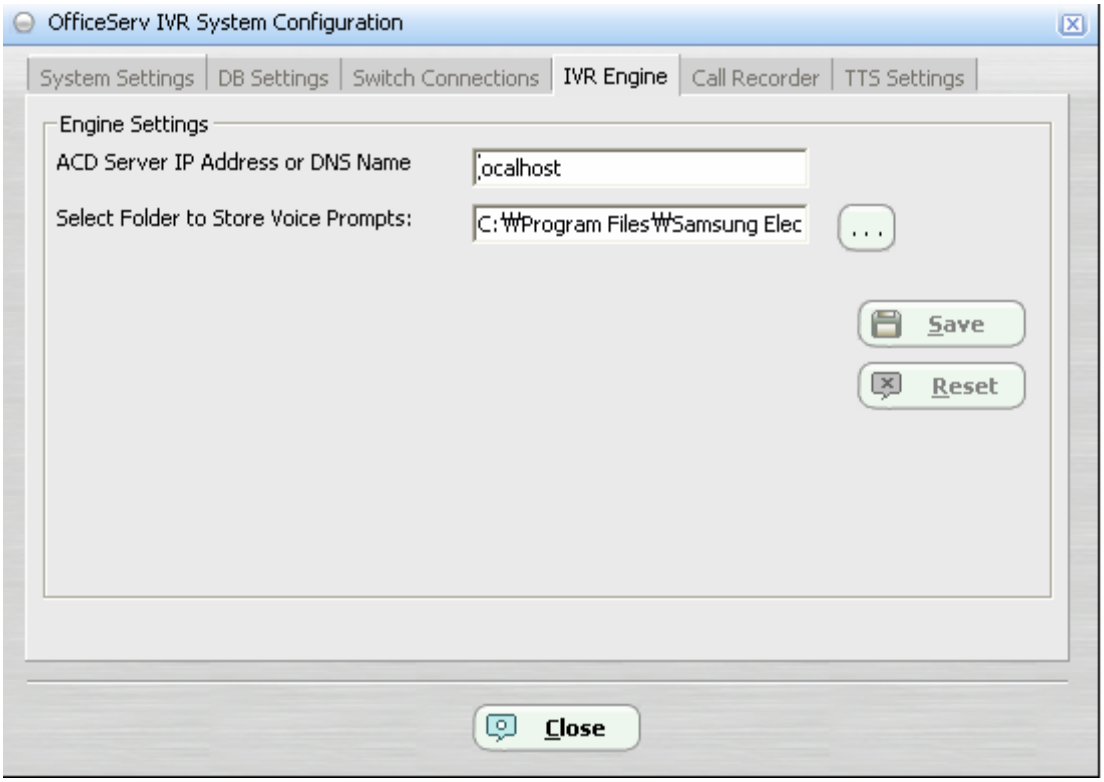
- DB Settings: SQL Instance and Login information (ID and Password)



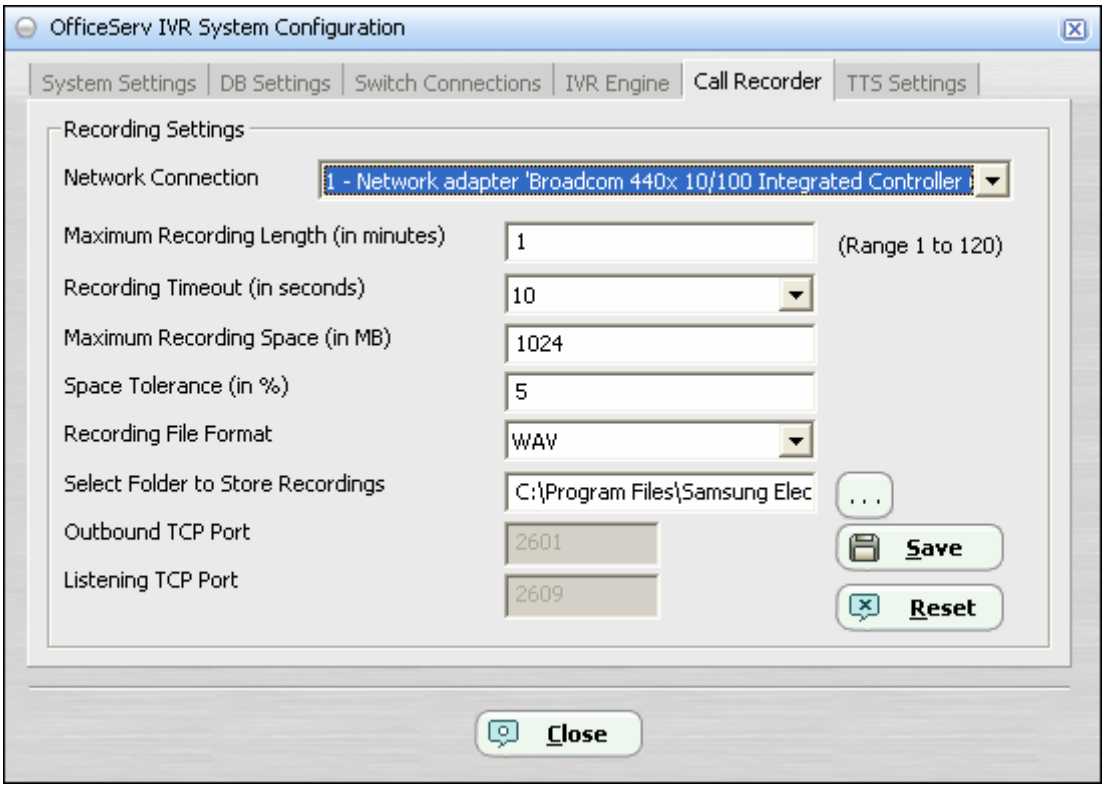
- Switch setting: MCP IP (MMC 830), MGI IP (MMC 831), Link ID (MMC 820)



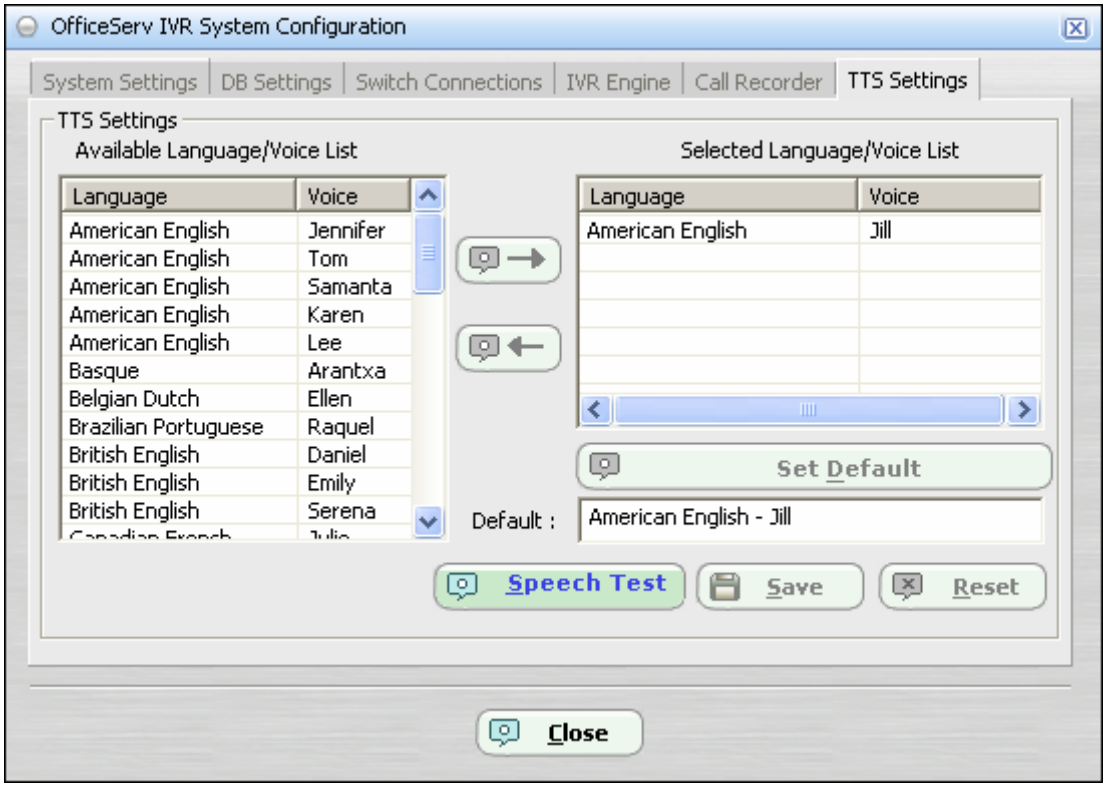
- IVR Engine: ACD Server IP



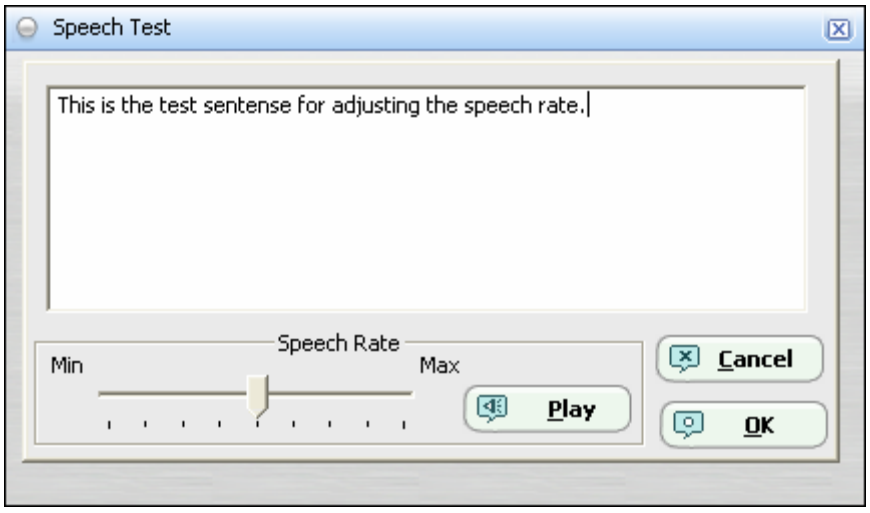
- Call Recorder: Network Adaptor



- TTS (Text-To-Speech): Default language setting and speech speed adjustment.



To adjust the speech rate, click “Speech Test”.



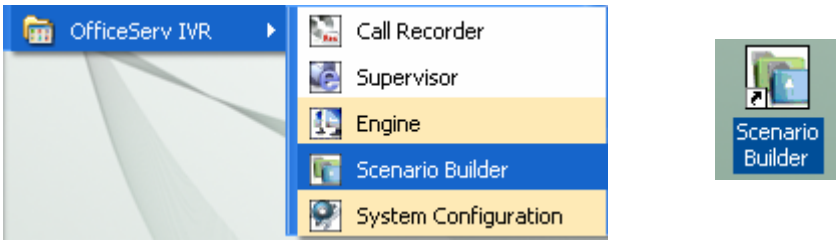
Enter the texts in the text box and press “Play” button. Move the speech rate bar to adjust the speech speed.

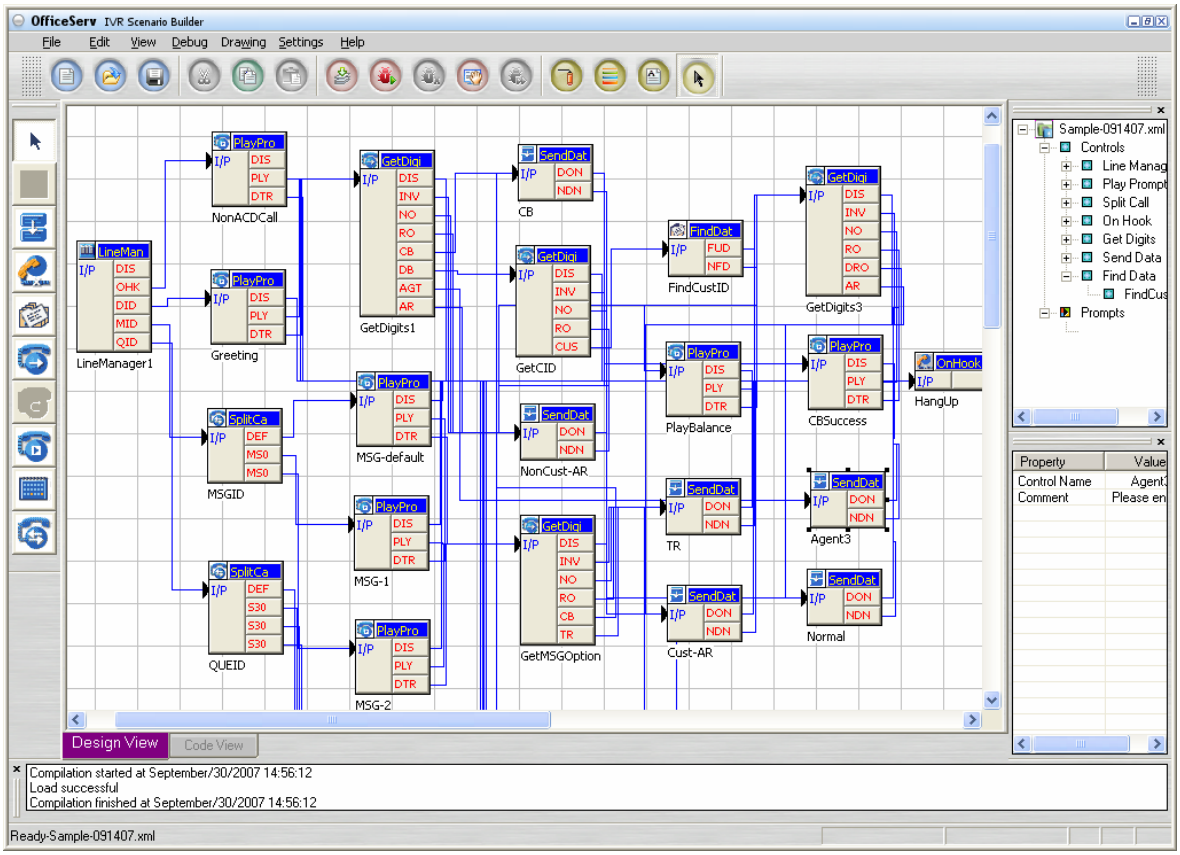
5. IVR Scenario Builder

This chapter describes how to create an IVR self menu scenario.

IVR scenario consists of controls where the control is the basic building block of call controls in IVR system. One Line Manager control and one On Hook control are mandatory where Line Manager receives the call and On Hook control disconnects the call.

From the Programs menu or desktop, start the IVR Scenario Builder.





[Figure 4] IVR Scenario Builder

Create the IVR scenario with point-and-drop, copy-and-paste operations.

1. Scenario should have Click the control to put into the scenario from the control bar
2. Drag-and-drop the control.

3. Each control has its attributes called “property”. Double click the control to open the Property window and edit the property.

Table 6 summarizes the controls available with IVR. Table 6 describes the properties common to all controls.

Controls	Description
Line Manager 	• Receive incoming calls • Manage a group of IVR lines (relative number) • Option to link with ACD • Option to use TTS • Configure the customer database used in the scenario
Split Call 	Branch calls to different control depending on • CLI • DID • Trunk number • Message ID • Queue ID (Split ID)
Play Prompt 	Play voice messages
Get Digit 	Get DTMF input from the caller and associate the DTMF with the ACD Service Code

Send Data 	Enabled with ACD	
	Agent Request	• Available to calls without associated split (i.e. No Queue ID or No Message ID) • Send call to ACD split associated with service code or ACD Agent
	Transfer Request	• Available to calls with Split ID or Message ID • Send call to its corresponding ACD split associated with the split ID or message ID
	Callback	• Send callback number to ACD
	Normal	• Basically, all calls dropped during IVR self menu is counted as “Abandoned Call” in the ACD statistics. Exception: Call with “normal call” notification received from IVR.
Transfer 	• Disabled with ACD • Transfer call to specific extension number	
Calendar 	Branch calls to different controls depending on day/date/time	
Find Data 	• Validates the DTMF input from a caller or the control property based on the record found in the customer DB. • Data validation up to 2 fields	
On Hook 	Disconnect the call	

[Table 6] IVR Controls

Properties	Description
Control Name	Unique control name
Connection	Specify the next control depending on the event • Event: possible event which can occur to the control o DISCONNECT: disconnect event • Alias: 3-letter short name for event • Jump-To-Control: next control to follow • Node: *See chapter 5.4*.
Comment	Description

[Table 7] Common IVR Control Properties

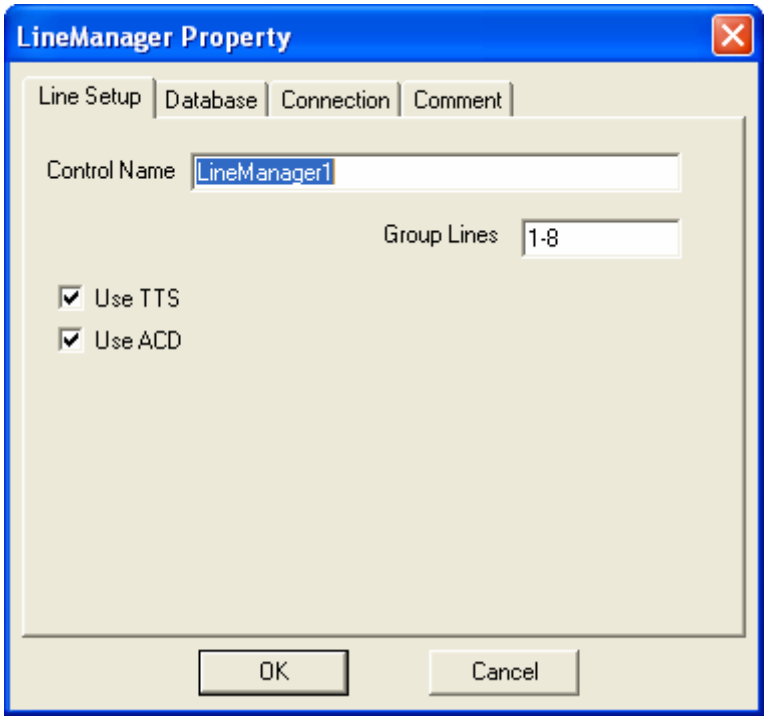
Node column of Connection property is effective only in case when the next control to jump is Get

Digits control. Chapter 5.4 describes the purpose of node field in detail.

5.1 Line Manager

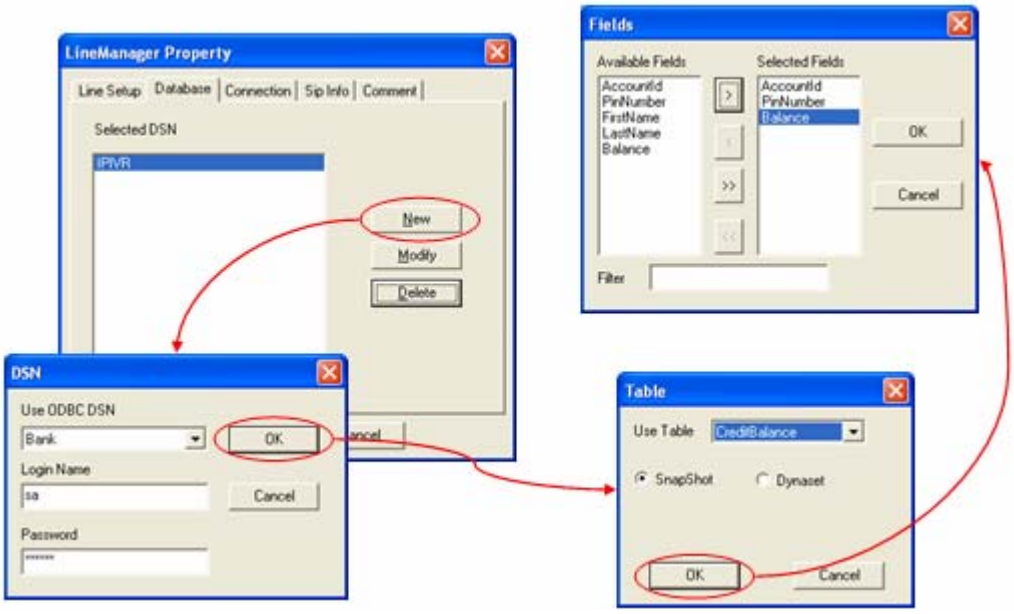
Line Setup tab

- Receive incoming calls
- Manage a group of IVR lines (relative number)
  E.g. 1, 3, 4 : IVR port 1, 3, and 4.
  1-4 : IVR ports 1 through 4
- Check the ACD option to use IVR with ACD
- Check the TTS option to use TTS



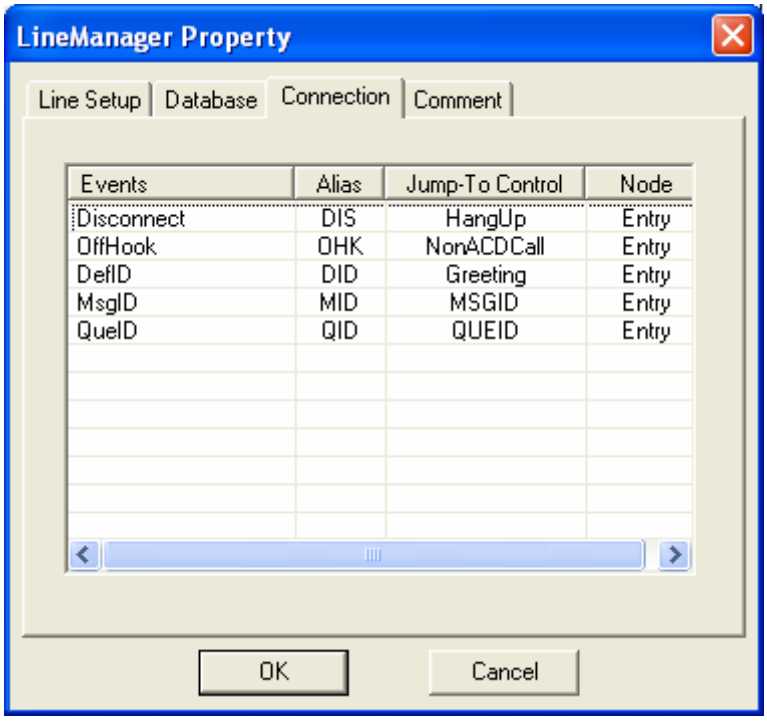
Database tab

- Set the DSN of customer DB to use “Find Data” control in the scenario



Connection tab

- OffHooK: Incoming call from switch (not from ACD)
- DEFID: Incoming call from ACD with no Queue ID or Message ID
- MSGID: Incoming call from ACD with Message ID
- QUEID: Queued call from ACD with queue (split) ID



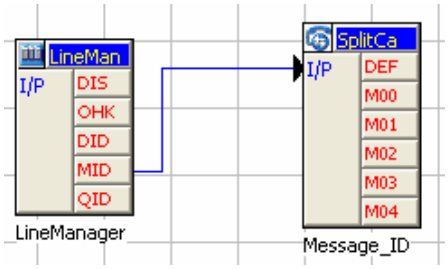
5.2 Split Call

Mapping Tab

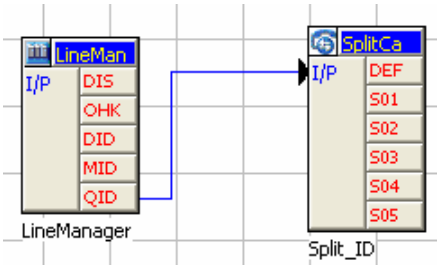
- Specify the call branching criteria such as
  - CLI
  - DID
  - Trunk number
  - Message ID
  - Queue ID

We recommend to create three types of Split Call control if necessary

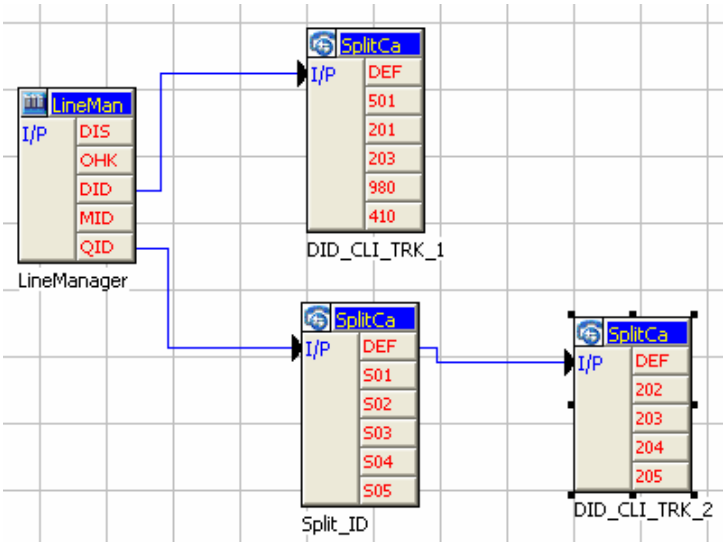
1. Message ID split control following the MSGID event of Line Manager control



2. Queue ID split control following the QUEID event of Line Manager control



3. CLI/DID/Trunk Number split control in any necessary places



5.3 Play Prompt

Connection Tab

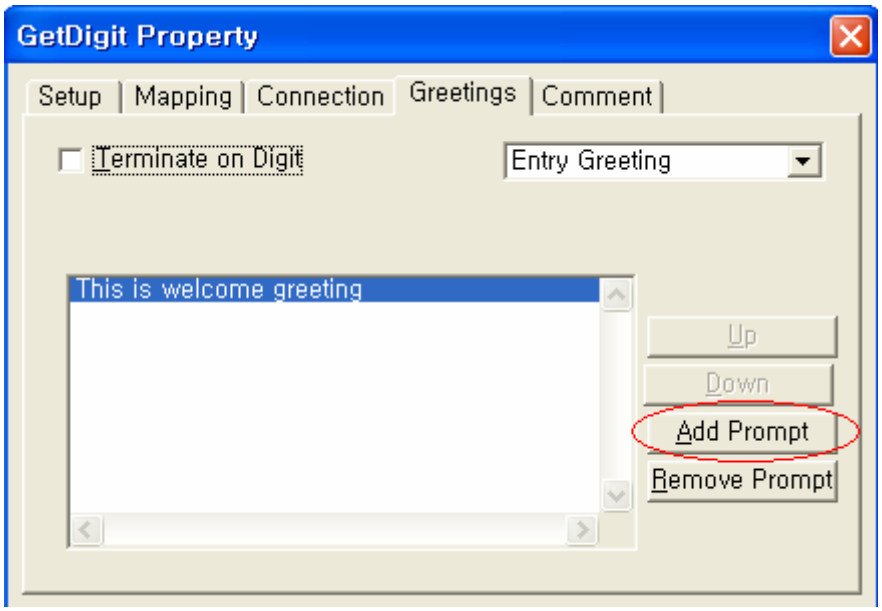
- Default events:
  - o PlayComplete: event which occurs when the playing the voice message is completed
  - o DigitTerm: event which occurs when the digit is pressed while the voice message is playing

Greetings Tab

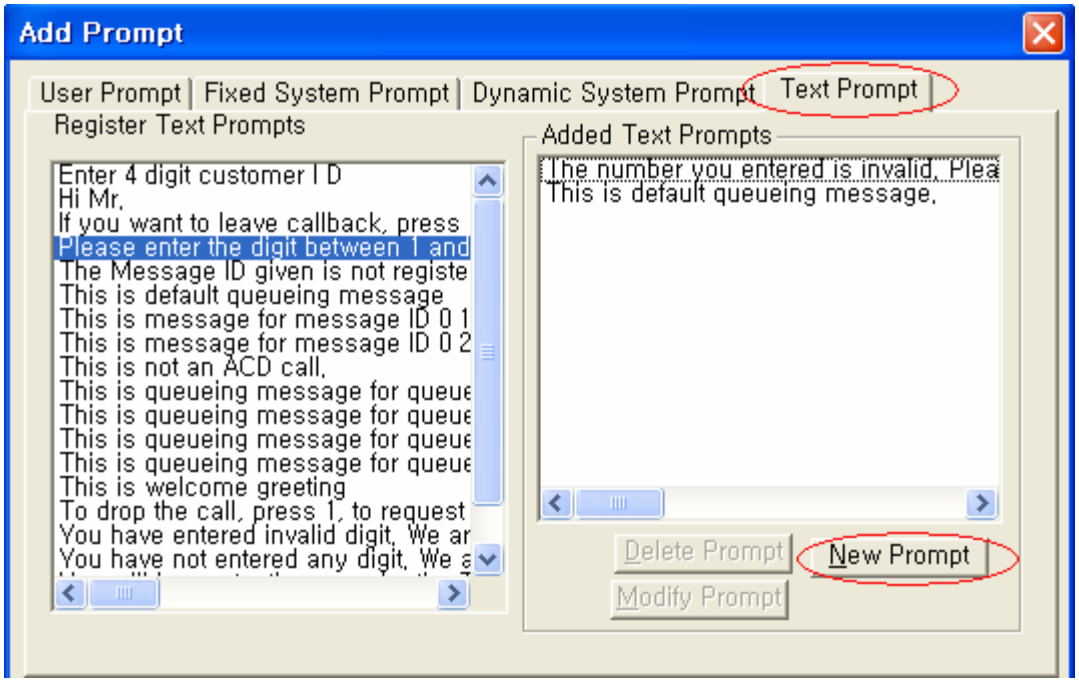
- Options
  - o Terminate on Digit: Stop playing the voice message if DTMF is pressed (DigitTerm event occurs).
  - o Queued Message Settings: Different voice messages depending on wait time
- Voice Messages
  - o User prompt: voice message provided as file (mp2, wav)
  - o Fixed system prompt: fixed system provided prompt. E.g. digits, letters
  - o Dynamic system prompt: dynamic system provided prompt. E.g. time, date, money, etc.
  - o Text prompt: TTS generated voice messages

Creating voice messages with TTS

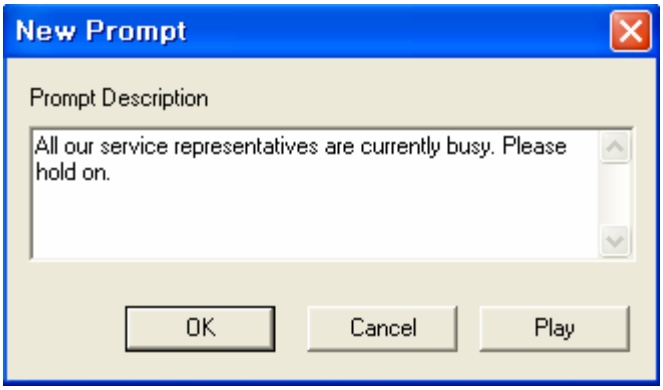
1. From the “Greetings” tab, click “Add Prompt”



2. From the “Text Prompt” tab, click “New Prompt”



3. Enter the texts in the text box and click OK. To listen to the voice message, click “Play” button.



4. To adjust the speech speed, refer to the chapter 4, TTS settings.

5.4 Get Digit

Setup Tab

- Max No of Tries: the maximum number of trials before the invalid digit or no digit event handler is invoked
- Max No of Digits: the maximum number of digits to be collected before terminating digit

collection

- Max Time – the maximum time in second spent to collect the digits
- Terminate on Digit: digit collection is terminated if the digit specified is pressed

Mapping Tab

- Generate the mappings between the digit input and the event
- For each mapping, event name, digit mask and service code (optional – only if interfacing with ACD Server) are specified
- Send To ACD: Check “Service Code” to send the service code of the matching digit mask to ACD.
- Digit Mask
    - The collected digits are compared to the digit masks in the order
    - N: accept only numeric digit input (Note: “N” is case sensitive)
    - $: accept any key input

Connection Tab

- Default events:
    - Invalid: the event which occurs if the maximum number of trials is reached and the caller has given invalid inputs
    - No Digits: the event which occurs when the caller has not entered any digits
    - Retries Over: the event which occurs when the Get Digits control is entered through the Error node and the number of trials reaches the maximum
- **Node column**: it specifies whether to reset the trial count of next control or not. This field is effective only in case when the next control to jump is Get Digits control. If **Error**, the previously attempted trials will be counted as trial count. If **Entry**, the trial count is reset when a call enters into the control. The default is **Entry**.

Greeting Tab

- Specify the voice messages to play on
    - Entry
    - Invalid event
    - No Digit event
- Option:
    - Terminate on Digit: message playing is terminated if any digit is pressed

5.5 Send Data

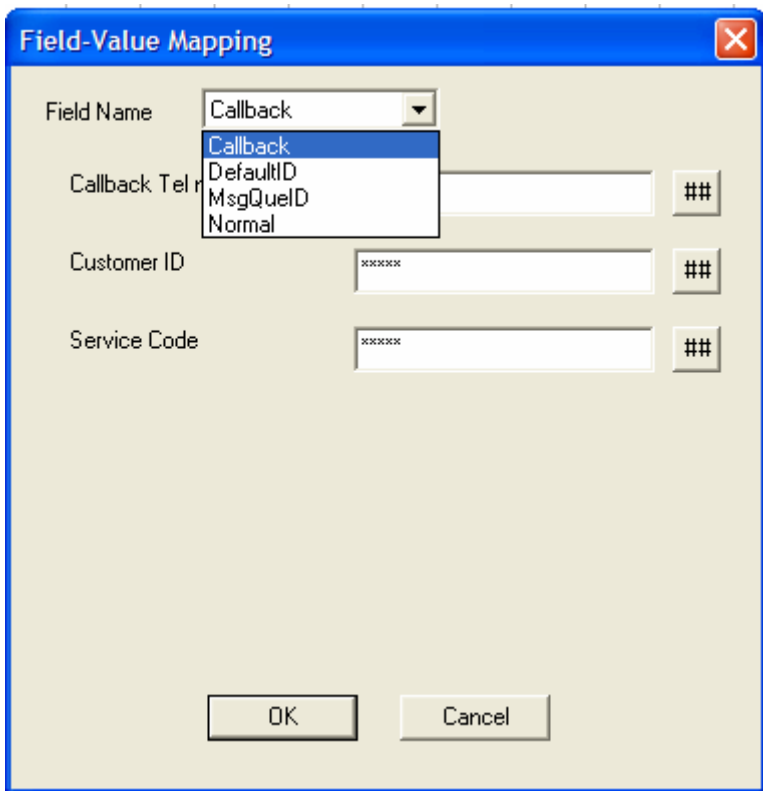
Note: Send Data control is enabled only when “Use ACD” option of Line Manager control is checked.

Use Send Data control to send the call information to ACD Server.

- Agent Request: DEFID call transfer to ACD Split or agent extension
- Transfer Request: MSGID or QUEID call transfer to ACD Split
- Callback Notification
- Simple IVR Call Notification

Mapping Tab

- Choose the information type to send.



Connection Tab

- Default events:
  - DONE: the event which occurs when the call transfer to ACD with agent request is successful
  - NOTDONE: the event which occurs when the call transfer to ACD with agent request fails

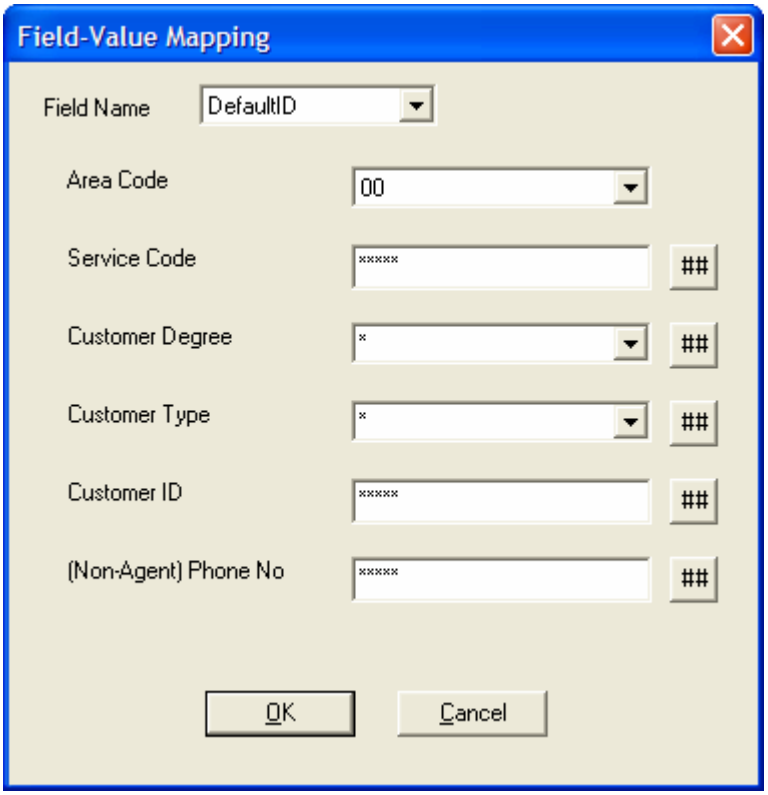
5.5.1 DefaultID

Note: Use this control for transferring DEFID calls to ACD Server

Send Data – Agent Request transfers IVR call to ACD Server requesting the agent service via Service Code or other extension number.

- When send Service Code for agent request, IVR can send the customer information also

- Do not specify both Service Code and (Non-Agent) Phone Number.

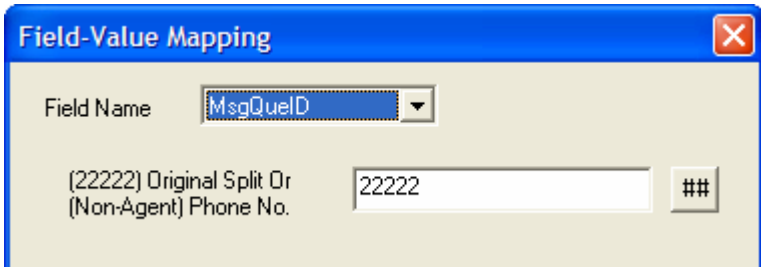


5.5.2 MsgQueID

Note: Use this control for transferring MSGID or "QUEID" calls to ACD Server

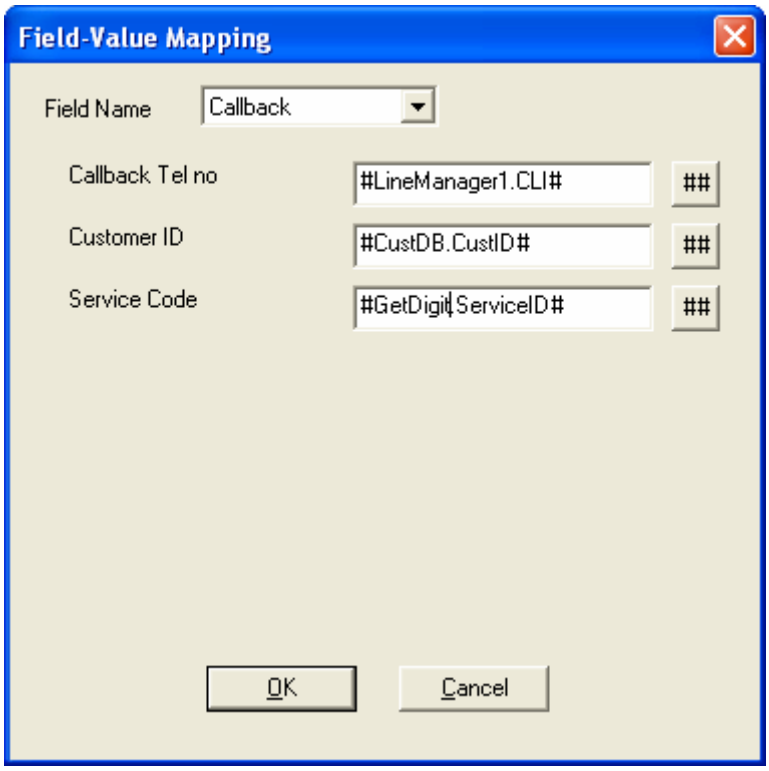
Send Data - Transfer Request transfers IVR call to one of three targets

- "22222" if call goes back to ACD split associated with MSGID, QUEID
- Non-agent phone number (internal or external)



5.5.3 Callback

Send Data – Callback leaves callback number to ACD Server.



- Callback Tel No: Specify the callback number or CLI number
- Customer ID: Customer ID if available
- Service Code: Determine the split where the callback is requested. If Service Code is invalid or unavailable, the callback is left in the default ACD split.

5.5.4 Normal

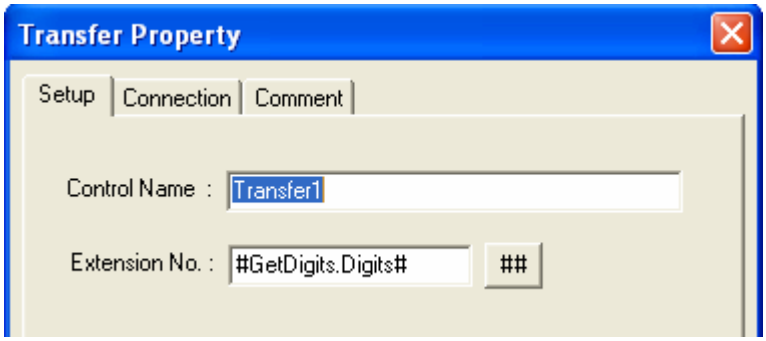
Basically, all calls dropped during IVR self menu before queued in ACD Split is counted as “IVR Abandoned Call” in the ACD statistics. If the IVR call is dropped with “Normal” call notification to ACD through Send Data – Normal, the call is counted as “IVR Normal Call”.

5.6 Transfer

Note: Transfer control is enabled only when "Use ACD" option of Line Manager control is not checked.

Setup Tab

- Extension No: enter the phone number (internal or external) to transfer the call



Connection Tab

- Default events:
  - DONE: the event which occurs when the call transfer to agent extension number successful
  - NOTDONE: the event which occurs when the call transfer to agent extension number fails

5.7 Calendar

The Calendar control allows the user to specify a holiday or specific schedule and branch the call to different control depending on the time settings**.**

Setup Tab

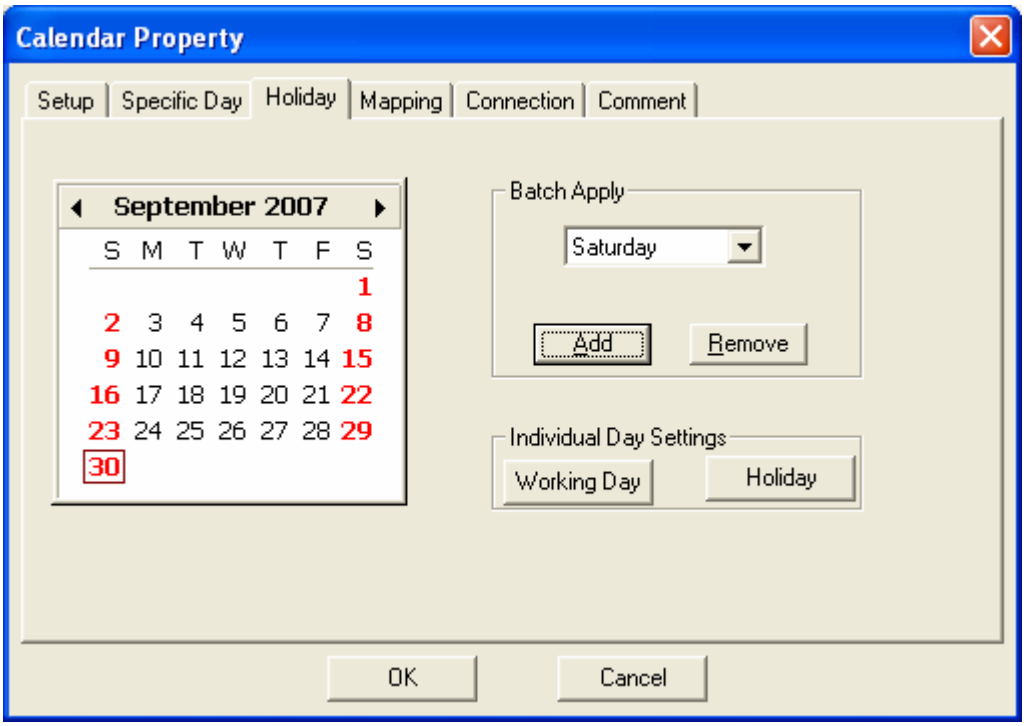
- Specify working time

Specific Day Tab

- Specify working time of specific date

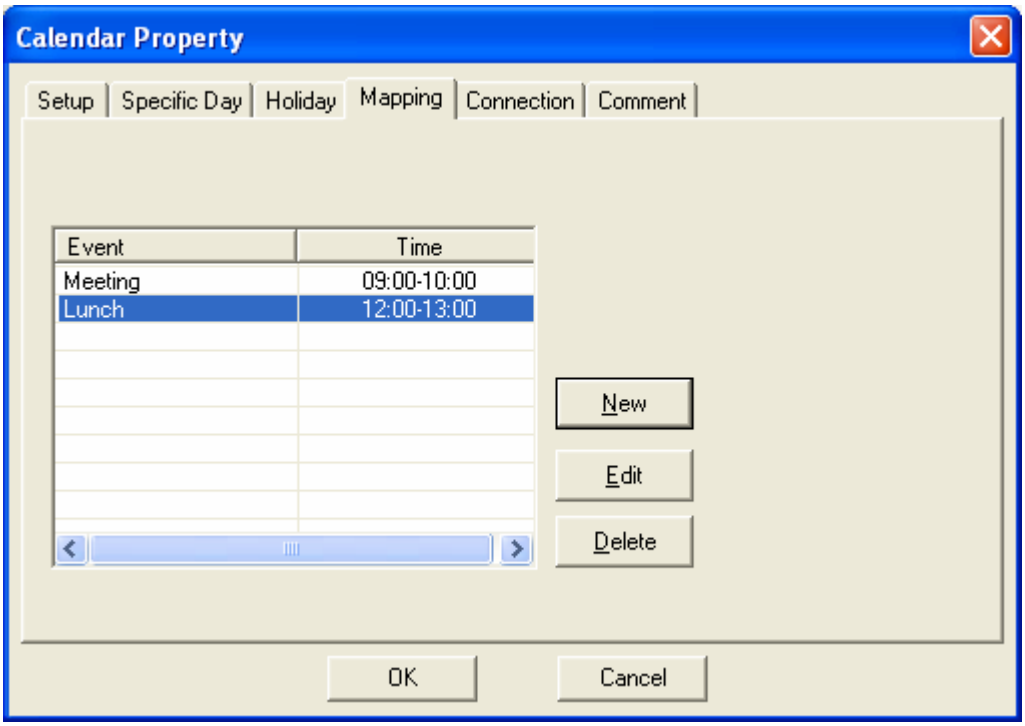
Holiday Tab

- Mark specific day as holiday



Mapping Tab

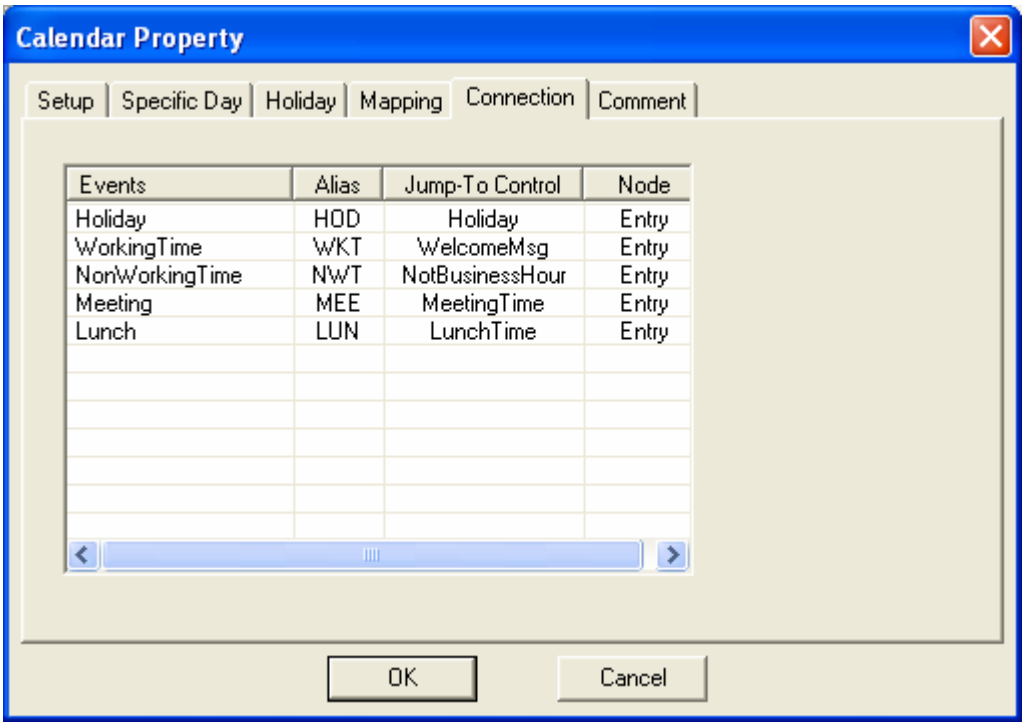
- Add custom schedule with associated time duration



Connection Tab

Custom schedule created in the Mapping tab is listed in Connection tab as events. By default, the following three events are displayed.

- WorkingTime: if the call time is within the scheduled working time then WorkingTime event handler is invoked.
- NonWorkingTime: if the call time is outside of working time then NonWorkingTime event handler is invoked.
- Holiday: If the day is configured as holiday then Holiday event handler is invoked.



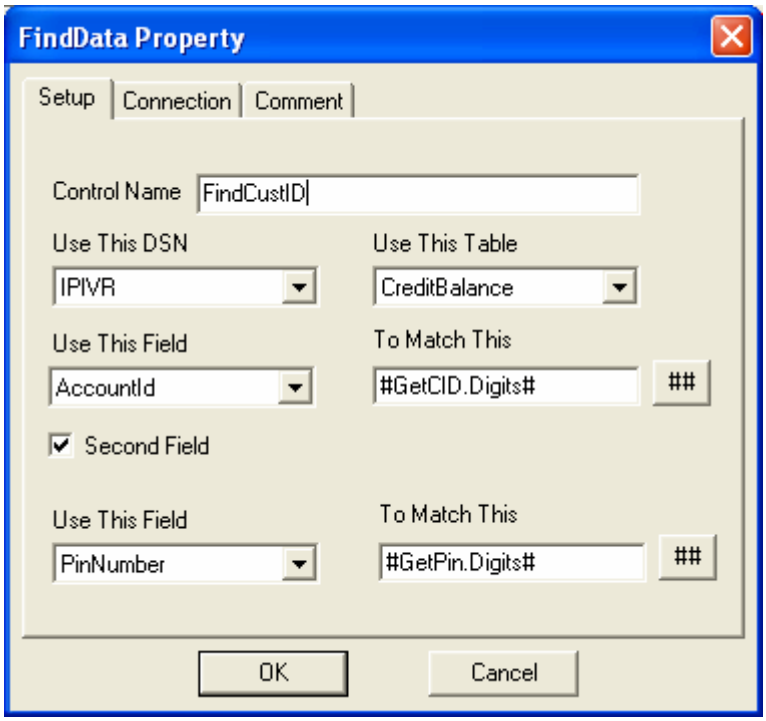
5.8 Find Data

The *Find Data* control searches for a record in the database with one or two fields. This control validates the caller's DTMF inputs or the data collected in other controls against the record found in the DB. The databases used to search the record must be configured in advance in the *Line Manager* control.

Setup Tab

- Use This DSN: Specify DSN configured in Line Manager
- Use This Table: Specify the table to search the data
- Use This Field: Specify the field in the table
- To Match This: Specify the value to validate against the DB record

- Second Field: check the checkbox to validate two values



Connection Tab

- Default events:
    - FOUND: If the data is valid, then the call exits the control with *Found* event
    - NOTFOUND: If the date is invalid, the call exits with *Not Found* event

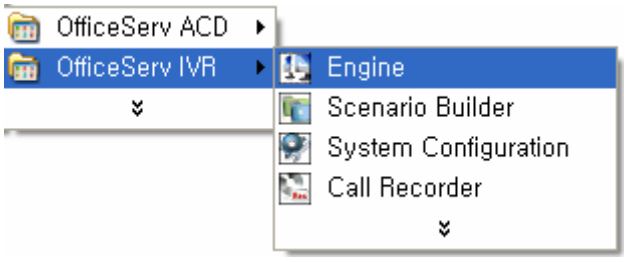
5.9 On Hook

The On Hook control disconnects the call.

6. IVR Engine

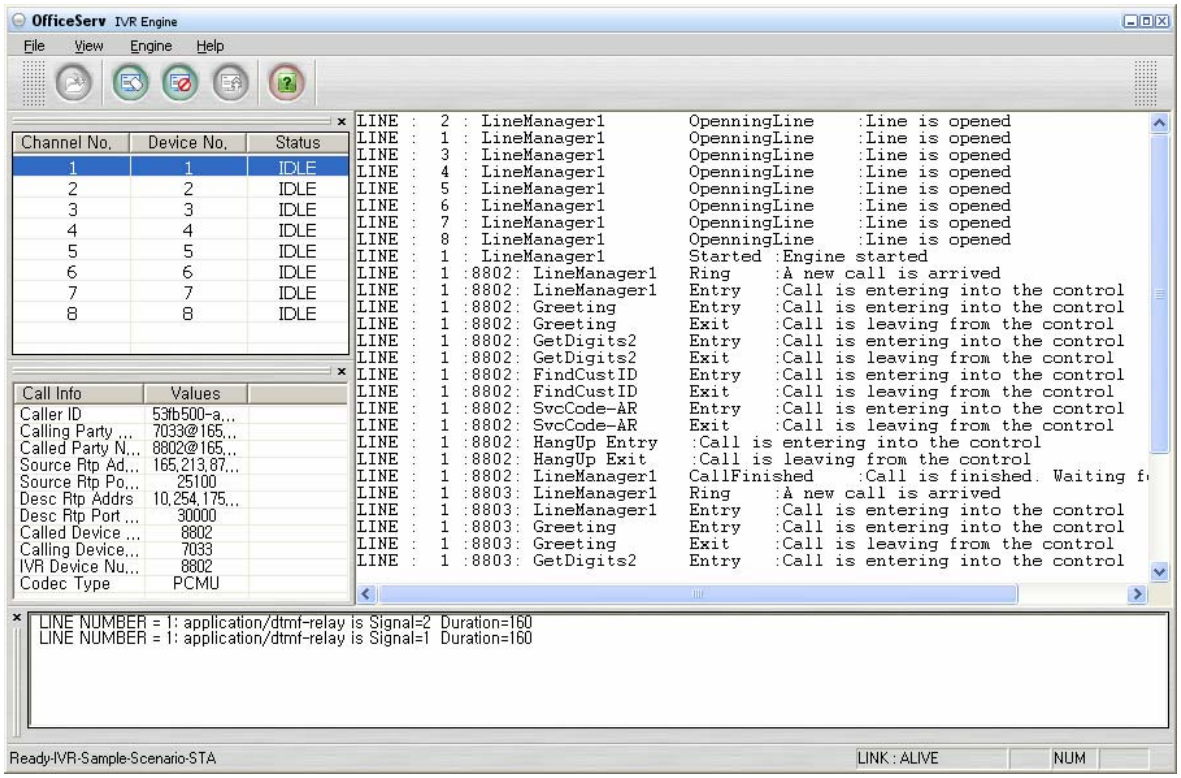
This chapter describes how to operate the IVR Engine.

From the Programs menu or desktop, start the IVR Engine.



IVR Engine program consists of multiple windows

- Line Detail Window – displays the status of IVR ports (IDLE, BUSY, STOP)
- Call Detail Window – displays the details of a busy IVR port
- Call Flow Window – displays the scenario flow of IVR call
- Output Window – message from Engine (e.g. DTMF touchtone input)



The menus of IVR Engine are the following

Menu		Description
File	Reload	Reload IVR scenario
	Open	Open IVR scenario from the folder
	Download from DB	Download IVR scenario from DB
	Recent File	Recently loaded IVR scenario
	Exit	Exit the program
View	Toolbar	Open/Close Toolbar
	Status Bar	Open/Close Status Bar
	Line Detail Window	Open/Close Line Detail Window
	Output Window	Open/Close Output Window
	Call Detail Window	Open/Close Call Detail Window
Engine	Start	Start the Engine with scenario
	Stop	Stop the Engine
	Update	✓ Dynamic update of currently running scenario ✓ Available only when Engine is running
	Switch Status	✓ Displays the switch connection status (CONNECTING, STOP, FAIL, ALIVE) ✓ Available only when Engine is running
Help	About IVR Engine	Version and Date of Engine program,

[Table 8] Menus of Engine

To run the IVR, do the following

1. Download the scenario from DB or open from the folder
2. Check the ACD Server is running if IVR scenario is configured with ACD.
3. From File menu, start the Engine. If the connection to switch is successful, the IVR switch link status changes to *LINK: ALIVE*. Otherwise, the status changes to *LINK: FAILED*. If connection fails, check the settings of OfficeServ MMC or IVR.

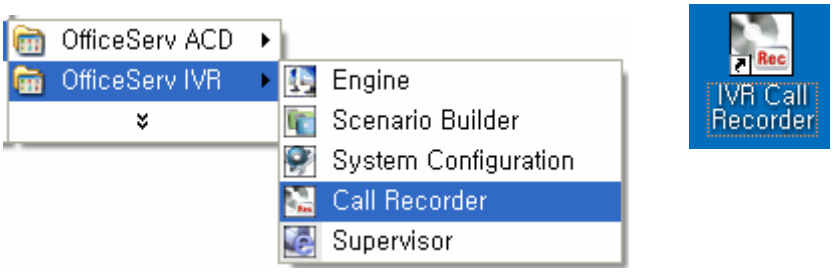
To update the scenario while Engine is running, press “File>Update”.

To stop the Engine, press “File>Stop”.

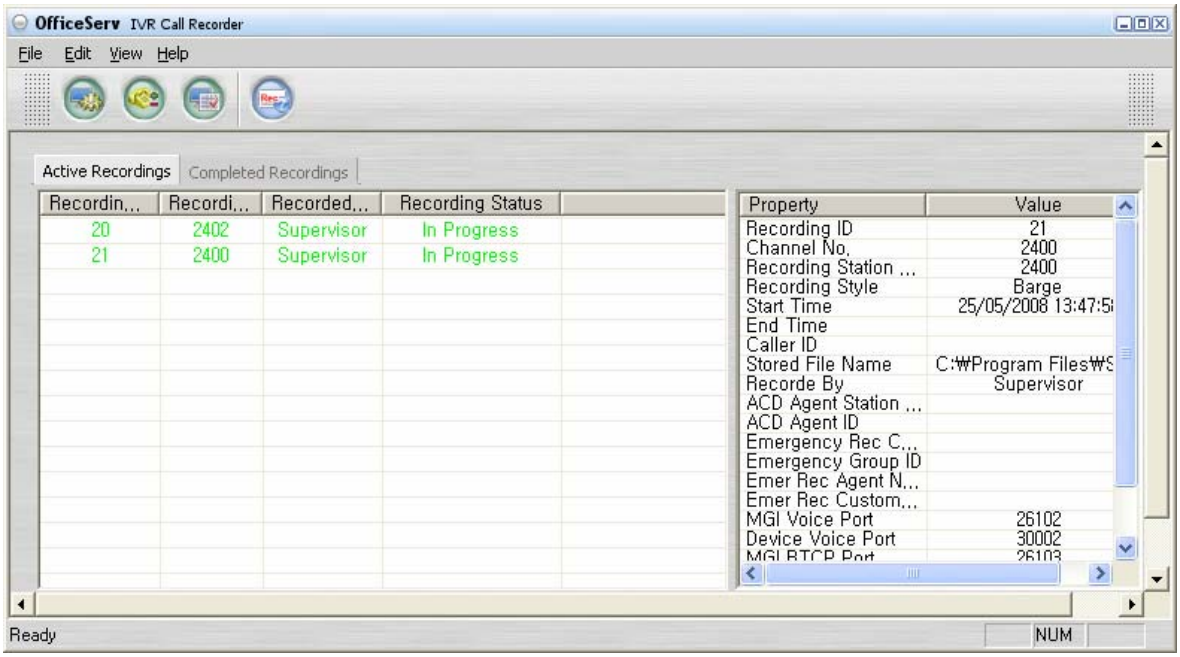
7. IVR Call Recorder

This chapter describes how to operate the IVR Call Recorder.

From the Programs menu or desktop, start the IVR Call Recorder.



IVR Call Recorder allows the user to register the recording device and browse the recording status and history.



Active Recording tab displays the list of current recording calls and call details. Completed Recording tab displays the list of recorded files. Table 9 illustrates the menus of Call Recorder.

Menu		Description
File	Exit	Exit the program
Edit	Recorder Settings	Color setting of Call Recorder
	Recording Device Information	Register/Edit/Delete recording device
	Column Selection	Select columns of Active Recording and Stored Recording tabs

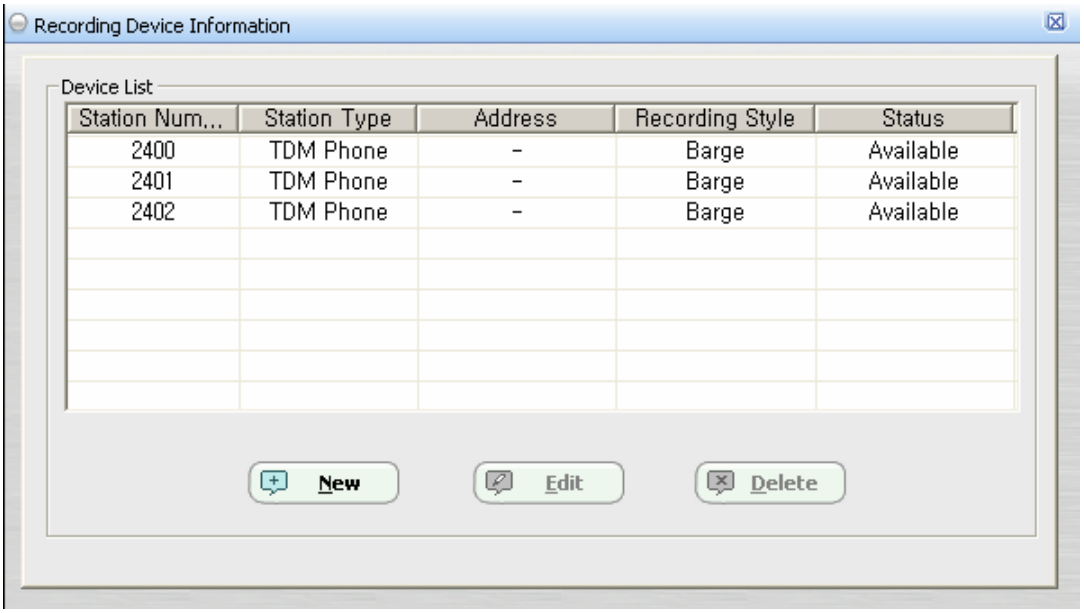
View	Toolbar	Open/Close Toolbar
	Status Bar	Open/Close Status Bar
Help	About IVR Engine	Version and Date of Engine program,

[Table 9] Menus of Call Recorder

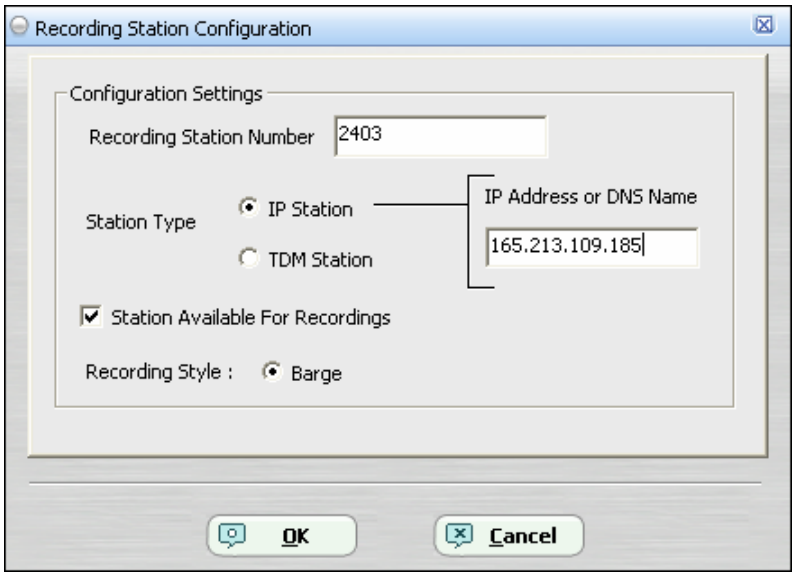
7.1 Managing Recording Device

The user can register a new recording device in Call Recorder or Supervisor.

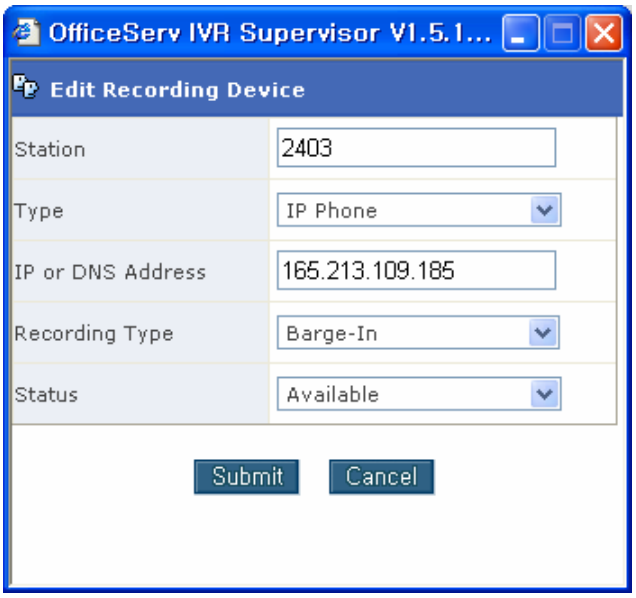
1. open Recording Device Information Window from Edit menu.



Press New button then Recording Station Configuration Window is displayed. Enter the extension number, station type (IP or TDM), IP address, and check the Availability.

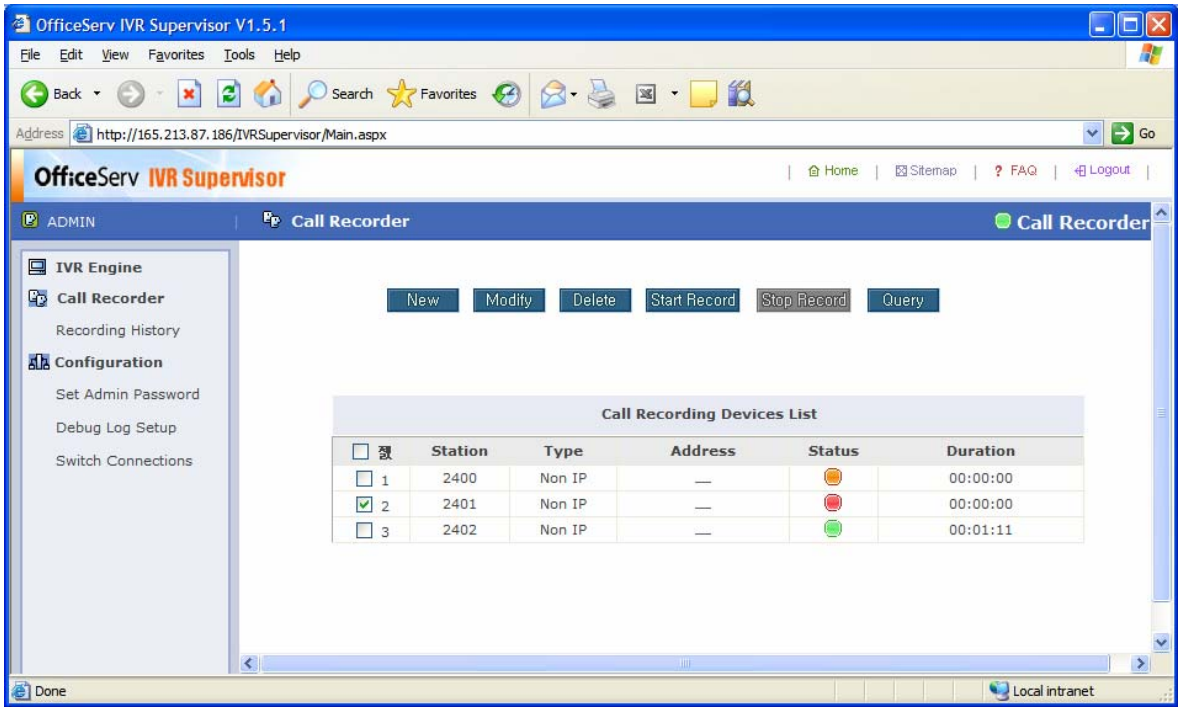


2. From the Call Recorder page of IVR Supervisor, press “New” button.



The user can modify/delete the recording device in Call Recorder or Supervisor

1. From the Recording Device Information Window, choose the device and press “Edit” or “Delete” button.
2. From the Call Recording page of Supervisor, choose the device and press “Modify” or “Delete” button



7.2 Recording Conversation

The user can record the conversion in ACD Agent or IVR Supervisor.

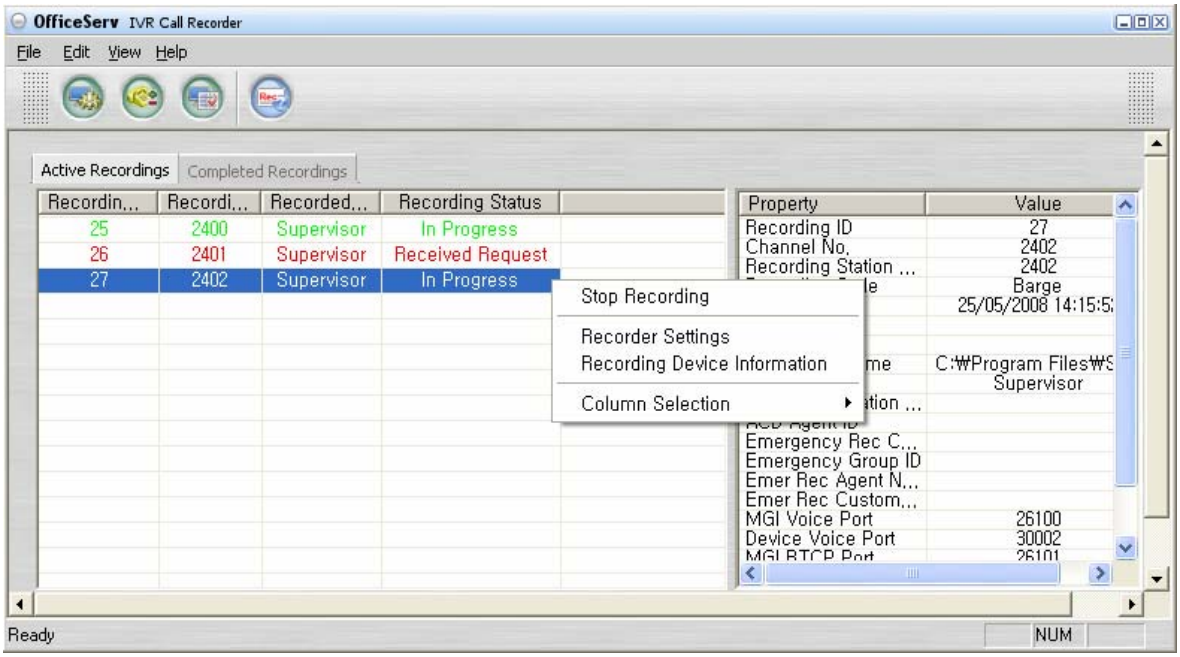
1. While conversation is on-going with Agent phone, press Recording Request button  from the toolbar.
2. From the Call Recorder page of IVR Supervisor, choose the device to record the conversation and press “Start Record” button.

The Recording status can be monitored in Call Recorder of IVR Supervisor

1. In the Active Recording tab of Call Recorder, Recording Status column displays “In Progress”
2. In the Call Recorder page of Supervisor, the status icon of the device changes from “Red” to “Green”.

The user can stop recording in ACD Agent, IVR Call Recorder or IVR Supervisor.

1. When conversation is over, call recording stops automatically
2. In the Active Recording tab of Call Recorder, choose on-going recording and press the right-click menu. Select “Stop Recording”

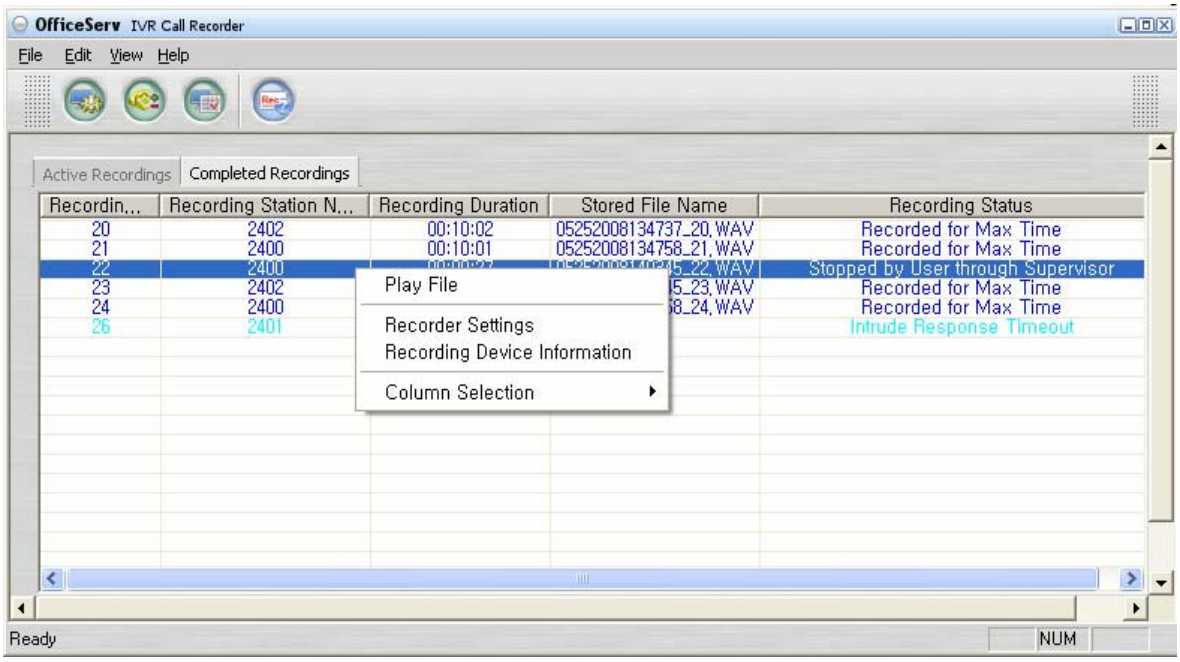


3. From the Call Recorder page of IVR Supervisor, choose the device to record the conversation and press “Start Record” button.

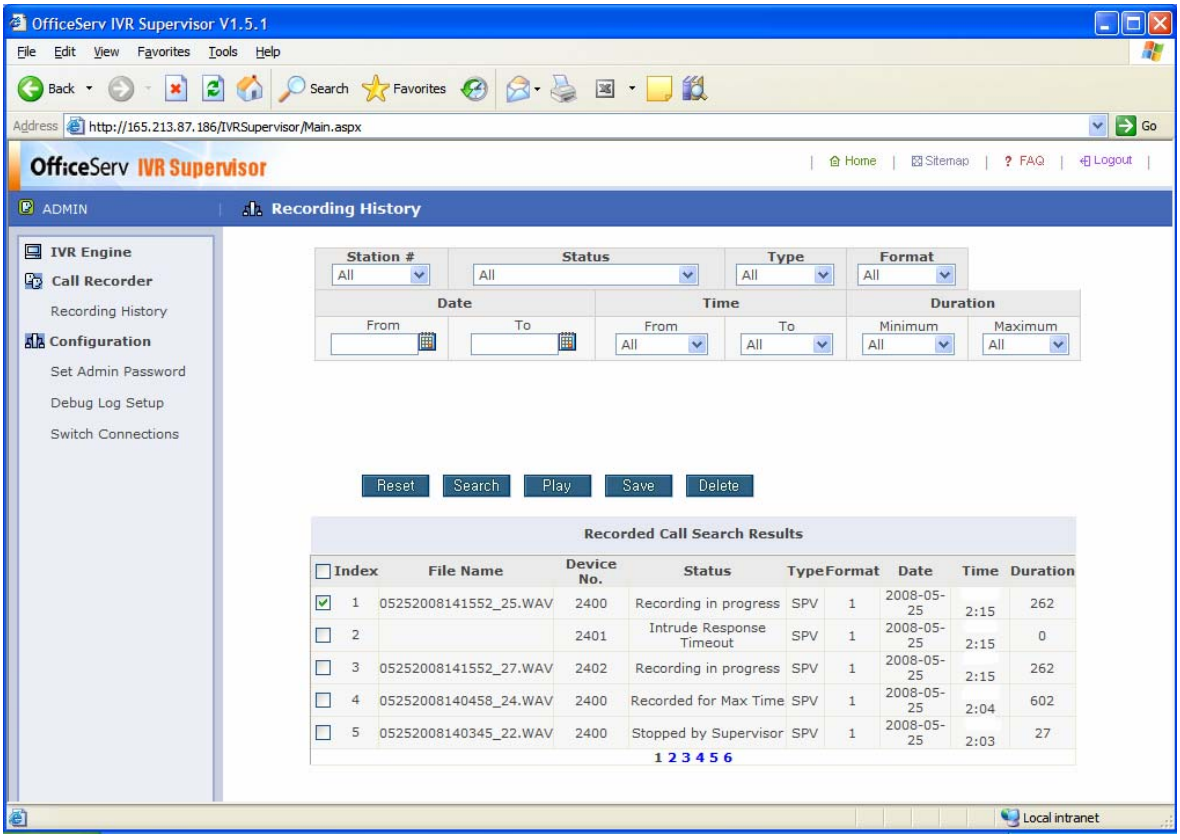
The user can search or listen to the recording files in Call Recorder or Supervisor

1. In the Completed Recording tab of Call Recorder, choose a completed recording and

press the right-click menu. Select “Play File”

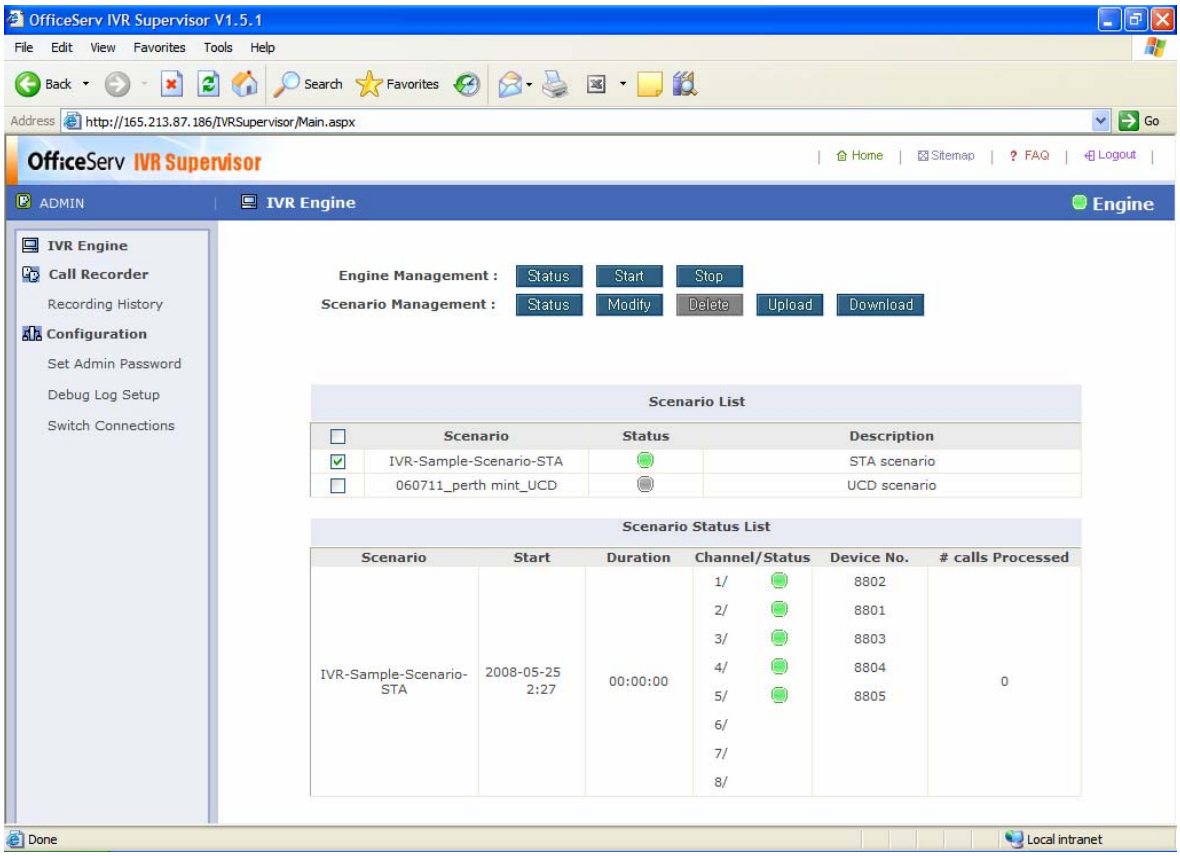


2. From the Recording History page of IVR Supervisor, choose the device to play the file.



8. IVR Supervisor

The IVR Supervisor allows the user to administer and operate the IVR Engine and Call Recorder. The default login ID and password are admin/4321.



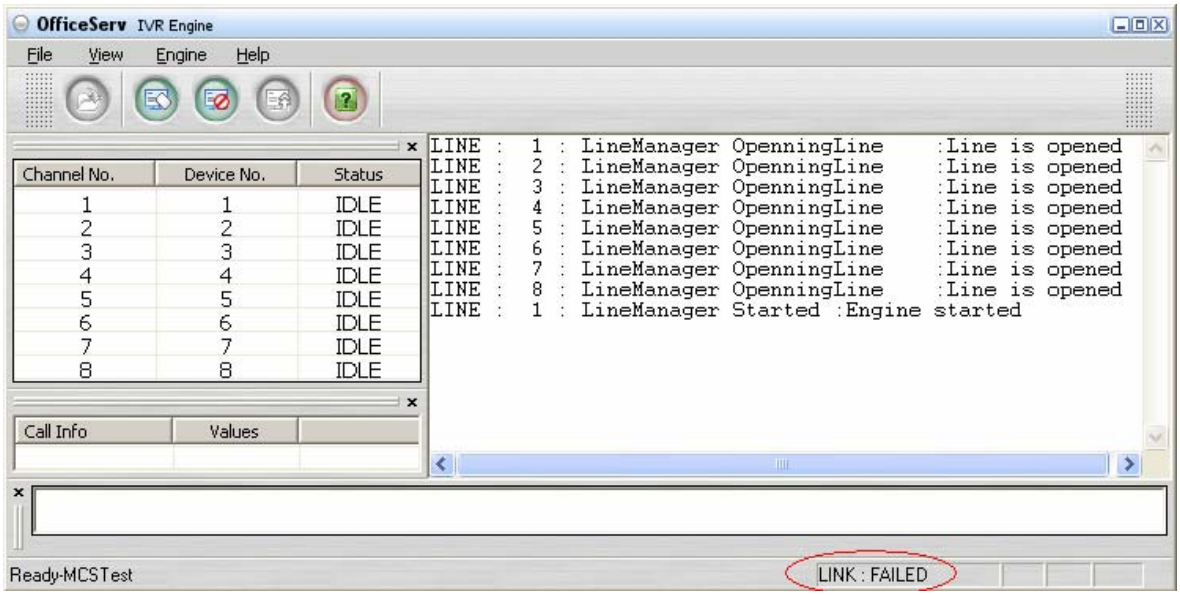
9. Trouble Shooting

This chapter describes how to resolve the IVR problems with configuration, component settings and Web related settings.

1. The Engine fails to connect to OfficeServ

I. Check if the MMC setting of OfficeServ is correct.

II. Check if the switch setting of System Configuration is correct



2. Cannot hear the voice messages

I. If the scenario voice messages are created with TTS, check if the TTS language pack is installed and properly configured in the System Configuration

II. Using the network packet capture program (e.g. Ethereal), capture the udp packets from IVR Server and check if the RTP packets are sent properly to OfficeServ.

3. Unable to start any scenario from the Supervisor.

Scenario can be started only if the Engine status is displaying green in Engine and Scenario web page. If the status is red, then launch the Engine application to start a scenario.

4. Unable to start recording from the Supervisor.

I. Check if IVR Engine is running

II. Check if Call Recorder is running

III. Check if conversation is on-going with the device

IV. Check if the Network adaptor is configured properly in the System Configuration

V. Check if MMC 206 and 701 are configured properly

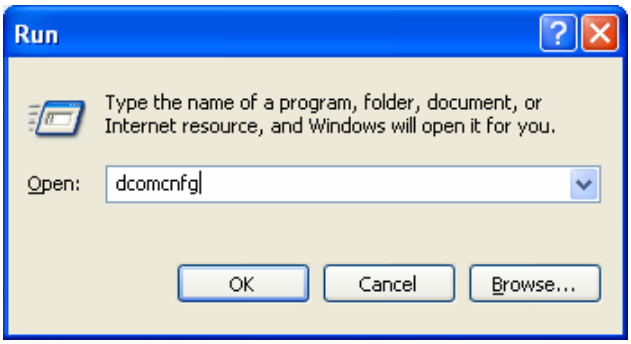
5. In Supervisor, Engine status is showing red even though the Engine application is running.

OR

In Supervisor, Call Recorder status is showing red even though the Call Recorder application is running.

By default, security permission for accessing, launching and activating the components are not configured for “INTERACTIVE, NETWORK and Everyone” Identities for the logged on user. The user needs to set these identities manually by using the program called DCOMCNFG. The settings of these identities are explained in step by step as the following.

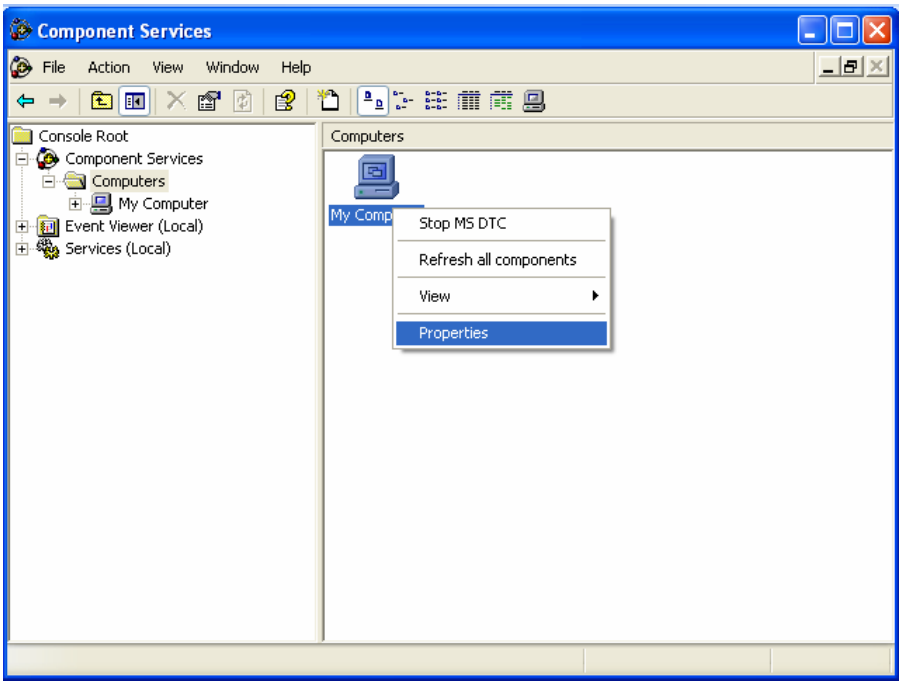
I. Go to **Start » Run** command, type “dcomcnfg” and click **OK** to open the Component Services as shown in the figure below:



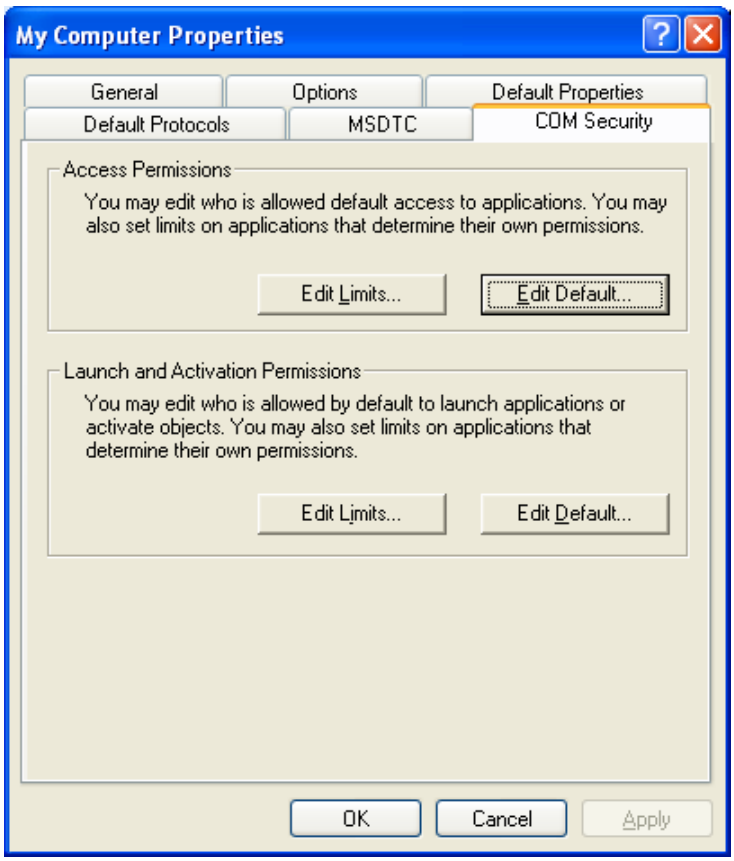
OR

From the **START** menu, select CONTROL PANEL » ADMINISTRATIVE TOOLS » COMPONENT SERVICES.

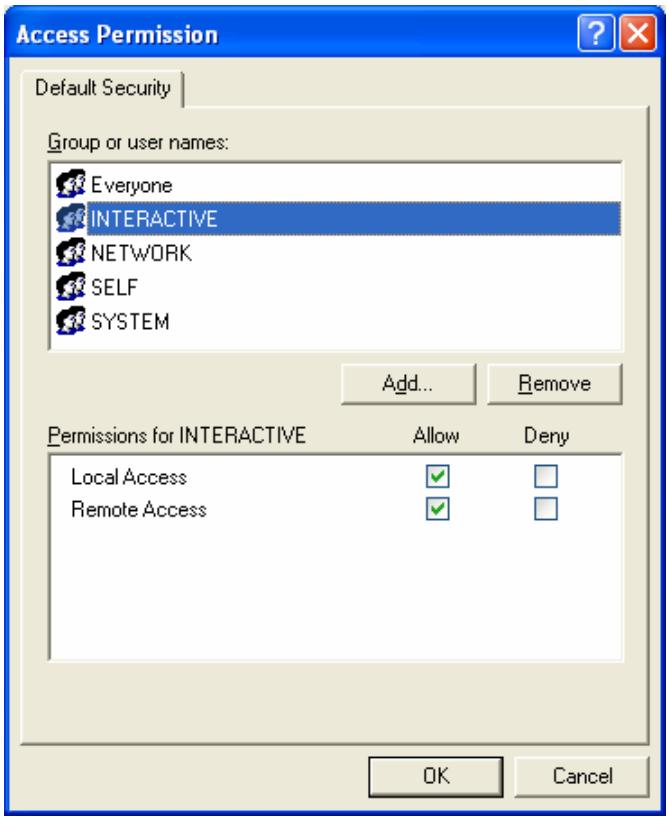
II. In Component Services, go to Component Services » Computers and right click on My Computer then select Properties as shown in the figure below: The user may be prompted to keep blocking the program MICROSOFT MANAGEMENT CONSOLE. If so, click on the UNBLOCK or ASK ME LATER button.



III. In My Computer Properties, go to COM Security tab and click on Edit Default button of Access Permissions as shown in the figure below:

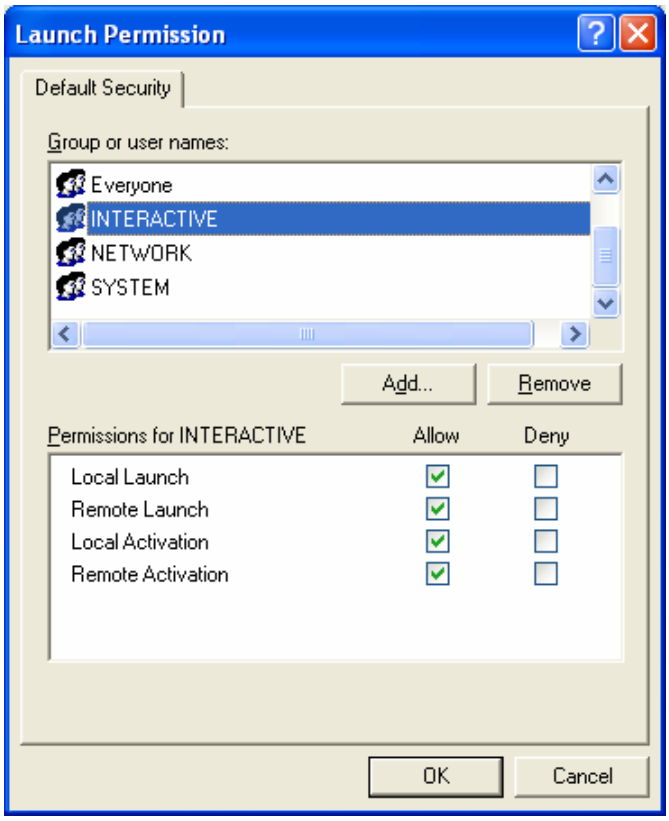


IV. Add INTERACTIVE; NETWORK and Everyone group names in the Default Security tab with all the access permission. To add INTERACTIVE, Click on the ADD button, then type in the phrase INTERACTIVE and press OK. Highlight INTERACTIVE then check the LOCAL ACCESS and REMOTE ACCESS boxes under ALLOW column as shown in the figure below. Repeat the same steps for adding NETWORK and Everyone names.



V. Adding Launch permission, go to COM Security tab and click on Edit Default button of Launch and Activation Permissions

VI. Add INTERACTIVE, NETWORK and Everyone group names in the Default Security tab with all the permissions To add INTERACTIVE, Click on the ADD button, then type in the phrase INTERACTIVE and press OK. Highlight INTERACTIVE then check the LOCAL LAUNCH, REMOTE LAUNCH, LOCAL ACTIVATION and REMOTE ACTIVATION boxes under ALLOW column as shown in the figure below. Repeat the same steps for adding NETWORK and Everyone names:



VII. Finally, click on **Apply** and **OK** of **COM Security** tab of My Computer Properties.

VIII. Close all running IVR modules (Engine, Scenario Builder, Call Recorder, System Configuration and Supervisor) Run Service, from the START menu, select CONTROL PANEL » ADMINISTRATIVE TOOLS » SERVICES. Select IPIVRService and restart it.

IX. The user can start performing web management from Supervisor module.

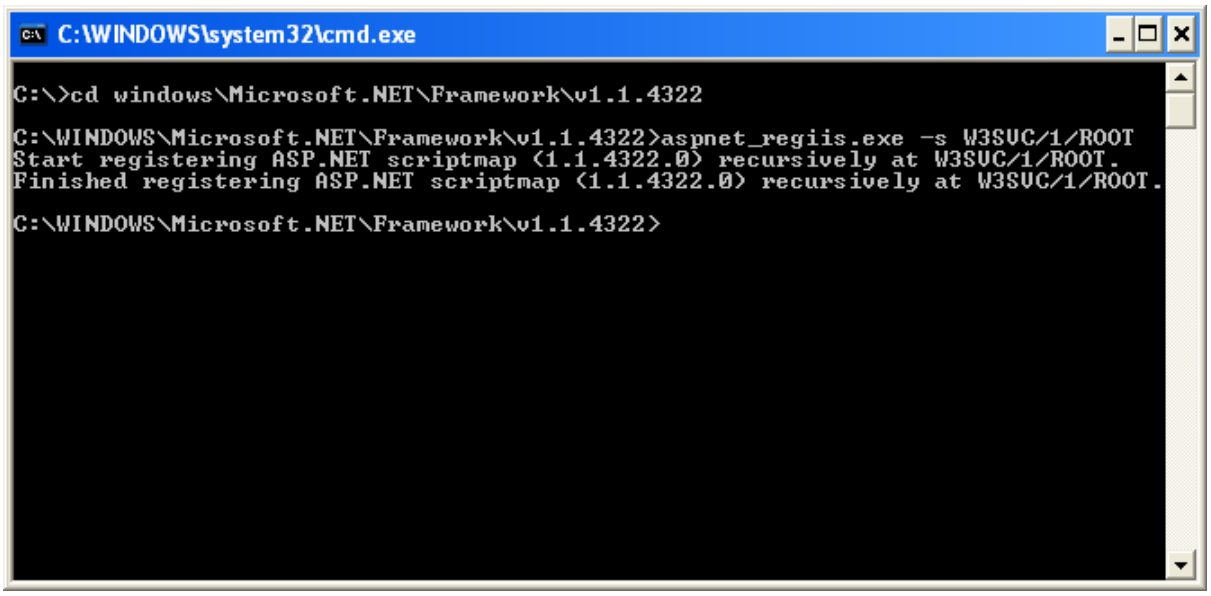
6. ASP.Net Version confliction with other web application, so Supervisor web pages are shows errors.

Usually, this occurs in Windows 2003 Server due to more than one ASP.Net versions are available and used by other web application. IVR Supervisor is compatible with ASP .NET version 1.1.4322. When IVR package is installed, by default ASP.NET version 1.1.4322 is set to the IVR web site. ASP.NET conflicts occur if the any other web site uses other than ASP.NET version 1.1.4322. To resolve this, all the web sites need to be set to use ASP.NET version 1.1.4322. The steps are given below for setting the all sites version to 1.1.4322.

I. Open the Command Prompt, go to the directory

"**\windows\Microsoft .Net\Framework\v1.1.4322**"

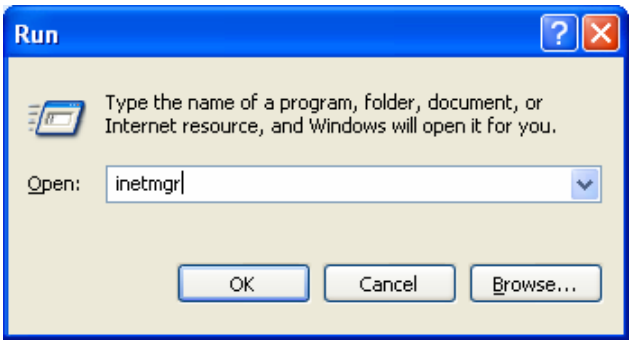
II. Run the "**aspnet_regiis.exe –s W3SVC/1/ROOT**" command as illustrated in the figure below:



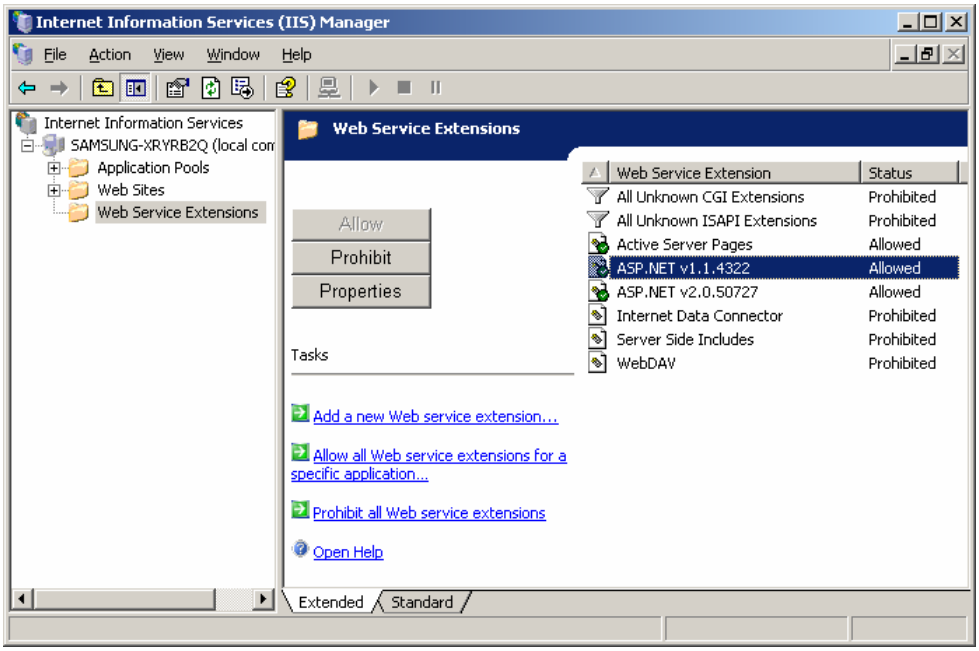
7. HTTP Error 404 – File or Directory Not Found – Internet Information Server (IIS).

This problem occurs in Windows 2003 server due to the settings in the IIS not given the permission to execute ASP.Net. To trouble shoot this problem, perform the following steps:

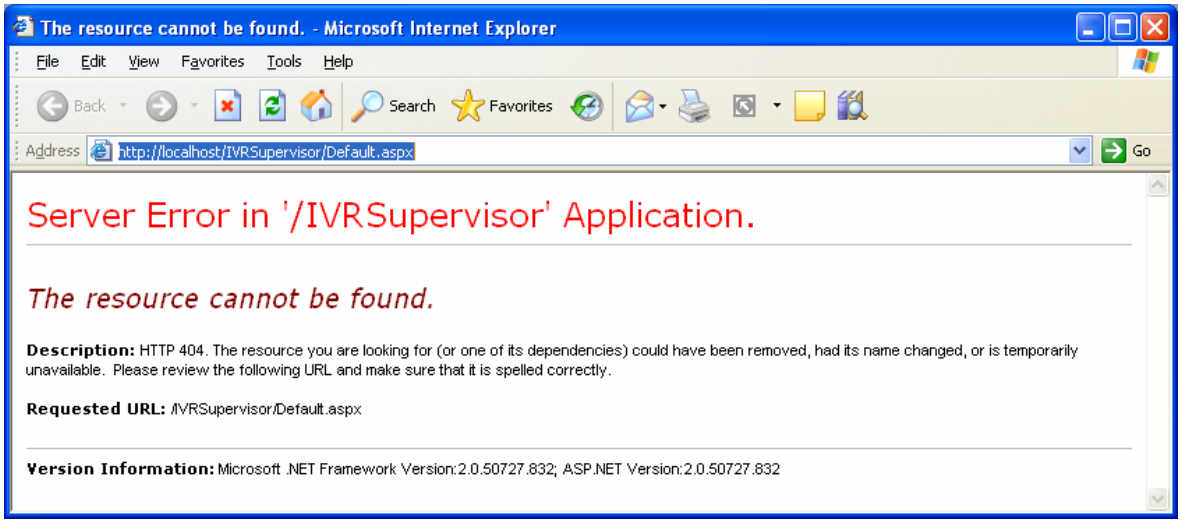
I. Go to Start » Run command, type "**inetmgr**" and click **OK** to open the IIS Manager as shown in the figure below:



II. In the IIS Manager, select the Web Service Extensions and on the right side pane set the status of ASP.NET of particular version configured for an web application to **Allowed** as illustrated in the figure below:



8. Server Error in '/IVRSupervisor' Application

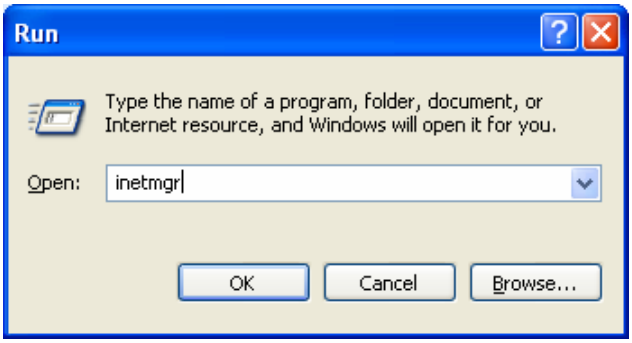


This problem occurs due to the following reasons:

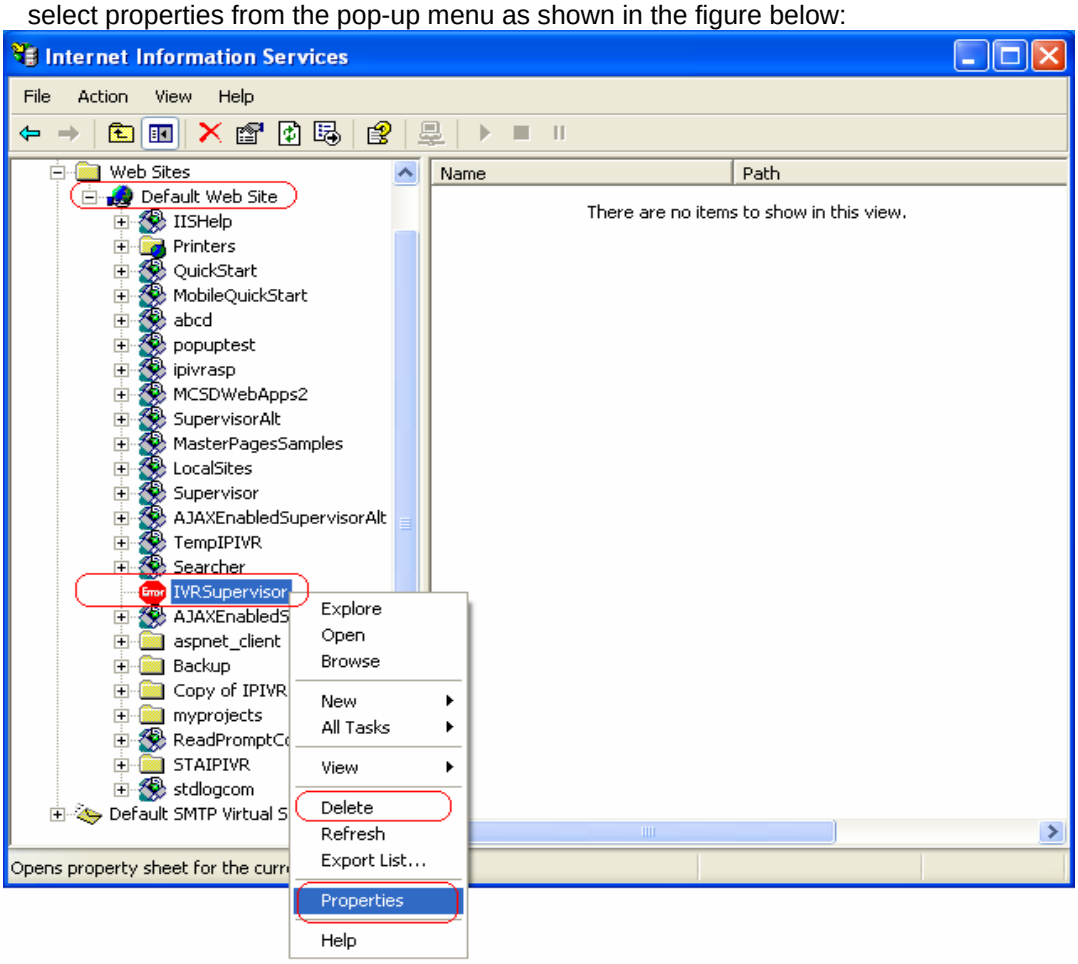
When the requested Page or the directory itself not found in the path on which the Virtual Directory "IVRSupervisor" is been configured **OR** the virtual directory was already present configured with different path before installing the setup.

To trouble shoot this problem, perform the following steps:

I. Go to Start » Run command, type "inetmgr" and click OK to open the IIS Manager as shown in the figure below:

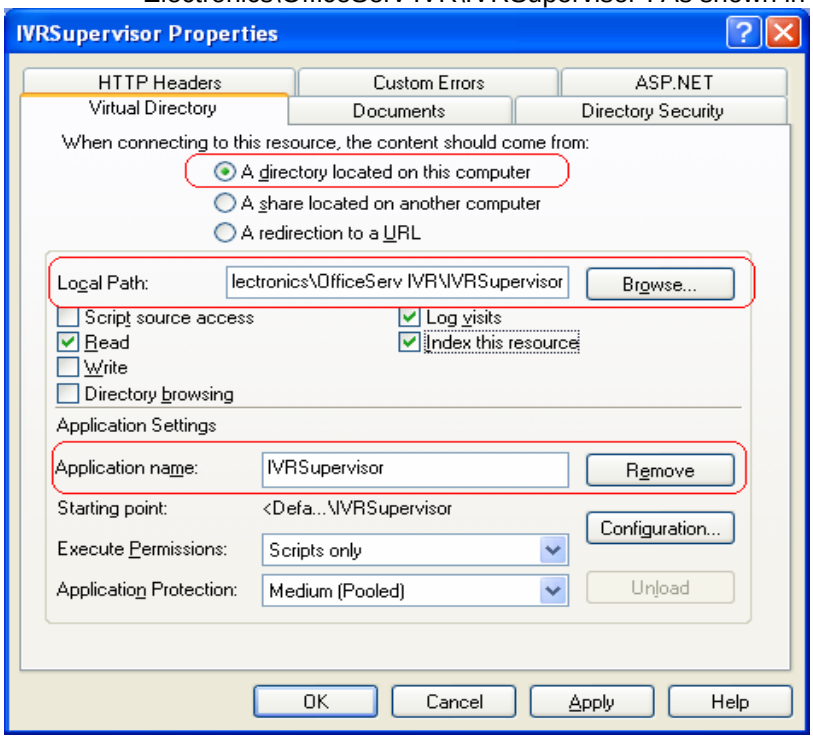


II. Then expand the “Default Web Site”, right click on “IVRSupervisor” virtual directory and select properties from the pop-up menu as shown in the figure below:



III. In the “IVRSupervisor properties” window, select the virtual Directory tab (which is a default tab when we open the properties window). Make sure that “A directory located on this computer” option is been selected and see the path displayed in the “Local Path:” textbox is “<IVR Installed Root>\ Samsung Electronics\OfficeServ IVR\IVRSupervisor”. If it has configured to some other location then click on browse button and map it to the following location “<IVR Installed Root>\ Samsung

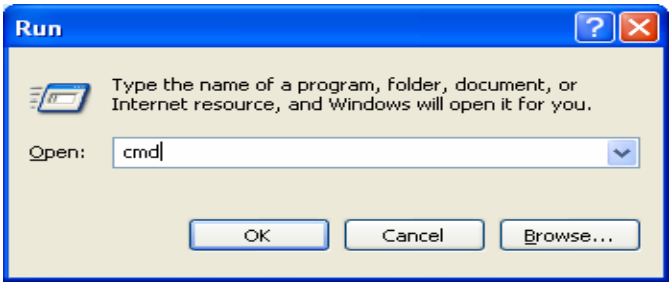
Electronics\OfficeServ IVR\IVRSupervisor". As shown in the figure below:



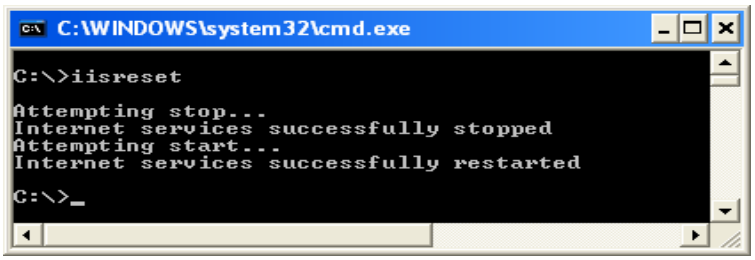
If "IVRSupervisor" folder not present in the Installed root location then it might have got deleted, so reinstall the IVR setup and make sure you delete the existing virtual directory before reinstalling the setup. To delete virtual directory right click on the virtual directory "IVRSupervisor" in IIS as shown in the figure of step II, and click on delete option from the pop-up menu.

Incase, if "IVRSupervisor" folder exists even then you are facing the problem then IIS might have not restarted properly after the IVR setup has completed successfully. So to restart IIS follow the below steps and try accessing the web site then it should work fine.

a) Go to Start » Run command, type "cmd" and click OK to open the Windows command prompt as shown in the figure below:



b) Then type *iisreset* and press enter key to restart the IIS. As shown in the figure below:



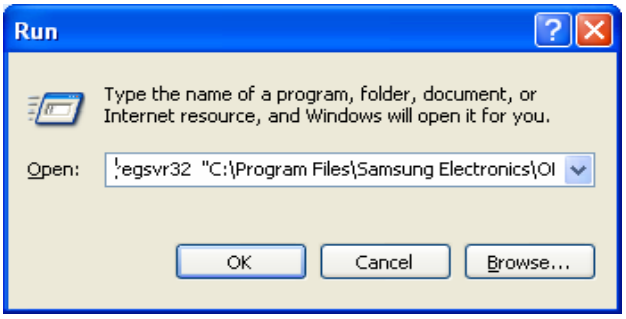
9. PrjIVRLicense.dll not registered.

This problem occurs if the PrjIVRLicense.dll is not registered properly by the setup. To troubleshoot this problem follow the below steps:

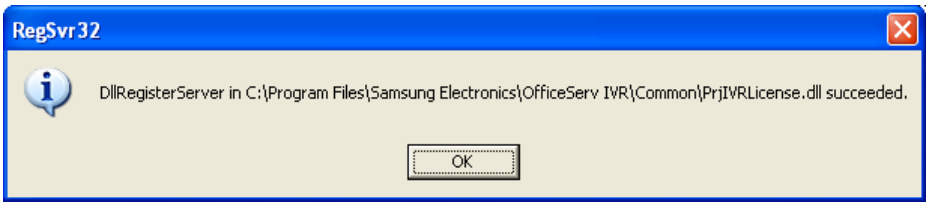
I. Go to start-> Run and type the below text:

regsvr32 “<IVR Installed Root>\ Samsung Electronics\OfficeServ IVR\Common\ PrjIVRLicense.dll”

After typing the above text in run command click on OK button as shown in figure below:



II. After clicking OK button a succeed message should be displayed as shown in the figure below:



If succeed message is not displayed and a failed message displayed then you might have not entered the path of the dll file properly or make sure the dll file present in the directory. If dll file not present in the above specified path then it might have got deleted, so you need to reinstall the IVR setup.

10. Steps to remove the old IVR Database if exists.

Installer prompts the user to remove the old IVR database during installation process. However, if installer is failed to remove the old DB then user needs to remove the old Database manually and configure new Database using IVR System Configuration application.

I. Login to SQL server instance using SQL server management studio tool.

II. Locate and select the IPIVRDB database, right click and select delete option from the pop-up menu to delete the database.

OR

I. To delete and configure the IVR Database close all the application to make sure the IVR DB is no longer in use and launch the IvrDBConfig.exe application which will be present in the following location : <IVR InstalledRoot>\ Samsung Electronics\OfficeServ IVR\Common\IvrDBConfig.exe.

II. After keying the valid server and login details, IvrDBConfig application will prompt the user to remove the old IVR Database then select yes to continue deleting the old database and create the new one.

11. Kindly send the following (I-IV are required for all errors) to contact Samsung for help with trouble shooting

I. Error description with helpful images/error messages
   A. Caller's Number
   B. IVR Port Number
   C. ACD Agent Number
   D. ACD Queue Port Number, etc.

II. IVR Scenario

III. Increase the Corresponding module's log level to 5 and send the log under %IVR_HOME%\MODULE\log.

IV. Ethereal log file of IVR Server

V. If running with ACD, ACD Server log located under %ACD HOME%\Server\log, Link log under %LINK HOME%\log and ACD DB

VI. If the error is related to Recording request from Agent, Agent log under C:\temp and %ACD AGENT HOME%\log