User Guide 5.2

SmartQ User Guide

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Preface

This User Guide

SmartQ is an incredibly flexible and powerful tool that can be used to create a wide variety of automated telephone survey solutions. For simple projects, the tutorials in this manual should be sufficient. For more help with advanced features and functions, you may need to refer to the TeleSage website (`www.telesage.com`).

This user guide is set up to get you started on the basics, then to move on to more advanced topics as you need them. Section titles marked with "(Advanced)" indicate features that require advanced knowledge of software (especially databases).

Throughout this user guide, you may be presented with tips other important information in boxes with the labels ***TIP***:, ***NOTE***: or ***IMPORTANT***:.

> ***IMPORTANT***: You should read this!

The font and style of text assist you in understanding what is being referred to.

- Items in SmartQ's graphical user interface are printed in bold in this manual (such as "the **Survey Design** screen" or "the **Stop Calls** button").
- The first time that terms are defined, they are shown in italics (such as "The *lead survey* is the survey which collects information about a caller…").
- Filenames, directories, URLs, the values of variables and text from files are shown in the Courier font (such as "save the `ivr.ini` file to …").

The manual uses a shorthand notation to represent the selection of a menu or pull-down list item by first indicating the name of the menu and then the item on the menu. In the case of a hierarchical menu, the entire "path" of the menu hierarchy is indicated. For example, **File > Save As…** represents pulling down the **File** menu and selecting the **Save As…** menu option.

Help within SmartQ

Getting the Pull-Down Help Feature

If at any time you need assistance within SmartQ, select **Help > Contents and Index**. You can quickly locate information using an index or browse through topics to find what you need.

Getting Help in a Dialog

A *Tooltip* is text that appears highlighted in a yellow box to give you more information about something. They appear when you point to something with the cursor of your mouse without clicking any buttons on the mouse (also called “hovering”).

To turn the Tooltip feature on or off, check or uncheck the **Show Tooltips** checkbox on from **Preferences** pull-down menu on the **Survey Design** or **Data** screens.

Getting Started

What is SmartQ?

The TeleSage SmartQ product line aims to increase the efficiency and affordability of gathering and disseminating information over the telephone. SmartQ do-it-yourself-software enables you to automate solutions for your survey, interview, research, hotline, and communications needs.

SmartQ surveys can gather numeric or spoken information and can relay information tailored to the individual caller. The results of telephone calls are instantly stored (and scored) in a standard database, ready for analysis or automated reporting to third parties.

The standard SmartQ system includes a Survey Designer that makes it easy to create complex surveys which can perform database lookups, calculations and conditional branches. There are optional packages you can purchase for SmartQ which add further functionality. These packages are covered in later sections of this manual and include:

- *Standard Dialer* is an ideal solution for batch call-out jobs with set lists of phone numbers, dialing times and conditions.
- *Advanced Dialer* allows for more complex and flexible call-out jobs that need to calculate phone numbers, dialing times or conditions dynamically.

If you are interested in these additional features, contact TeleSage for pricing options and installation instructions.

SmartQ Product Levels and Optional Features

SmartQ can be purchased in two different configurations: *Professional* (the standard level of operation) and *Custom* (a level which allows you to customize special features). Text in this manual containing the words "[Custom only]" indicates functionality which is only to be found in the Custom level of SmartQ.

SmartQ also has several optional features that can be purchased to enhance its functionality. The names of these features will appear in square brackets in this manual to indicate when the text is referring to these additional features (such as [Standard Dialer]); alternatively, the section of text may just be labeled with the word [Optional].

System Requirements

• Computer: 100% IBM-compatible PC

• Operating Systems: Windows NT 4 SP5 (or greater), Windows 2000, Windows 2003, Windows XP, or Windows 7

• Mouse: Point-and-Click device required

• Drive: CD-ROM drive required for installation (unless downloaded from the internet)

• Display: VGA monitor and adapter (minimum 1024 x 768 resolution)

• Bus: One free PCI (or PCI Express) slot per four telephone lines or per T-1 span

• Voice Board: Dialogic PCI (or PCI Express) board

• Telephone: At least one standard telephone

• Telephone Lines: One ordinary analog line per Dialogic port or one T-1 line per Dialogic board

Memory Requirements

The memory required depends not on the number of surveys but the number of ports used. You should have a minimum of:

• 256 megabytes as a base requirement, plus

• 256 megabytes if you are using the dialer, plus

• 256 megabytes for every T1 (containing 24 lines).

For example, an in-bound-only system (one that only receives calls and does not call out) containing 8 ports should require a minimum of only 256 megabytes.

Hard Disk Requirements

One gigabyte of available hard disk storage should be sufficient for most purposes, even with several dozen surveys.

Storage requirements for surveys that use touch-tone responses is minimal, generally about 1K per survey. Open-end responses consume more space, usually about a megabyte every two minutes.

Voice Board and Drivers

Set up your phone lines and your voice board first. Instructions for setting these up should be included with the voice board you purchased. SmartQ-specific instructions begin on the next page in this manual.

The voice board and drivers must be installed and configured before you begin installing SmartQ. Install all drivers in SmartQ's default directory.

SmartQ will only work with the Dialogic line of voice boards. The D/4PCI-UF, D/4PCI-US and D/240JCT-T1 are recommended and are available for purchase from TeleSage.

Please see Appendix D in this manual if you are using, or are considering using, T-1 boards.

Software

Microsoft Access is recommended, but not required, for use with SmartQ.

Installing Your Dialogic Voice Board

Quick Tip

If you have already installed the Dialogic drivers, make sure that the Dialogic Configuration Manager Service Startup Mode is set to **Automatic**.

Hardware

Install your voice board into the computer on which SmartQ will run. Any PCI slot will work. If you are unfamiliar with the installation procedure, please see the installation documentation that accompanies your Dialogic card.

Software

The Dialogic installation disk contains 4 install folders. Find the board you have from the list below and run the setup.exe file from the folders listed. Make sure you reboot the computer after each component install.

For all SmartQ installations except those with a T-1 and ISDN, choose the TYPICAL installation.

D/4PCI-UF and D/4PCI-US

- Dialogic 6.0 Install (choose TYPICAL installation)
- Dialogic 6.0 SP1 Install
- Dialogic 6.0 PCI-U board support
- Dialogic 6.0 FP 1 Install

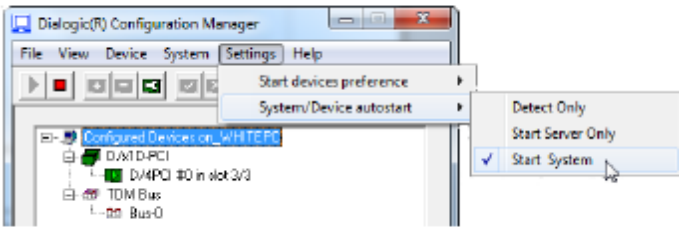
D/240JCT-T1

- Dialogic 6.0 Install (choose CUSTOM install and check the options ISDN Package and GlobalCall API Package)
- Dialogic 6.0 SP1 Install

WARNING: If you are using a PCI Express board, you must install System Release 6.0 instead of System Release 5.1.1 drivers which are sufficient for Conventional PCI boards.

Dialogic Configuration Manager

Now that you have installed your software and restarted your computer, open the Dialogic Configuration Manager by selecting **Program Files** > **Dialogic** > **bin** > **NCM.exe**



for System Release 6.0 or **Program Files** > **Intel Dialogic System Software** > **Configuration Manager - DCM** for System Release 5.1.1.

The critical setting for SmartQ to operate properly is located under the Settings menu in System Release 6.0, and the Service menu in System Release 5.1.1, where you need to select Startup Mode as Automatic (Dialogic System Release 6.0: **Settings** > **System/Device autostart** > **Start System**, Dialogic System Release 5.1.1: **Service** > **Startup Mode** > **Automatic**).

You are now ready to use SmartQ!

Installing SmartQ

SmartQ should begin to automatically install as you insert the SmartQ Install CD into your CD-ROM drive.

If SmartQ does not automatically install, follow these steps:

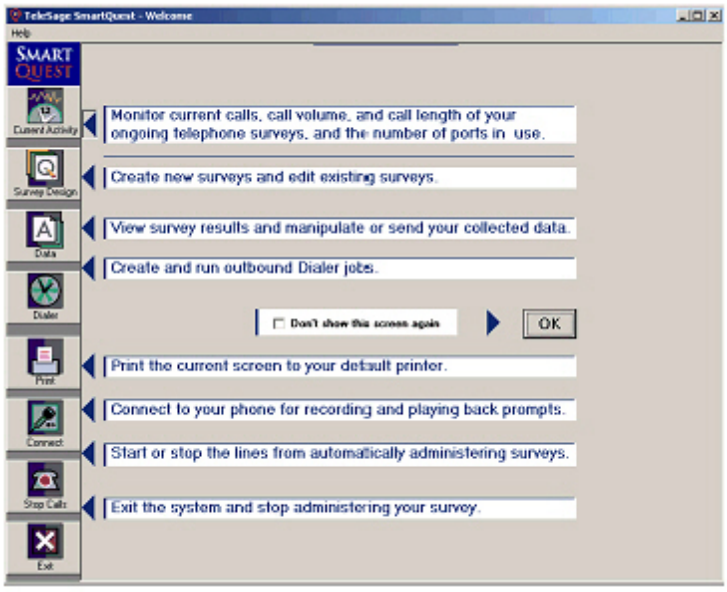
1. Insert the CD-ROM labeled SmartQ Install into the CD-ROM drive.
2. From the Windows desktop, select **Start** > **Explore**.
3. In Windows Explorer, double-click the CD-ROM drive (Default: D:).
4. Double-click the TeleSage SmartQ folder and then double-click the blue **Setup** icon.
5. Follow the Setup Wizard instructions for installing the files.
6. On the Setup Complete window, select **Yes, I want to restart my computer now**. Click **Finish**.

Launching SmartQ

From the Windows desktop, select **Start** > **All Programs** > **SmartQ** > **SmartQ** in Windows 7 or **Start** > **Programs** > **SmartQ** > **SmartQ** in Windows XP.

SmartQ Welcome Screen

The first time you open SmartQ, the SmartQ Welcome screen will appear highlighting the different screens you can access within SmartQ. The column of buttons on the left will remain visible while you use SmartQ so you can easily switch screens when you need to.



If you do not wish to see this screen each time you use SmartQ, check the box next to **Don't show this screen again**.

The guide is provided below to familiarize you with the different functions of the SmartQ screens at any time.

• **Current Activity**: Monitor current calls, call volume, and call length of your ongoing telephone surveys, and the

number of ports in use.

• **Survey Design**: Create new surveys and edit existing surveys.

• **Data**: View survey results and manipulate or send your collected data.

• **Dialer**: Schedule dialer jobs to administer your surveys automatically.

• **Print**: Print the current screen to your default printer.

• **Connect**: Connect to your phone for recording and playing back prompts.

• **Start Calls**: Start or stop the lines from automatically administering surveys.

• **Exit**: Exit the system and stop administering your survey.

How SmartQ Works

1. A caller makes a call to the phone connected to your PC.

2. SmartQ, your automated survey system, answers the call.

3. A survey you created with SmartQ will answer the call. This survey may contain all the questions you wish to ask. However, this survey may simply gather information that will route the caller to one of many different surveys you created with SmartQ. For example, the system can prompt the caller to enter one or more identification numbers, such as a survey ID, personal identification number (PIN), or a provider ID. If you are running multiple surveys, these responses will tell SmartQ which survey to run.

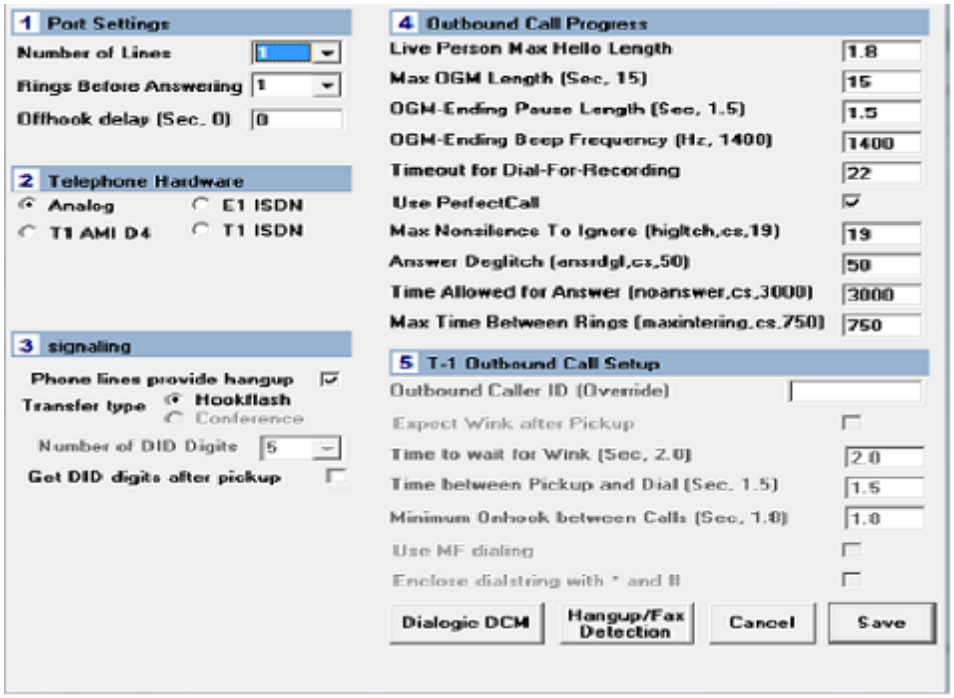
4. Using voice prompts, the system asks questions that the client answers using the touchtone keypad on the telephone.

5. The caller hangs up. SmartQ detects this and hangs up too.

6. SmartQ gathers the information from your survey and simultaneously stores it in a Microsoft Access database on your computer's hard drive. It is immediately available for easy export and analysis.

Phone Line Setup

When you start SmartQ or when you click on the **Current Activity** button, you will see a screen showing system activity. You will also see a list of the current line settings. To change any of these settings, click the **Change** button. This will bring up the **Phone Line Setup** window.



Line settings need not be changed unless you have T-1 lines or extra services on your phone lines. These are arranged into five groups.

1. Port Settings

• **Number of Lines** is set by default to the maximum number of lines you purchased. You can set the number of active lines to any number equal to or lower than the number of lines you purchased with SmartQ.

• **Rings Before Answering** is set to 1 by default. You can change this so SmartQ picks up and starts surveys after 1-4 rings. Set to 2 if you have Caller ID and wish to enable it.

• **Offhook Delay** is the number of seconds to delay before SmartQ starts playback of the first prompt. This setting is necessary because some telephone systems ring a phone before the audio path is ready and if playback were immediate, the caller would miss the beginning of the message.

2. Telephone Hardware

• **Line Type** is set to **Analog** by default. It can be switched to T-1 if that is the type of phone line you are using. Many of the other settings on this window will be enabled or disabled depending on the line type you choose.

3. Signaling

The options available to you under Signaling will depend upon the Telephone Hardware you have selected.

• **Phone Lines Provide Hangup**: SmartQ detects when a caller has hung up by detecting the presence of dialtone on the line. Some internal phone systems do not provide any sound when a caller hangs up. This makes it impossible to detect a terminated call easily. SmartQ provides the next best thing. If you do not check **Phone Lines Provide Hangup**, then if a caller does not respond in any way to a question, even after hearing the prompt

three times, SmartQ will assume that the caller has hung up. SmartQ will not treat invalid touchtones as a hangup, nor will any items that don't seek a response from the caller trigger a hangup.

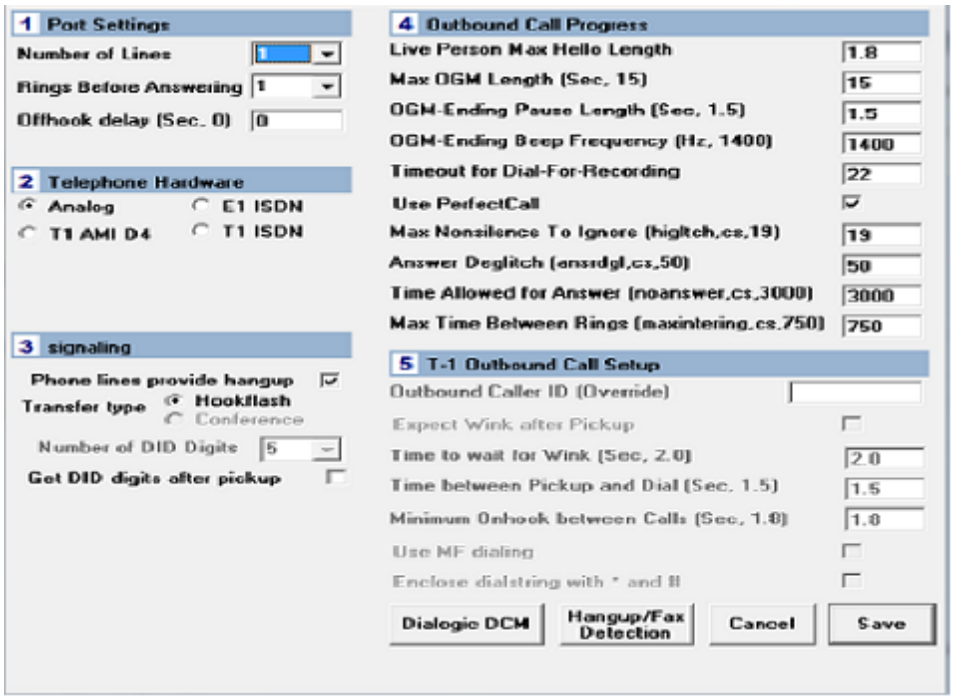
(Analog only)

• **DID Digits**: If you have Caller ID service and you want to collect the phone number of the caller, check the **Get DID Digits after Pickup** checkbox and enter the number of collected digits in the **Number of DID Digits** field and they will be recorded to the database.

(T-1 types)

• **Transfer Type**: To transfer a call on analog lines, SmartQ will issue a hookflash, dial the transfer number and hang up. Some T-1s with AMI D4 signaling do not support hookflash transfers. For these, select **Conference** as the transfer type. When you route a caller to another phone number (from the **Routing** tab in the Survey Designer), SmartQ will choose another unused channel, call the transferree with that channel and conference that channel with the original caller. Both channels remain in use until the conversation is finished.

• **Number of DNIS Digits**: Set to the number of DNIS digits that your T-1 delivers. DNIS is normally the phone number a caller dials to reach your IVR. A T-1 can be programmed to deliver all 10 digits or just the first 4 or 5.



(T-1 with AMI D4, T1 ISDN, E1 ISDN)

• **Get ANI-DNIS after pickup**: If you have an AMI D4 T-1, ask your T-1 provider to setup ANI & DNIS as DTMF digits after SmartQ goes off hook. Digits should be formatted as * ANI * DNIS *. Check this checkbox. SmartQ will parse the signal and save the ANI (caller ID) and the DNIS (dialed number) separately for you.

• **Initialize, Pick Up, Ring, Hang Up, Drop**: These are the robbed-bit signaling parameters. If your system doesn't answer or dial out, call TeleSage for help with these settings.

4. Outbound Call Progress

In order to set the **Outbound Call Progress** parameters properly, you should have a basic understanding of how SmartQ determines the results of a dialout operation:

1. The dialer goes off-hook, dials a number and listens.

2. The dialer establishes a cadence for the ring signal and then times the duration of the first sound that does not fit the pattern of the ring signal. This is called the salutation. It is either the words of the person or machine answering the phone, or some other signal generated by the phone system.

3. When establishing the cadence of the ring signal, SmartQ can detect rising tri-tone operator intercept and busy signals.

You can change the parameters used in the algorithm that guesses who is answering the phone. The duration of the salutation is used to determine whether a person, an answering machine or voice mail answered the phone: the assumption is that a person answering will say one or two words, while a machine will deliver a much longer greeting.

- **Live Person Max Hello Length** is the maximum number of seconds it is assumed that a live person (rather than a pre-recorded message) would speak before stopping and waiting for a response.

- **Timeout for Dial-For-Recording** is how long SmartQ will wait for a call to be answered and an audio response to be registered after you press the Connect button.

- **Max Nonsilence to Ignore** is used to filter out clicks, beeps, etc. Any sound of duration shorter than this time (measured in 100ths of a second) will be ignored. If you suspect that your phone line is carrying extraneous sounds longer than this setting, increase the value.

- **Answer Deglitch** is used to account for the normal breaks in the stream of speech, such as between words or during plosive consonants like “t” or “k.” The default of 50 (measured in 100ths of a second) will allow a half-second break without considering the greeting terminated. If you think you are receiving longer breaks (for example between a voice mail tone and the beginning of a greeting) increase the setting.

- **Time Allowed for Answer** is the length of time (measured in 100ths of a second) allowed between beginning of dial out and the end of the salutation. The Time Allowed for Answer setting in the Dialer job definition also supplies this parameter; in operation, the actual time permitted is whichever of these two is shorter. If the sound assumed to be the salutation lasts longer than this time, SmartQ hangs up.

- **Max Time Between Rings** is the length of time (measured in 100ths of a second) the dialer will wait between ringbacks before concluding that the call has been answered. If the time delay is too short, SmartQ may think that the phone has been answered when it hasn't.

SmartQ versions 5.2.63 and later now enable greater control over how answering machines are handled. To account for the wide array of answering machine prompt times, three new options have been implemented: Max OGM Length, OGM-Ending Pause Length, and OGM-Ending Beep Frequency.

- The default for **Max OGM Length** is 15 seconds. This means that SmartQ will wait a maximum of 15 seconds before starting the first survey prompt. This pause can be overridden by either “OGM-Ending Pause Length” or “OGM-Ending Beep Frequency” if they arise first.

- The **OGM-Ending Pause Length** has a default of 1.5 seconds, which means that if there is a pause of 1.5 seconds or more at the end of the answering machine prompt, then the first SmartQ survey prompt will begin to play.

- The default for **OGM-Ending Beep Frequency** is deliberately left blank due to the wide range of frequencies used by different answering machines.

5. T-1 Outbound Call Setup

Some T-1 outbound signaling uses *Wink Start*, meaning that after SmartQ goes offhook to make a call, the T-1 line sends a wink signal to the voice board to indicate that the line is ready for dialing. A *wink signal* is a brief digital offhook-onhook sequence that serves the same function as dial-tone to a person calling out. Normally the wink comes within a second of SmartQ going offhook.

- **Outbound Caller ID** can be set to simulate calling from a phone number other than the line actually used for calling out. This is useful if, for example, you would like the called party to see the phone number for a separate line where they could call back and reach a human receptionist. If this is left blank, the called party will see the phone number provided by default by your T-1 provider.

- **Expect Wink after Pickup** should be checked if your T-1 outbound signaling uses wink signals.

- **Time to wait for Wink** is the maximum amount of time (in seconds) to wait for a wink signal to be sent after SmartQ goes offhook. If it does not arrive before this time, the call disposition is categorized as an error with an associated message (stored in the log file and shown in the Recent Activity pane of the Current Activity screen) reading "No wink received."

- **Time between Pickup and Dial** is the number of seconds that SmartQ waits after the wink is received (if the wink checkbox is checked) to make sure the line is ready to receive digits.

- **Minimum Onhook between Calls** controls how long the dialer waits between attempting the next call. It is desirable to have the dialer begin a new call right after the previous call completes. In practice, though, if it were to pick up and dial immediately after hanging up from a call, the phone line would interpret this as a hookflash, and attempt to begin a transfer or conference call. To prevent this, the dialer must wait a few moments after finishing one call before beginning the next. It is set to 1.8 (seconds) by default, which should be adequate in normal situations.

- **Use MF dialing** should be checked if the MF frequencies are used for touchtones (rather than the traditional DTMF frequencies).

- **Enclose dialstring with * and #** should only be checked if your T-1 carrier requires the touchtone sequence to begin with a "*" tone and end in a "#" tone (for example, "8881231234" gets transformed as "*8881231234#".

Caller ID/ANI

Caller ID or ANI must be ordered through the phone company in order to be enabled on your phone line. Most voiceboards that fit in a PCI slot support Caller ID, including the D/4PCI boards (D/4PCI, D/4PCI-U, D/4PCI-UF, D/4PCI-US) and JCT boards (D/41JCT-LS).

Please contact technical support or visit www.dialogic.com for information on the features of particular voiceboards.

The phone company sends the Caller ID information between the first and second ring. You must set Rings Before Answering to 2 to receive Caller ID information. Any Caller ID information collected is stored in a built-in field called CALLERID and can be used for calculations, retrieval, or simply additional information about the call stored in the database.

Information from Caller ID/ANI

Caller ID will deliver the following information (provided the phone company sends it):

{Date} {Time} {Caller's phone #}{Caller's name}

Alternatively, one of the following may appear in the CALLERID field:

• **BLOCKED**: Indicates the caller did not want Caller ID information sent out

• **OUT OF AREA**: Caller ID is not compatible with the caller's phone service or the call was placed from a system that does not transmit Caller ID information (like some cellular phones and international calls)

• **UNAVAILABLE**: (same as OUT OF AREA)

NOTE: If you leave Caller ID unchecked as a line feature, it will show a blank in the CALLERID field in the database. However, if you check the Caller ID feature and the Dialogic board does not support Caller ID, the database field will always show UNAVAILABLE.

DID/DNIS

DID or DNIS must be ordered through the phone company in order to be enabled on your phone line. You specify exactly how many digits you want when you order the phone service.

When the phone rings, SmartQ will pause two seconds (after providing a wink if using T-1 lines), then collect all digits and begin the survey.

Information from DID/DNIS

DID/DNIS will deliver the following information: {Last several Digits of Dialer's phone #}

Any DID/DNIS information collected is stored in a built-in field called DIDDIGITS. Alternatively, the field may be blank. The information from this field can also be used for calculations, retrieval, or simply additional information about the call stored in the database.

DNIS (Dialed Number Identification Service) is a service provided by the phone company on certain types of lines, where the phone number that was dialed is presented to the receiving equipment. It is analogous to Caller ID. The difference is that if you dial 1-800-555-1234 from home, Caller ID would show your own phone number, while DNIS would show 8005551234. Sometimes DNIS is set up to only present the last 5 digits of the phone number, and sometimes you can order several numbers that all present the same “virtual” DNIS.

Hard Disk Space Check

At the beginning of every call (both inbound and outbound), SmartQ checks how much space is available on the hard disk where it is installed. If there is less than 10 megabytes available, a system prompt will say “I'm sorry, the system cannot take calls now because it is out of disk space. Please try again later.” and then SmartQ will hang up.

Survey Design: Creating New Surveys and Items

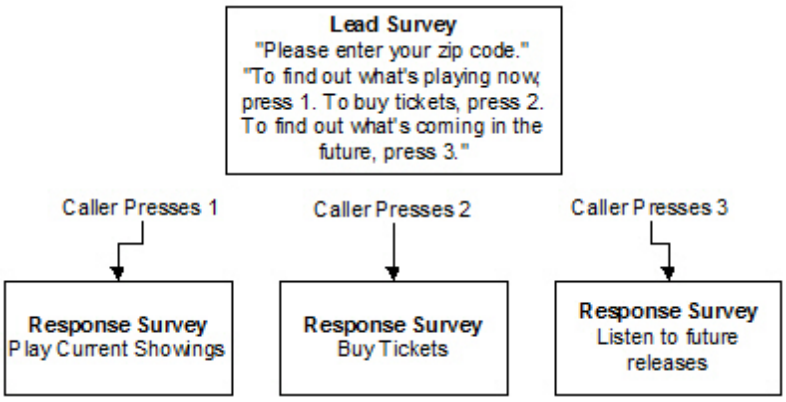
Overview

Lead surveys collect information about the caller and route them to the appropriate *response survey*, where they will answer survey questions. When clients call into your automated telephone survey system, the lead survey will answer the call first. Typically a caller's ID code, zip code, or other type of identifying information is collected at this time. The lead survey can also be used to validate caller ID codes or to gather information that determines whether or not the caller is eligible to answer further survey questions. Once callers answer these few key questions, they are routed to a response survey to answer the questions for which you are collecting your primary data.

The process for setting up lead and response surveys is exactly the same. The only difference is their function. It is not mandatory that you design your surveys in this manner, especially if you have a very short set of questions. However, the lead survey with response surveys method will prove the most straightforward to design and maintain and we strongly recommend it.

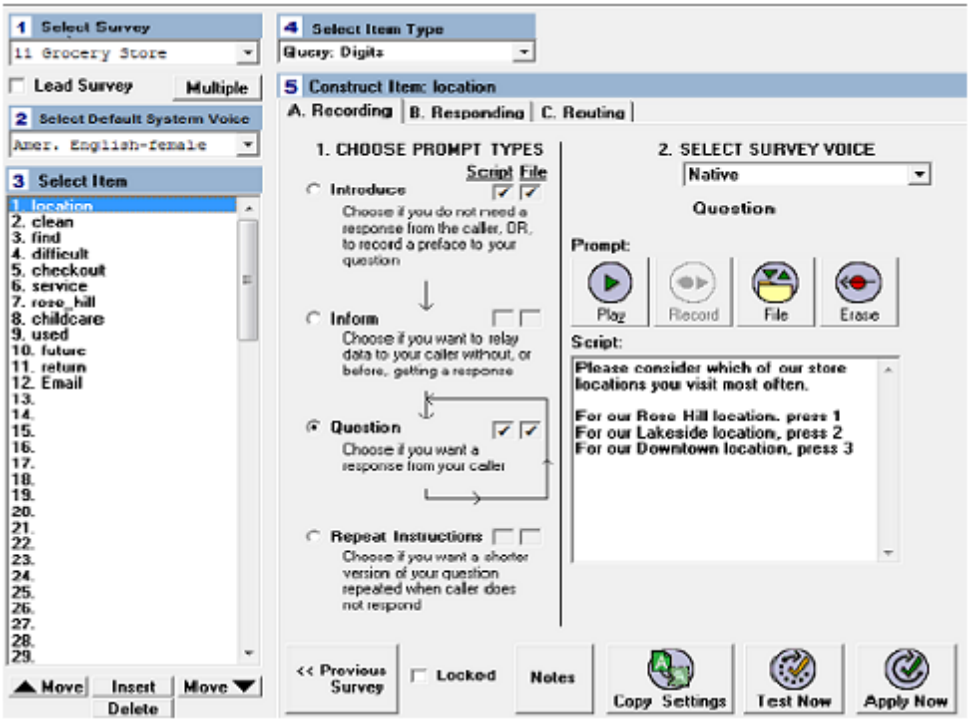
SmartQ's Survey Designer allows you to route callers to as many response surveys as you would like. For example, you might create a survey for a large chain of theaters that routes callers to different surveys depending on whether they want to find out what movies are currently showing, to buy a ticket, or to find out what movies are scheduled for the future.

Before you begin creating your surveys in SmartQ, we suggest that you outline a version of your main lead survey and then decide how it will route callers to your various response surveys. Once you have a lead survey, you should create your response surveys.



The Five Basic Steps of Survey Designing

Click on the **Survey Design** button to see the **Survey Design** screen. Here you will see the five basic steps of designing a survey highlighted in blue:



1. **Select Survey**: Add a survey, which will automatically create a new survey and database to your specifications or allow you to choose an already existing survey for editing.
2. **Select System Voice**: Select the voice you would like to hear speaking greetings, numbers, error messages and other prompts that are not part of your survey script.
3. **Select Item**: Create and name items for each question you would like the system to ask or calculations you would like it to perform. As you set up items, SmartQ automatically creates corresponding database fields in Microsoft Access.
4. **Select Item Type**: For each item highlighted in **Select Item**, tell SmartQ what type of item it is. Options include query items, calculation items, data retrieval items, and more.
5. **Construct Item**
   - A. **Recording** tab: Record prompts for each item.
   - B. **Responding** tab: Indicate valid responses (or set up calculate or retrieve formulas according to the item type).
   - C. **Routing** tab: Route answers to other items or surveys.

Step 1. Select Survey

1. Select **Select Survey > Add New Survey**.
2. A dialog box will appear where you can set the following options:
   - A. **New Survey**:
     - Type or select a 2-digit ID for the survey.

- Type a name for the survey.

B. Select one option for **New Survey Format**:

- Select the **New blank survey** option if you are adding your first survey to SmartQ or if the survey you will be making is completely different from all other surveys in your system.
- Select the **Copy existing survey** option if you want to make a survey that is very similar to a survey that already exists and you simply wish to make a few minor changes. Use the pull-down menu to select a survey.

C. Select one option for **Database**:

- Select **Make New Database** if you wish to make an entirely new Access database to store information. Type the name of your new database.
- Select **Use Existing Database** if this data should be written to a previously designed database.

D. Select one option for **Table**:

- **Make a New Table** to have all call data for a survey stored in a new table (this option is mandatory if you selected Make New Database).
- **Use an Existing Table** to have call data written to an existing table. You may want to use this option when you administer the same survey in multiple languages. Use the pull-down menu to select an existing table.
- Use the **Create Survey Items Matching Fields in Database** checkbox to include preexisting database records in your new survey. Once you click **OK**, a Select Fields screen will appear.

E. Lead Survey (Optional):

- Designate which of your surveys will be the lead survey.

3. When all settings are correct, click **OK**.

NOTE: Another way to designate your lead survey is to check the **Set as Lead Survey** box beneath **Select Survey** in the Survey Design window. An asterisk will appear next to the survey's name to help you keep track of which survey is set as the lead survey.

Step 2. Select System Voice

Use the **Select System Voice** pull-down menu. The default setting is **American English** (spoken in a female voice) but you may select an alternative system voice. The system voice includes built-in numbers, dates and confirmation prompts.

Step 3. Select Item

Once you have set up a database and named your survey, you are ready to begin creating and naming items. An item corresponds to one data value stored in one Access database field. Each survey can have up to 99 items. There are several types of items, one of which you will select in the next step.

Step 4. Select Item Type

When you **Select Item Type**, you choose the mode of data collection (collect digits, do a calculation, or retrieve a history). There are several options under the **Select Item Type** pull-down menu. You must select an item type for each item before continuing to design your survey.

If you wish to pose a question to the caller and collect their numeric response, select **Query: Digits** (this is the default). **Query: Digits** and **Query: Alphanumeric** allow you to record all parts of a question on the **Recording** tab, including an introduction, an inform prompt, a question, and instructions on which responses are valid.

These categories (introduction, inform prompt, question and instructions) combine to form one item; you can use as many or as few parts as you wish depending on the information you need to give and the answers you would like to obtain. There is usually no prompt recording associated with **Calculate** and **Retrieve**; these are items you create to help your survey perform advanced tasks. However, if you would like to record a prompt for a calculation or data retrieval item, you may only choose from the introduction and inform prompt options.

- **Query: Digits**: Set up questions to collect numeric responses. SmartQ collects callers' responses and stores them in the database as a single-digit or multi-digit responses. This is the most common item type where you set up a series of questions and answers.

  Example: "Do you own any pets? Press 1 for yes, 2 for no." or "How many times have you visited our store in the last month? Please enter the number of visits followed by the pound sign."
- **Query: Alphanumeric**: Set up questions to collect caller responses in the form of numbers and letters together.

  Example: "Please enter your last name using the letters marked on your telephone keypad." or "Please enter your five digit alphanumeric code now using the numbers and letters marked on your telephone keypad. Continue pressing the key associated with the letter or number you wish to enter until you hear that letter, then press the pound key."
- **Query: Open-End**: Set up questions to collect long-answer responses left in the form of messages the caller can record for you to hear later.

  Example: "Please leave your comments after the tone. When you are finished press any touchtone to end the recording."
- **Group**: Group brings together a set of items. This is particularly useful if you wish to randomize or rotate questions in your survey.
- **Calculate**: Calculate using caller responses gathered during the survey. You can score a set of questions at any point in your survey to store the answers or to route callers based on the calculation.
- **Email**: Email the result(s) of your survey to recipients of your choice. Can be used to attach files, distribute orders, and notify staff of survey results, among other functions.
- **Retrieve**: There are three types of retrieval:

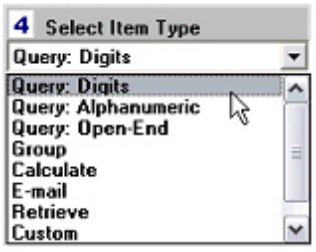
  A. **Retrieve Data for Calculations** looks up information such as the date of the last call or an answer to a particular question during a previous call and makes the data available to perform calculations.

  B. **Retrieve Spoken Responses** sets up the ability for authorized callers to retrieve spoken responses (messages) from any touch-tone telephone. This is ideal for offices with multiple locations, but only one computer running SmartQ software.

  C. **Resume Incomplete Survey** looks for a previous incomplete survey from this caller. If one is found, the data is read in and the survey resumes where they had left off.

Step 5. Construct Item

You will use **Construct Items** differently depending on what type of item you have selected in **Step 4: Select Item Type**. **Query: Digits** is the most common and easiest Item to construct.



The next chapter will go through constructing **Query: Digits** step-by-step.

Instructions for the other two types of query, **Query: Alphanumeric** and **Query: Open-**End, will follow the instructions for **Query: Digits** since all three types of query are similar. **Group**, **Calculate** and **Retrieve** are more advanced features that are discussed in detail in later chapters.

Creating Survey Items

Follow these steps to create a new item:

1. Click on a number in the **Select Item** box.
2. A dialog box will automatically pop up requiring you to name the item. Enter a name that identifies the data item.
3. Click **OK**.

TIP: Name your item something descriptive such as "clientid" or "client_id" (no spaces allowed) so that if you move, insert or delete a question in a survey, the data name will remain accurate. Choose a name that will be easily understood and recognizable for future use.

Editing Survey Items

Changing an Item Name

Double-click on the item in the Select Item box and enter a new name. Use extreme caution when changing an item's name. Any formulas or routing that refer to this item will not automatically be changed. You must manually change all referencing information. The item's Access database field name will not automatically be changed.

Moving Items

Select an item in the **Select Item** box. Press the **Move** button. The **Move** with up-arrow button moves an item up the list. The **Move** with down-arrow button moves an item down the list. All prompts and settings (including calculations and routing information) will move with the item. Take special care when moving complex items, giving consideration to how the item's branching will need to be changed as well as how changes in the order of calculations will affect the survey.

Inserting Items

An item may be inserted between two items in the **Select Item** box. Select the item number that you want the new item to have. Click the **Insert** button and type the name of the new item. Click **OK** and the new item will appear. The item that was previously selected will appear below the new item.

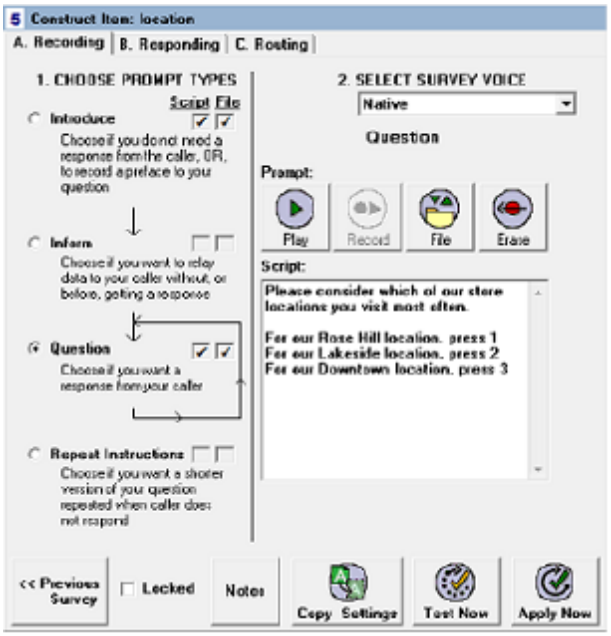
Deleting Items

If you want to delete an item, simply select the item in the **Select Item** box and click the **Delete** button. A **Delete Item** window will require that you confirm deletion. Once an item is deleted, it is completely erased from the system and cannot be restored. When an item is deleted, its Access field is not removed from the database. Instead, no future entries will be made in that field. You must manually delete the item's field from Access if you do not wish to see it in the database.

Survey Design: Construct a Query

Overview

Construct Item is the final step in designing your survey. It allows you to record prompts, choose settings, and route answers.



This chapter will provide instructions for **Query: Digits**, the most commonly used **Item Type**. **Query: Digits** uses the basic features of all three tabs.

When you feel comfortable with this chapter, you may want to advance to the end of the chapter where **Query: Alphanumeric** and **Query: Open-End** are described.

Later chapters provide instructions for advanced item types (**Group**, **Calculate**, **Retrieve**). The **Construct** Item screen will change depending on the **Item Type** and prompt you have selected.

Three tabs appear under **Construct Item**:

1. **Recording**
2. **Responding**
3. **Routing**

A. Recording

Choose Prompt Types

You can record up to four types of prompts as part of a single item. Only the question prompt is required. Question prompts are different from the other types of prompts because their purpose is to wait for the caller to respond, rather than merely provide the caller with information. Examples include “Please enter your code.” or “Are you satisfied with your experience” or “Please indicate your feelings toward this product.”

You may want the caller to hear more than just a question: that is why you can also record Introduce, Inform, or Repeat Instructions prompts as part of the same item. An example of each kind of prompt is outlined in the chart below. Different combinations of prompts can be recorded to suit the situation. If the question prompt is left out of any combination, however, no information will be gathered and the field for that item in the database will be left blank.

When you design your survey, you should map out all of the questions you want to ask first. Then you can record all the prompts (Introduce, Inform, Question, and Repeat Instructions) in a logical manner.

TABLE 1. Prompt Types

Prompt	Description	Example
Introduce	An introduction to a survey item or present information to a caller such as facility information or office hours.	"We are interested in learning about your experience at our facility. Please answer the following questions."
Inform	Information to present to the caller, such as a date or score.	"The last time you completed a survey for us was …"
Question	The question to which the caller should respond.	"Were you satisfied with the services you received?"
Repeat Instructions	Instructions to repeat: 1. for an invalid answer 2. when the time allowed for a response has expired	"If yes, press 1. If no, press 2."

You should enter the text for your prompts into the **Script** textbox. The **Script** textbox is provided for your convenience: SmartQ does not interpret or act upon the text.

- Prompt types are listed in the order in which they are played to the caller. The arrows between prompts also indicate this sequence. Only those prompts that have been recorded will be played.
- Descriptions of each prompt type are given to remind you of their functions.
- Click on the radio button to the left of each prompt to switch to it and work on it.
- SmartQ will check the **Script** checkbox to the right of each prompt once text has been typed into the box. SmartQ will check the **File** checkbox after a prompt has been recorded.

Introduce

If you have an introduction that explains the item, type the text in the script box on the right side of the screen and record the prompt (using the instructions on recording prompts later in this chapter). The introduction is played only once to the caller.

Inform

The Inform prompts can be used to create information for the caller programmatically. (See section about the Formula Builder in this manual.) The Inform prompts are played only once to the caller.

Question

To record a Question prompt, type the text in the **Script** box on the right side of the screen and record the prompt (using the instructions on recording prompts later in this chapter). Question prompts will be repeated to the caller if they enter an invalid response or if they wait too long to respond.

Repeat Instructions

You can use this type of prompt for shorter versions of instructions that are repeated each time that the question is repeated.

You may want to reuse these repeated instructions in other items. To do so:

1. Click on the item where you would like the instructions repeated
2. Check the checkbox to the left of **Repeat Instructions**.
3. Check the checkbox next to **Use Repeat Instruction Prompt From:**.
4. Use the pull-down menu to select the item that contains the **Repeat Instruction** prompt you would like to apply to the currently selected item.

Recording Prompts

1. Unless you already have files you wish to use for prompts (which you can attach to items using the File button, explained below), you will be recording prompts using SmartQ.
2. Select the prompt type (**Introduce**, **Inform**, **Question** or **Repeat Instructions**). It is recommended that you enter the text in the **Script** box to keep track of what you've recorded and allow the reader to read from the screen.
3. Click the **Connect** button in the far left hand column of buttons of SmartQ. (See the following sections for advanced methods of connecting.)
4. SmartQ will prompt you for a dialout port and a phone number to call. Choose a dialout port that has a phone line plugged into it.

TIP: When recording prompts, the sound quality is often improved if you hold the receiver an inch away from your mouth. Make the room as quiet as possible (turn off buzzing lights, put a blanket over noisy computers, etc., to cut down the ambient noise).

5. In the next dialog box that appears, enter the telephone number of the telephone that you are using for the recording session. (We recommend that you choose one that is near your computer so you can operate it and read the prompts easily.) After you enter the telephone number, click **OK**.
6. SmartQ will call your telephone. When the telephone rings, pick up the handset and say "Hello." You are now ready to begin recording voice prompts. If the **Record** button does not change from grayed out to active, make a sound (such as blowing on the receiver, whistling, etc.) to activate the microphone.

7. Click the **Record** button. The button will change into a red stop sign when the computer begins recording.
8. Speak the prompt into the phone. When you are finished, click the **Stop** button.
9. At this point you can switch to another prompt and record it. You can also click the **Play** button to hear the prompt you have recorded.

10. If you are unsatisfied with your prompt, click **Erase** to delete it.
11. Click the **Hang Up** button in the left hand column of buttons to end the recording session. Replace the telephone handset.

You may want to reuse prompts that you've recorded for other items or use specially recorded files for your prompts. If you press the **File** button you'll get menu options that will allow you to use or reuse any recordings you'd like:

- **Copy**: Copy the recording of the currently selected prompt into the SmartQ clipboard.
- **Paste**: Paste the recording in the SmartQ clipboard into the currently selected prompt.
- **Insert file…**: Specify a file to use for the currently selected prompt.

- **Import Prompt Set**: See the "Importing Studio Recording" section below.

TIP: You can click the **File** and **Erase** buttons at any time; you do not have to be connected to use them. You do have to be connected to use **Record**.

Connect for recording: Alternative Method

Ordinarily, to connect for recording, you would have SmartQ call your phone. However, where this is not possible (such as when phone lines are not configured for outbound dialing or with ISDN lines), you can use the following method:

1. Click **Connect**.
2. Choose a port when prompted.
3. A dialog box appears prompting you to call in.
4. Call the IVR system.
5. When you see the port status change to **Record/Playback**, click the **OK** button in the dialog box.
6. You will hear "You are connected for playback and recording," which indicates your connection is successful.

Importing Studio Recordings

You can have your voice prompts recorded professionally by a studio and then import them into your survey. To make the import easy, ask for the prompts to be named `1.vox`, `2.vox`, `3.vox`, etc., with the numbers corresponding to the order that the **Views** menu of Survey Design places them when you print a script. Then, to import the prompts:

1. Place the recorded prompts (*n*`.vox`) into a separate folder.
2. Go to the **Recording** tab in your survey. Any item or prompt will do.
3. Click the **File** button.
4. Choose **Import Prompt Set** from the menu.
5. Browse to the directory that contains the `vox` files.
6. Confirm the mapping of file names to script, when prompted.
7. All of the prompts to their proper locations.

Conditionally Skip an Item [Custom only]

SmartQ routes the caller from item to item according to the settings in the **C. Routing** tab. By default, this is a simple linear order (item 1 to item 2 to item 3, etc.). You might, however, wish to skip past items depending on the past responses of the caller.

To conditionally skip an item:

1. Under **B. Responding**, click on the **Formula Builder** button in the lower right, just under **Skip Item if formula result is 1:**.
2. Build your formula so that SmartQ returns a numeric value (see Chapter 11). SmartQ will only skip the item if the value is "1" or 1.
3. If the formula returns anything other than "1" or 1, SmartQ will ask the question to the caller. Otherwise, the caller will not know that an item was skipped.

You can provide a default value for items which are skipped on the **Advanced Survey Settings** window (see Chapter 23). This assigned value will show up in your Access database for all items that are visited, then skipped.

Example

Sometimes you might want to ask callers follow-up questions based on questions they previously answered. Suppose you design a survey for a grocery store, and you want to ask the callers only targeted questions (i.e. if they did not shop in the deli, you do not want to ask them questions about the deli).

One of your first questions might be, "Do you regularly shop at any other grocery stores?" Later in the survey, you ask, "Did you visit our new bakery?" Finally, you want to ask, "Compared with other grocery stores, did you like our bakery better?" But you wouldn't want to ask a caller to compare bakeries if they already indicated that they do not shop at other grocery stores. In this situation, you can use the formula builder to place a skip formula on the last question. Assuming that the item name for your first bakery item is "Bakery" and that answers for this item are 1 = yes and 0 = no, the skip formula would look something like this: IF $Bakery=0 THEN 1 ENDIF. Alternatively, you could simply put $Bakery=0. Either one of these formulas will evaluate to 1 if the caller presses 0 at "Bakery", which will prevent the caller from hearing the last question.

B. Responding

The appearance of the **Responding** section will depend upon your choice for **4. Select Item Type** on the **Survey Design** screen. The following sections describe the settings when your choices are **Query: Digits** and **Query: Alphanumeric**, which are the most common choices.

Valid Response Length

Valid Response Length allows you to specify how many digits you will accept from a caller. Fill in the correct number of digits under **Minimum Number of Digits (or Characters)** and **Maximum Number of Digits (or Characters)**. The default is 1 for **Minimum Number of Digits** and 1 for **Maximum Number of Digits**, which will accept an answer containing just one digit (0-9). You can change this so SmartQ will accept answers with multiple digits (55, 7#, 00924, etc.)

Example 1

"Were you satisfied with our customer service? Press 1 for yes, 2 for no."

In this example both minimum and maximum digits are set to 1. The numbers 1 and 2 can be set as valid choices to further restrict what answers are accepted.

Example 2

"Please enter the number of paid hours you work during a typical work day."

In this example, the lowest possible answer is 0 (a 1 digit answer) and the highest is 24 (a 2 digit answer). Therefore, our minimum number of digits is 1 and maximum is 2.

Example 3

"Please enter the five-digit code that appears on the upper left-hand corner of the materials mailed to you."

In this example the smallest and largest answer should both have 5 digits. Therefore, the minimum and maximum number of digits are both set to 5. SmartQ will wait for 5 digits before entering the data into the database.

TIP: How does SmartQ know when to accept an answer? Suppose you ask, "On a scale of 1 to 10, how did you like our product? Choose 1 if you strongly disliked it and 10 if you liked it enormously." How does SmartQ know whether you have pressed 1 and are still trying to locate the 0 or if you have pressed 1 and are waiting to move on to the next question? SmartQ will accept an answer with fewer than the maximum digits allowed after 2 seconds (a long enough pause to ensure that the caller is finished entering their answer and will not enter more digits). SmartQ will accept answers containing the maximum number of digits immediately since no more digits are expected. Alternatively, you can instruct callers to enter the pound sign when they are finished entering their answer. In this case, you should treat the pound sign as a digit when setting the maximum number of digits. (The pound sign will not appear in your response data.)

Question Timing

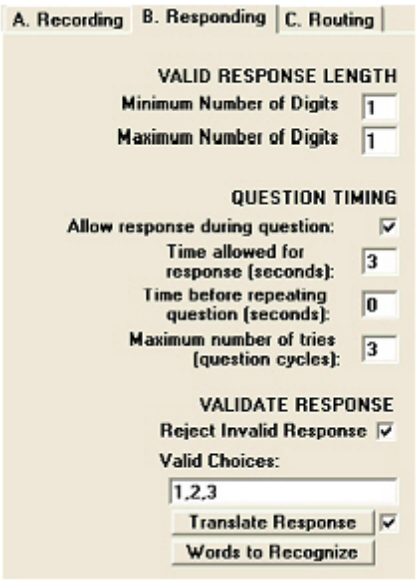
- **Allow response during question** allows callers to anticipate a reply and enter a response during a question rather than waiting until the prompt has completely finished. (Default: checked box). If you un-check this box, callers cannot interrupt the prompt, and must wait until it is finished to answer. The prompt will only be non-interruptible the first time it is heard, regardless of the number of times the question repeats.
- **Time allowed for response (seconds)** indicates the number of seconds that the system will wait for a caller's answer before playing the Repeat Instruction prompt. If no Repeat Instruction Prompt is present, the Question will repeat. (Default: 3 seconds).
- **Time before repeating question (seconds)** indicates the number of seconds that the system will wait for a caller's answer before replaying the Question prompt (Default: 3 seconds).
- **Maximum number of tries (question cycles)** determines the number of times the Question will play. If a caller does not enter digits, the Question and Repeat Instructions prompts will replay. If the caller enters invalid digits, the Invalid Answer prompt will play before the Question and Repeat Instructions replay. (Default: 3 tries). To specify what happens after the third try, go to the **C. Routing** tab under **none**.

Validation

Check the **Reject Invalid Response** checkbox under the **B. Responding** tab of the corresponding survey item if you want the system to validate numeric or alphanumeric user entry.

The **Responding** tab is shown to the right for single-digit responses.

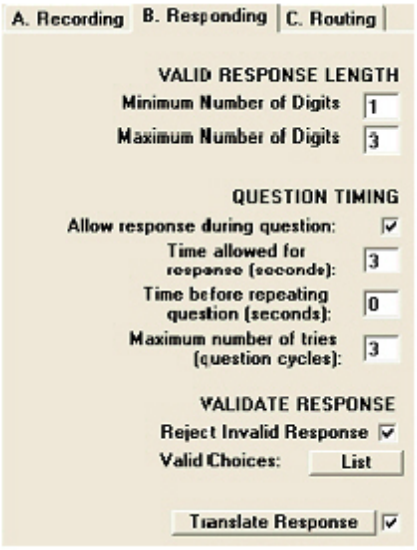
- Indicate valid responses by typing them into the **Valid Choices** text box.
- If you check the **Translate Response** checkbox you will be able to press the associated button. This will bring up a window that allows you to change the values of keys on the telephone touchpad (so that, for example, pressing "1" is translated as though "2" were pressed).



If you enter a number larger than 1 into **Maximum Number of Digits**, the **Responding** tab will change, as you see to the right.

If you press the **List** button to the right of **Valid Choices**, a window will appear which allows you to specify which of several methods to use to validate responses:

- Validation from a List of Choices
- Validation from a Database
- Validation of a Date
- Validation of part of a number (Validate by Segment)



List of Valid Choices

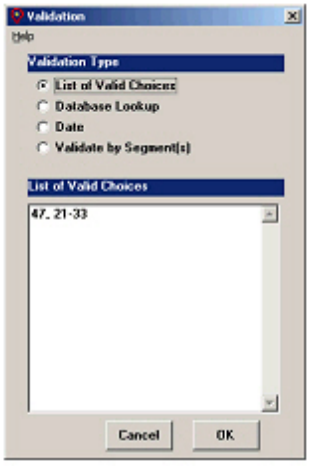
Much like the single-digit validation, the **List of Valid Choices** allows you to type in acceptable individual responses or ranges of responses. To bring up the **Validation** window:

1. Enter a number greater than 1 in the **Maximum Number of Digits** text box.
2. Click on the **List** button next to **Valid Choices**.

At this point, you can begin entering into the **List of Valid Choices** text box any responses that your survey should accept. SmartQ allows you to enter individual numbers (for example, "47"), ranges of numbers (for example, "21-33"), or comma-delimited lists (for example, "1,5,6,7-9").

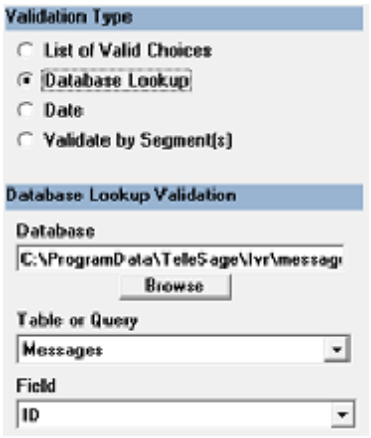
TIP: For a well-organized survey, spend some time on specifying the data that you will accept. This reduces errors by respondents and helps maintain a meaningful database.

TIP: Make sure you do not assign a number as a Special Touchtone if it is also a potential answer to a survey question. For instance, if you assign 0 as a Special Touchtone but you also accept 0 as a query answer, the Special Touchtone action will register first. Instead of gathering 0 as data (as you intend), the caller might Repeat Current Item and no data would be gathered!



Database Lookup (Advanced)

SmartQ will allow you to access a database for validation purposes.



1. Within the **Validation** window, select the **Database Lookup** option.
2. Specify the database path and name, or click **Browse** to navigate to the database.
3. Select a **Table or Query**.
4. Select a Field.

Example

You are conducting market research, and want feedback only from customers who have purchased your product. Your database has a field that tracks unique identification numbers of products that you have sold, and by setting the validation to accept only products from your database, you will acquire data from only those callers who own your product.

Date Validation (Advanced)

When your survey needs to gather a date, it can validate a caller's response in many different formats, depending on your needs. To enable date entry and validation, enter a number greater than 1 into the **Maximum Number of Digits** on the **Responding** tab, check the **Reject Invalid Response** checkbox and press the **List** button.

Date is one of the options that appear on the **Validation** window. Select the appropriate format from the pull-down menu next to **Date Format**.

For example, assume a caller is entering a birth date of July 11, 1974. If you select **DDMMYY** as the **Date Format**, SmartQ will only accept user input in this format. SmartQ will not allow an entry of "71174," because there is only one "D" entry ("7"). The caller would then need to enter "071174", which is consistent with this setting of **Date Validation**.

Validate By Segment(s) (Advanced)

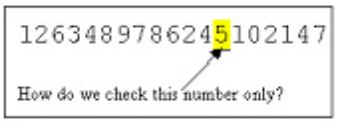
When gathering a lengthy set of data, it can be critical that all of the numbers are accurate.

Example

You own and operate a small chain of restaurants and would like to gather some information from your customers through a 19-question survey. Knowing that your customers would not wait on the phone through 19 questions, you hand out a paper copy of the survey that is completed in the restaurant or at home, and have the customers call in their answers.

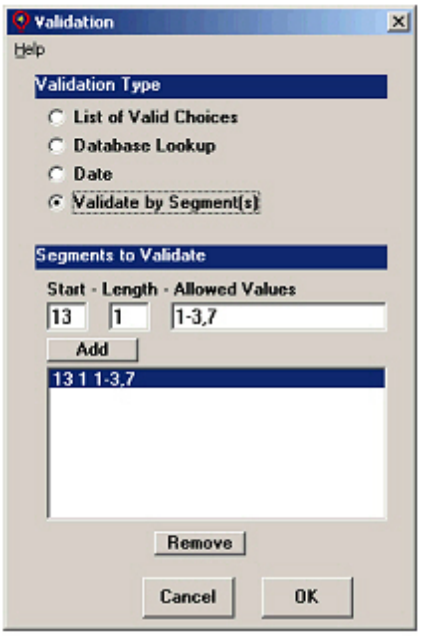
When SmartQ takes the call, instead of having all 19 questions waiting to be answered, you ask the customers to put down all their answers in one long string, which saves them time. However, if they accidentally skip one question in the survey, the remainder of the 19 questions would be recorded inaccurately in your database, ruining your data. How do you solve this without making your customers wait through 19 separate questions?

The answer is **Validation by Segment**. If a customer answers the survey with "1263489786245102147", they have no idea they made a mistake. However, SmartQ knows that on your survey question 13 cannot have "5" as an answer and thus it is likely that a mistake was made on the data entry. The caller can then retype the answers correctly, which ensures that your data will be more accurate.



Using Validate by Segment(s)

From the above example, we are going to validate the 13th digit of our 19-digit number.



1. To begin, select the **Validate by Segment(s)** option from the Validation window.

2. Enter "13" into the **Start** text box. This means that the validation will begin on digit 13.

3. Enter "1" into the **Length** text box. This means that a one-digit long segment will be validated.

4. Enter "1-3,7" into the **Allowed Values** text box. This means that digits 1, 2, 3, and 7 will all be valid selections. (Do not use any spaces!)

5. Click the **Add** button to include this validation into your survey.

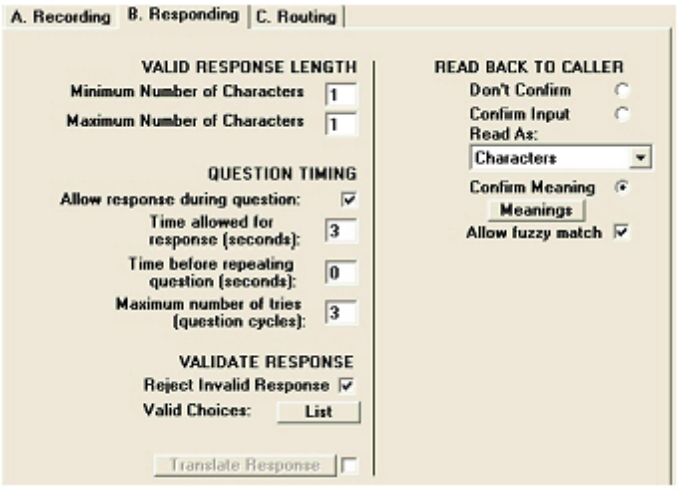
These steps will ensure that your survey will accept only those four digits that you specified for digit number 13.

Imagine that you are creating a survey for which only telephone prefixes of 448, 456, and 338 were allowed (as in 919-448-1111). You could set up segment validation for the valid set of telephone numbers with these prefix codes by entering a **Start** value of 4 and a **Length** value of 3. Then enter the three **Allowed Values**. This would help to minimize mistakes in ten-digit telephone numbers entered by the user.

Setting Up Query: Alphanumeric

If you select **Query: Alphanumeric** as your choice for **4. Select Item Type** on the **Survey Design** screen, the user will be able to enter letters as well as numeric digits. The controls on the **Responding** tab will change to allow you to supply the appropriate parameters to validate the input.

SmartQ comes preprogrammed with a system prompt that explains how to enter letters that will be played for the caller automatically. It also has additional prompts to guide callers who are experiencing difficulties with this style of entry.



1. First, on the **Recording** tab, record your question with an option to "press # for instructions" on how to enter an alphanumeric entry. Callers will be guided by your instructions to make answer entry simple. Sample instructions you might want to record are included in the examples that follow.

2. If you wish to restrict what entries you will accept, check the **Reject Invalid Response** box under the **Validate Response** heading.

3. Click the **List** button to enter the values you will accept. Click **OK** when you have finished listing acceptable responses. As with numeric entries, any entry not on the list will prompt the system to ask the caller to enter the response again.

4. Set up the rest of the **Responding** tab as you would any response. The **Special Touchtones** are not available when alphanumeric entry is activated since they are needed to backspace and enter the alphanumeric string.

TIP: If the caller pauses for more than 3 seconds when entering an answer, SmartQ will begin to repeat what has been entered so far and prompt the caller to finish the entry. Depending on the type of calls and

responses you expect to receive, this may make the Confirm Input feature redundant.

5. You can now move on to the **Routing** tab (described later in this chapter) to route the alphanumeric answers.

Alphanumeric Special Characters

Special characters are available by pressing the "1" phone button. The cycle includes: Q, Z, 1, at symbol, period, space, dash, underscore, tilde. If you plan to request email addresses or other information that will require a special character, make sure to include instructions on where to find the special symbols. The special characters include:

TABLE 2. Special symbols

symbol	explanation
@	at symbol
.	period
	space
-	dash
_	underscore
~	tilde

Example 1

You wish to have callers enter the first three digits of their last name.

Record a prompt on the **Recording** tab that says "Please enter the first three digits of your last name. For instructions, press the pound key."

On the **Responding** tab, enter "3" as minimum and maximum text lengths. If you expect a small set of people to call into your survey and you only want to accept answers from those people, you would check the **Reject Invalid Response** box and list the letter combinations you will accept. In this case, however, it is likely that you would leave the **Reject Invalid Response** box unchecked in order to accept all responses. On the **Routing** tab, route all answers to the next question or divide up names to route to different questions (or surveys) as you wish.

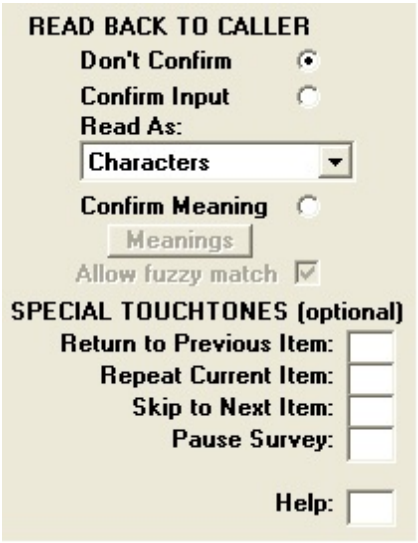
Example 2

You wish to have callers enter their email addresses.

Record a prompt on the **Recording** tab that says, "Please enter your email address. The letters Q, Z, and the 'at' symbol are on the 1 key. For more instructions, press the pound key."

On the **Responding** tab, fill in the maximum and minimum text lengths you expect (perhaps allow 1 to 30 characters for email addresses). On the **Routing** tab, route the answers as you wish.

Read Back to Caller



SmartQ can read input back to the caller, reducing the possibility of inadvertent entries. The four settings are:

- **Don't Confirm** (Default)
- **Confirm Input**: SmartQ will ask if the input was correct and give the caller an opportunity to change if desired.
- **Read As** SmartQ can read the caller's entry as a sequence, a number, a date, an ordinal, or an amount of money.
- **Confirm Meaning**: SmartQ will use a customized voice file in response to user input.

This chart explains how SmartQ reads the values in your database, depending on your selection on the **Read As** pull-down menu:

Method	Caller Enters	SmartQ Reads Back:
Characters	123	One, Two, Three
Number	123	One hundred twenty three
Date-MMDDYYYY	01232006	January twenty-third two thousand and six
Date-YYYYMMDD	20060123	January twenty-third two thousand and six
Date-DDMMYYYY	23012006	January twenty-third two thousand and six
Date-YYYYDDMM	20062301	January twenty-third two thousand and six
Date-MMDDYY	012306	January twenty-third two thousand and six
Date-DDMMYY	230106	January twenty-third two thousand and six
Date-YYMMDD	060123	January twenty-third two thousand and six
Date-YYDDMM	062301	January twenty-third two thousand and six
Date-MMDD	0123	January twenty-third
Date-DDMM	2301	January twenty-third
Date-MM	01	January
Date-YYYY	1984	Nineteen eighty-four
Dollars	123	One hundred and twenty-three dollars
Dollars and Cents	1*45 (with * set to input as ".")	One dollar and forty-five cents
Ordinal	65	Sixty Fifth
Time-(H)HMM	1124	Eleven twenty-four
Duration-HHMMSS	112433	Eleven hours twenty-four minutes thirty-three seconds
Duration-HHMM	1124	Eleven hours twenty-four minutes
Duration-MMSS	1124	Eleven minutes twenty-four seconds

Confirm Meaning [Custom only]

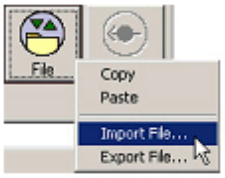
Sometimes you might want to confirm a caller's entry with a customized response. With **Confirm Input**, if the caller enters "123", they hear the system voice say "You entered 123. If this is correct, press 1. If this is incorrect, press 2."

SmartQ allows you to change the confirmation message depending on user input. Instead of saying "123", you could customize SmartQ to say, "You entered The Rose Hill Location. If this is correct, press 1…" To configure the meaning of a survey item's prompts:

1. Click on the **Meanings** button below **Confirm Meaning**. (Item type must be **Query: Digits** or **Query: Alphanumeric**)
2. SmartQ will ask if you want to connect for recording. If you do not plan on recording at this time, click **No**. You can record later at any time.
3. In the new window, click **Add Prompt**.
4. Enter the input that will cue the customized response. In the above example, that would be "123". This is known as *key text*.
5. Type your message in the **Script** field, and record at your convenience.

NOTE: The System Voice will still preface your recording with "You entered…" At this point, try calling your survey to see how it sounds, and adjust as necessary.

You can also import other scripts in the `.vox` file format by clicking on **File** in the top right of the window. Once you record your new scripts, you can also export them for use with any program that accepts `.vox` files.



Copy Another File to Here

If you have a meaning already specified in another item, you can use the **Copy Another File to Here** button to copy the `.vap` file directly to the current item. This helps when numerous meanings are required, and saves time while increasing the accuracy of your survey.

Special Touchtones

You can define special touchtones to allow your callers more options to navigate your survey.

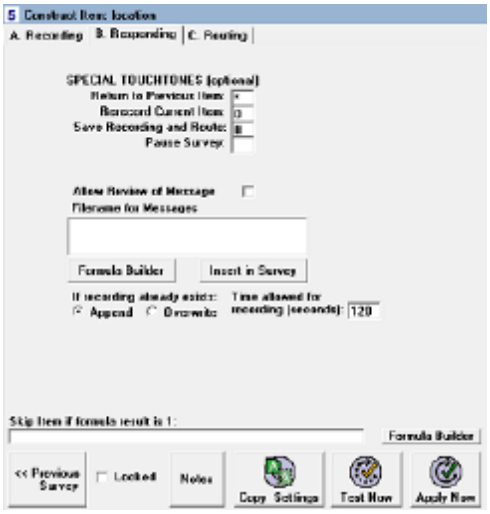
- **Return to Previous Item**: Enter a key that the caller can press to return to the previous item.
- **Repeat Current Item**: Enter a key that the caller can press to repeat the current item.
- **Skip to Next Item**: Enter a key that the caller can press to skip to the next item.
    - **Skip Destination:** If you would like for your assigned skip key to route to a specific item, designate this routing using the skip destination drop-down box.
- **Pause Survey**: [Professional Only] Enter a key that the caller can press to pause and later resume the survey.
- **Save * as**: When the user presses the * key on the telephone keypad, SmartQ will understand it as the character designated in this field instead of *. This is how you could allow entry of a decimal point, for example, for numeric entry.

- **Help**: Enter a key that the caller can press to route to a specific item. If you would like for callers to have the option of pressing a certain key to hear special instructions or a help prompt, you can enter that key here. Designate which item the help key routes to, by going to Advanced Survey Settings under the Survey menu.

Each of these special commands (except **Save * as)** can be two-key sequences (such as "*1" for **Return to Previous Item** and "*3" for **Skip to Next Item**).

Please note that keys which are defined as special touchtones do not show up in the database. This is to ensure that collected data are not affected by key presses related to survey navigation.

Setting Up a Query: Open-End



If you select **4. Select Item Type > Query: Open-End** on the **Survey Design** screen, the caller will be able to leave a recorded audio message as the answer to a survey question. The caller will hear any prompts you recorded followed by a beep. They can then leave a message that you can hear later.

Repeat instructions are not available with open-end queries. All other settings on the **Recording** tab operate as described in previous sections.

If an open-end item is visited several times on the same call, the responses are appended to each other (the later recording does not erase and record over the previous one).

Check the **Allow Review of Message** box to allow callers to review or delete their message before finalizing it. If this box is checked, callers will hear five options after leaving a message:

Number	Explanation
1	Save
2	Replay
3	Record Again
4	Add to Message
5	Delete Message

TIP: The maximum length of an open-ended response is set on the Advanced Survey Settings window (see Chapter 23). Any touchtone will end the recording, as will 5 seconds of silence. You may want to record this information as part of the prompt the caller will hear so they know the length of message you expect and so they know how to signal the end of their response.

Custom Open-end Filenames and Locations

SmartQ allows you to control where the files relating to open-end responses are stored and how they are named. For example, you may have another web application that allows certain users (such as transcriptionists) to access the recordings from a particular directory; you may also want the filename to include numbers or letters which indicate the ID of the respondent, the date that the call was made, or other such information.

You can customize where the open-end response recordings are stored and how filenames are constructed by

pressing the mouse inside of the **Filename for Messages** textbox on the **Responding** tab. This will open the Formula Builder dialog to allow you to specify the filename formula.

NOTE: The Response table in your survey's database contains a field titled RECORDNUMBER. While this field, which is autonumbered, may seem to be a useful field to draw from when creating filenames, it is not populated until after the call is over and hence cannot be used for the purposes of creating open-end response filenames.

NOTE: If an open-end response filename ends in .wav, SmartQ will automatically convert the format from .vox to .wav as it is being recorded,

Example

Let's say that your survey "01 Political Survey" has an item called "Q017" which records an open-end response and that you want this to be saved as a `.wav` file in the directory `C:\OpenEnds\` with a unique sequential number followed by "017". When SmartQ reaches an open-end response item, it automatically creates a unique sequential number and populates the item with this number. This number can then be used to create a unique filename.

1. Go to the open-end response item "Q017".
2. Select the **Filename for Messages** textbox.
3. Enter the formula `"C:\OpenEnds\" & $Q017 & "017.wav"`

Example

Let's say that you wish for the user to leave a comment as an open-end response whose filename will consist of the exact date and time of the call as well as the port number which was used for the call. All files will be stored on the `W:` drive in the `\inetpub\wwwroot\IVRMessages` directory. You also need to create a corresponding URL for the file which can be used to access it from your corporate intranet.

1. Create an item called "MsgFileName" of type **Calculate**.
2. Go to the **Responding** tab and open the Formula Builder.
3. Enter the formula `YEAR & MONTH & DATE & HOUR & MINUTE & SECOND & PORT & ".wav"`
4. Return to the **Survey Design** screen.
5. Create an item called "MsgURL" of type **Calculate**.
6. Go to the **Responding** tab and open the Formula Builder.
7. Enter the formula `"http://`*`yourdomain`*`/IVRMessages/" & $MsgFileName`
8. Return to the **Survey Design** screen.
9. Create an item called "Comment" of type **Query: Open-End**.
10. Go to the **Responding** tab and select the **Filename for Messages** textbox.
11. Enter the formula `"W:\inetpub\wwwroot\IVRMessages" & $MsgFileName`

Relocating the messages.mdb database

You can also relocate the `messages.mdb` database file, which records the filenames, timestamps and status of all open-end responses. To specify a new location for this file:

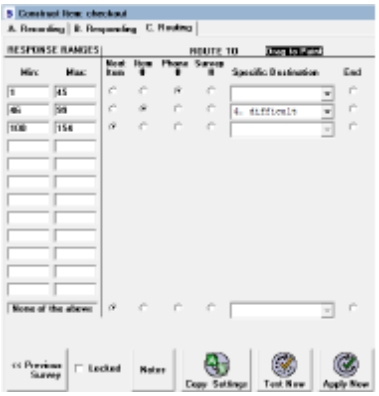
1. Go to the **Data** screen by pressing the **Data** button in the left-hand icon column
2. Select **Data > Multiple Chassis Open-Ends...**
3. A file browser window will appear. Use it to select the appropriate destination and press OK.
4. Using Windows, move the `messages.mdb` file from the `C:\ProgramData\Telesage\Ivr (C:\Program Files\Telesage` in Windows XP) directory to the location you selected in the step above.

C: Routing

Routing Screens

Routing tells SmartQ how to proceed when valid digits are entered. If you have **Minimum** and **Maximum Number of Digits** set to "1" (the default) you only expect answers of 0-9, * or #. Those options will automatically appear on the **Routing** tab. Follow the directions below to learn how to route the pre-filled answers.

If you entered a number larger than 1 for the **Maximum Number of Digits** on the **Responding** tab, you will need to fill in the range of answers in the **Min:** and **Max:** columns on the **Routing** tab. These are the actual minimum and maximum values, not the number of digits they contain. After you have filled in these ranges, follow the directions below to learn how to route according to the ranges you've supplied.



NOTE: If you select **4. Select Item Type > Query: Open-End** on the Survey Design screen, you can only choose one destination for routing (in other words, you cannot route the caller according to their spoken response). The option settings for routing will automatically appear on the **Routing** tab.

General Routing

1. If you want the caller to be routed to the **Next Item**, leave it checked (it is the default).

2. You can instead choose to route the caller to a specific **Item Number**, **Phone Number**, or **Survey Number**. Specify which item, phone number or survey they should be directed to in the pull-down menu under **Specific Destination**. By routing to **Item Number** and typing "<" into the **Specific Destination**, you can route the caller to the previously-visited item. Unlike special touchtones, caller responses that employ this method of returning to the previous item will appear in the database.

3. If you want to route the caller to the Goodbye prompt at the end of a survey, select **End**.

4. Use the **Apply Now** button to save your settings.

5. Use the **Test Now** button to ensure that your settings will work.

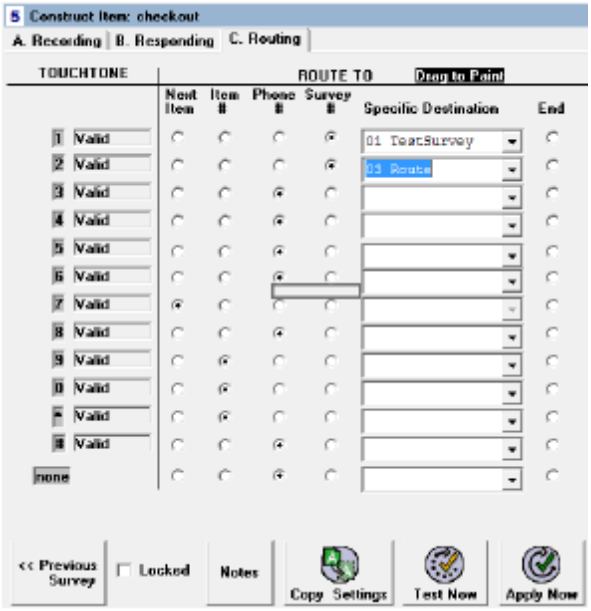
TIP: **#** has a special meaning when routing to a Phone Number. The response the caller enters for an item will automatically be substituted for the # symbol in the phone number. This type of setup can allow a caller to enter a desired extension and get transferred to the number they entered. Make sure that on the **Routing** screen the **Min** and **Max** ranges encompass all possible extensions, set the destination to **Phone Number**, and set the **Specific Destination** to #.

NOTE: The **Advanced Survey Settings** screen allows you to disable the playing of the Goodbye prompt at the end of the survey (see Chapter 23).

Drag to Paint

To select multiple routing options with one click of the mouse, click and hold the black **Drag to Paint** field in the upper right of the **C. Routing** tab. As the name implies, drag the field over the option buttons on the **Routing** screen to select, or "paint in" the options that you want for your survey.

As seen in the picture on the right, clicking and dragging the **Drag to Paint** field enables the user to use one click, instead of up to 13 separate clicks, to change options within a given item. It is provided simply as a convenience to SmartQ users.



TIP: In the **Specific Destination** pull-down box, quickly insert the same entry as the above line by selecting the text and typing a quote sign (").

Previous Survey

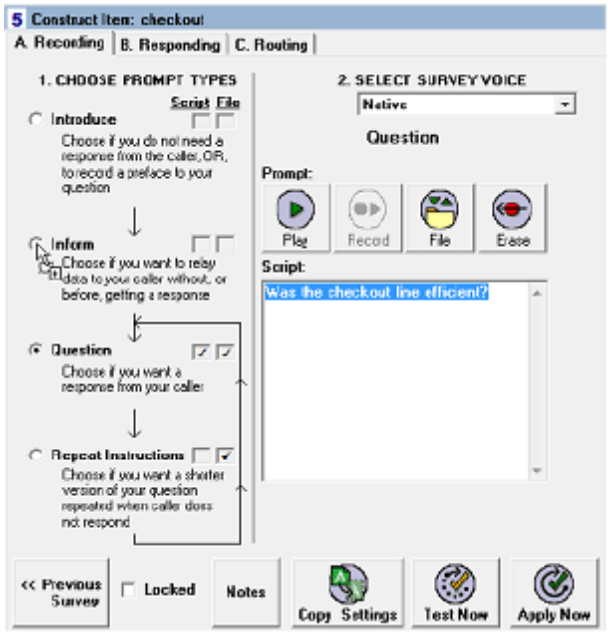
The **Previous Survey** button appears on all of the **Construct Item** screens. Clicking on this button toggles between the current survey and the previous survey, which is useful for modeling one survey off another, comparing similar surveys, or simply for troubleshooting. This button will not be available unless you have viewed at least two surveys since launching the SmartQ application.

Drag-and-Drop Item Text

SmartQ conveniently allows you to drag-and-drop text within a survey or from other word processing programs:

1. Highlight text in the **Script** box
2. Drag the text to any of the prompt types buttons on the left (**Introduce**, **Inform**, **Question** or **Repeat Instructions**).
3. The cursor will display an arrow or plus sign when you are in the correct area
4. SmartQ will then make a duplicate of your selected text in the **Script** field for prompt where you dropped it

This will also allow you to write a survey script in a word processing program and then copy it to desired locations within SmartQ.



Cut, Copy, and Paste Survey Items

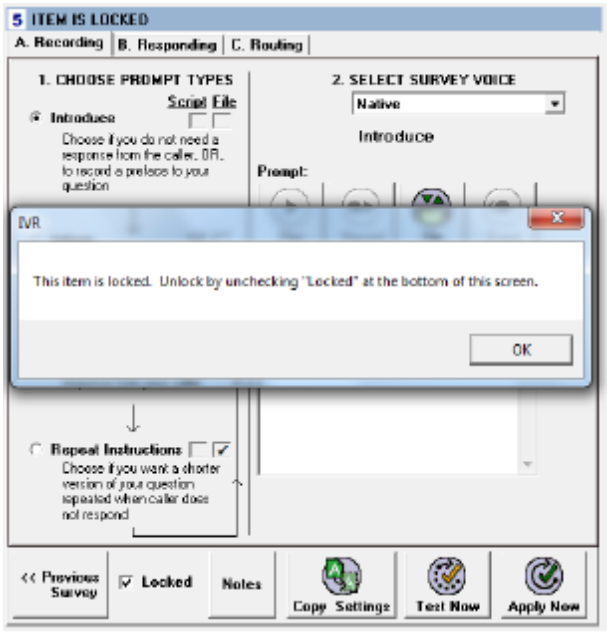
When managing and designing several surveys, it becomes very useful to cut-and-paste survey items. Using the keyboard shortcuts Control+X (Cut), Control+C (Copy), and Control+V (Paste), you can easily rearrange your survey items.

Simply highlight an item and copy it using the keyboard shortcut, and then find a location where you would like to place the item. Pasting the item will place it above whichever item you have selected. If you copy and paste within one survey, SmartQ will ask you to rename your pasted item in order to prevent duplicate items with the same name.

TIP: Use the cut, copy and paste functions along with the **Previous Survey** button to quickly work between two surveys.

Locked Items

The **Locked** checkbox at the bottom of the **Construct Item** window acts as a safeguard against accidental modification of items. The primary use of locking items is as a reminder tool during the editing phase of survey design, and is not a security feature.



Example

During the design of your survey, you create a very complicated (and critically important) item named "Supermarket". Once complete, you check the **Locked** checkbox as a reminder that you are complete with item "Supermarket" and that you do not want to modify it. A few days later, while completing the design of your survey, you accidentally click on item "Supermarket" but when you try to modify the item, SmartQ reminds you that it has been locked. If you intended to modify "Supermarket", you simply un-check the **Locked** checkbox and proceed.

IMPORTANT: Locking will not protect an item against data loss in the event of a computer malfunction or prevent other users from modifying your survey. Locked items can still be deleted like unlocked items. Always remember to back up your surveys whenever possible.

Email Items

Email Settings

Some possible uses for **Item Type: Email** are:

- Distributing phoned-in orders to staff
- Notifying staff when a certain number of calls are complete
- Emailing survey results to a list of users

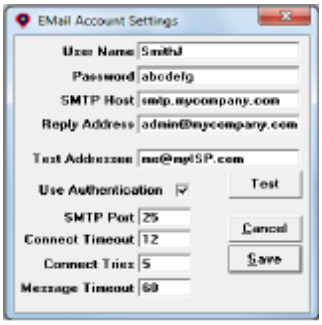
To set up Item Type: Email

Set up your email account information:

1. From the **Current Activity** screen, select **Tools > Email Setup**. This inputs your account information into SmartQ; only one account can be used at a time.

2. Enter your **User Name**, **Password**, **SMTP Host**, and **Reply Address** (optional). If you do not know what to enter in these fields, contact the person in charge of your network.

3. Click **Save**.



Create an item in your survey

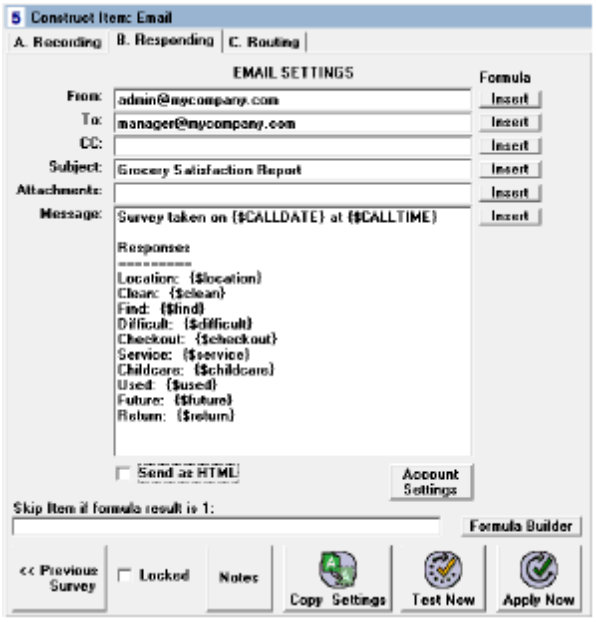
1. From the **Survey Designer** screen, make a new item of **Type: Email**.

2. Select the **Responding** tab and enter the desired information.

A completed email item is displayed in the example on the right. In this case, the results of the Grocery Store survey will be emailed to `manager@mycompany.com` with a subject line reading "Grocery Satisfaction Report".

Created through the Formula Builder (see Chapter 11), this email will include the date and time of the call, as well as selected responses from the survey.

This example email will be sent at the end of every Grocery Store survey taken. If this results in too many emails (for example, callers take this survey 100 times per day), then you may wish to selectively email results: for example, email all survey results for a certain store location.



Additional Email Features and Tips

When sending an email that uses formulas, be sure each formula is enclosed with curly brackets {} such as in the example {$CALLDATE}. The **Insert** button does this for you automatically.

To send an email only if certain conditions are met, use a Calculation or Custom item to evaluate the condition and have it route to the Email item (or not) accordingly.

To control who receives the e-mail, perform a database lookup in a Custom item, and refer to this value as a formula in the To: or CC: field.

The To: and CC: fields can include more than one recipient, if separated by semicolons, just like any email program.

The From, To, Subject, Attachments and Message fields may all contain SmartQ formulas (i.e., values that are calculated live during the survey).

To send multiple attachments in an email, make sure to include the full path, and separate each path with a semicolon or comma.

Email can be customized to your needs and is yet another excellent way to manage important survey data.

Survey Design: Basic Tutorial

Overview

Large surveys are often broken into two smaller survey types: a lead survey and multiple response surveys. This chapter will introduce you to survey design with a very simple survey. If you create a survey more complex than this example you should keep the lead and response organization in mind.

Scenario

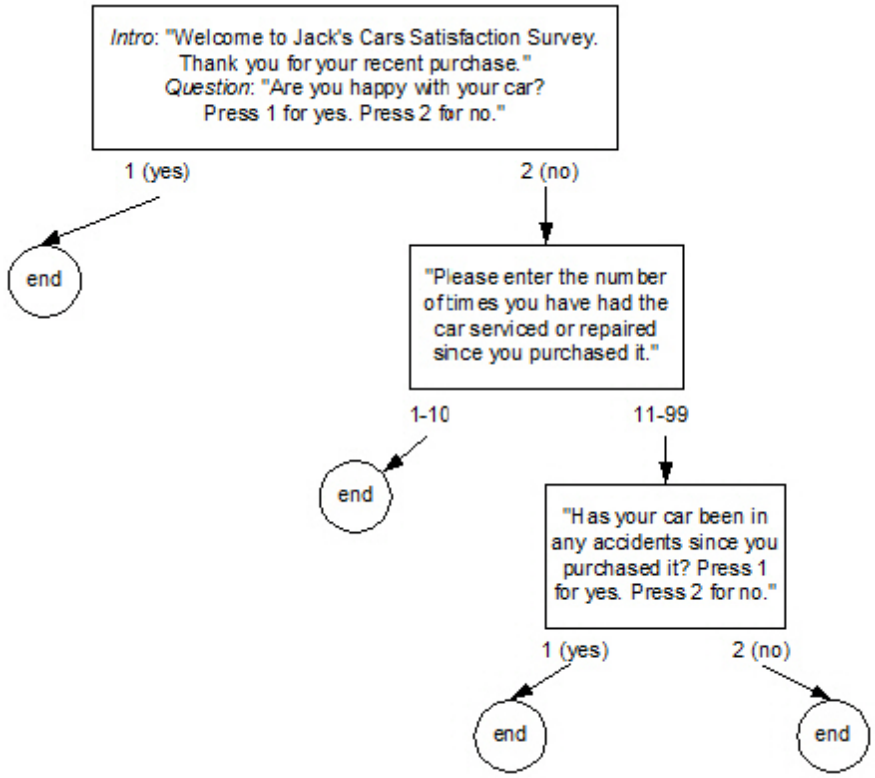
You own a used car dealership and your primary expense is repairing cars before you sell them. You are interested to see whether people who purchased used cars from your dealership during the past year are happy with their cars and whether those who are unhappy have had maintenance difficulties with their cars. You also need to screen out maintenance problems that are due to accidents that may have occurred after purchase.

Creating the Survey

The first step is to sketch out the questions you would like to ask, break these up into the introductions and questions, and so on. Here's a very simple example:

1. (Introduce) "Welcome to Jack's Cars Satisfaction Survey. Thank you for your recent purchase." (Question) "Are you happy with your car? Press 1 for yes. Press 2 for no."
2. (Question) "Please enter the number of times you have had the car serviced or repaired since you purchased it."
3. (Question) "Has your car been in any accidents since you purchased it? Press 1 for yes. Press 2 for no."

Another design technique is to draw a flow chart of the survey:



Sample Script

You can also design your survey using a template where you can add specific item names, item types, the data you might collect, and routing destinations. Let's look over an example.

TABLE 1. Sample Survey: Jack's Car Customer Satisfaction Survey

Item #	Item Name	Item Type	Prompt	Script	Data	Routing
1	happy	Query: Digits	Intro	"Welcome to Jack's Cars Satisfaction Survey. Thank you for your recent purchase."		
			Question	"Are you happy with your car? Press 1 for yes. Press 2 for no."	1, 2	Route "1" to End. Route "2" to Item 2.
2	repair	Query: Digits	Question	"Please enter the number of times you have had the car serviced or repaired since you purchased it."	1-99	Route 1-10 to Goodbye. Route 11-99 to Item 3.
3	accident	Query: Digits	Question	"Has your car been in any accidents since you purchased it? Press 1 for yes. Press 2 for no."	1, 2	Route all answers to End.

Set Up the Survey

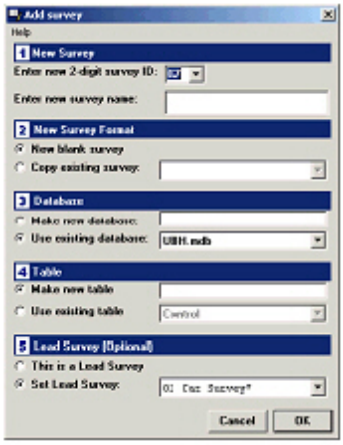
Open Survey Design Window in SmartQ

1. Open SmartQ. Click **OK** for any greeting messages that appear.
2. Click on the **Survey Design** button in the left-hand column of the screen to bring up the **Survey Design** window.

Create the Survey

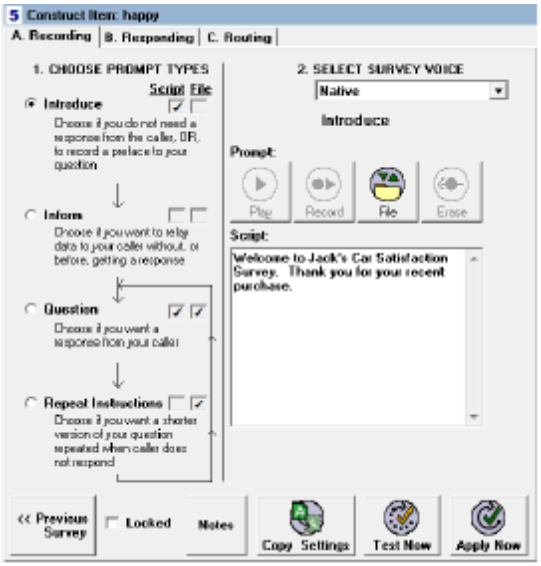
3. Select **1. Select Survey > Add New Survey**.
4. Under **New Survey**, select a two-digit ID for the survey and enter "Car Survey" as the **Survey Name**.
5. Select **New blank survey**.

A. Select **Make New Database** and enter "carsurvey" into the box.
B. Select **Make a New Table** and enter "Car Survey" into the box.
C. Click **OK**. Click **OK** again in the next box that appears.
D. Check the **This is a Lead Survey** checkbox (located beneath **Select Survey**)
.



Create First Survey Item

6. In the **3. Select Item** list, click on 1.
7. Enter "happy" into the pop-up dialog and click **OK**. "happy" is the name of your first item.
8. In the **4. Select Item Type** box, verify that **Query: Digits** is selected from the pull-down menu (it is the default).
9. Under **5. Construct Item: happy**, click the **Recording** tab (it may already be active as the default).
10. Click the **Introduce Prompt**. Enter "Welcome to Jack's Cars Satisfaction Survey. Thank you for your recent purchase." into the **Script** box. You can read from the **Script** box when you record.
11. Click the **Question Prompt**. Enter "Are you happy with your car? Press 1 for yes. Press 2 for no." into the **Script** box.



Create Second Survey Item

12. In the **3. Select Item** box, click on 2.
13. Enter "repair" as the item name and click **OK**.

14. Select **4. Select Item Type > Query: Digits**.
15. Under **5. Construct Item: repair**, click the **Recording** tab.
16. Click the **Question Prompt**. Enter "Please enter the number of times you have had the car serviced or repaired since you purchased it." into the **Script** box.

Create Third Survey Item

17. In the **3. Select Item** box, click on 3.
18. Enter "accident" and click **OK**.
19. Select **4. Select Item Type > Query: Digits**.
20. Under **5. Construct Item: accident**, click the **Recording** tab.
21. Click the **Question Prompt**. Enter "Has your car been in any accidents since you purchased it? Press 1 for yes. Press 2 for no." into the **Script** box.

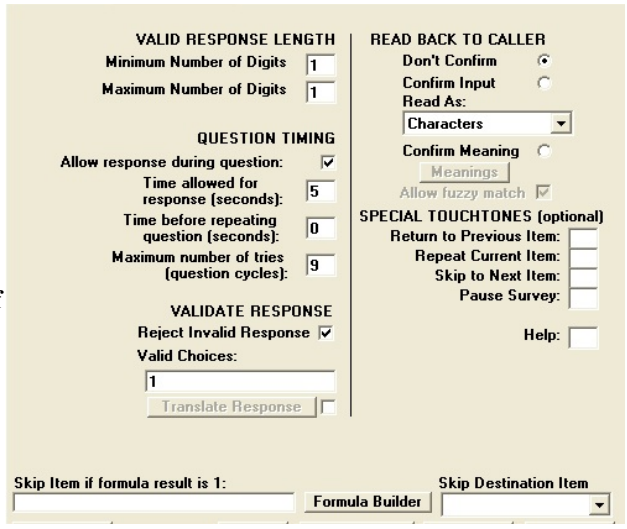
Record Survey Prompts

22. Click **Connect** in the left-hand column of buttons on the SmartQ screen.
23. SmartQ will ask, "You are not currently connected. Do you want the system to dial your phone?" Click **Yes**.
24. In the next box you will see "Enter your phone number." Enter the telephone number of the telephone that you are using for the recording session. This can be any telephone, but must be a telephone that is located near the computer where you are working. Click **OK**.
25. SmartQ will call your telephone. When the telephone rings, answer it. You are now ready to begin recording voice prompts.
26. Click on **1. happy** under **Select Item** and click on the **Introduce** prompt (on the **Recording** tab).
27. Click the **Record** button. Speak the prompt into the telephone. (The prompt should be written out in the Script box so you can easily read it.)
28. When you are finished, click the **Stop** button.

29. At this point you can switch to another prompt and record it by repeating steps 6 and 7. For this survey, click on the **Question** prompt to complete recording prompts for the first Item. Next, switch to the second Item (**2. repair**) and record the **Question** prompt. Finally, click on the third Item (**3. accident**) to finish recording the **Question** prompt there.
30. Click the **Hang Up** in the left-hand column of buttons on the SmartQ screen to end the recording session. Hang up the telephone.

TIP: The prompts will appear in bold on the left side of the **Record** screen after they have been recorded so you know what prompts exist.

Responding



31. Click on the **Responding** tab.

32. Select the **1. happy** item (in the **Select Item** box). Enter "1" for **Minimum Number of Digits** and "1" for **Maximum Number of Digits**.

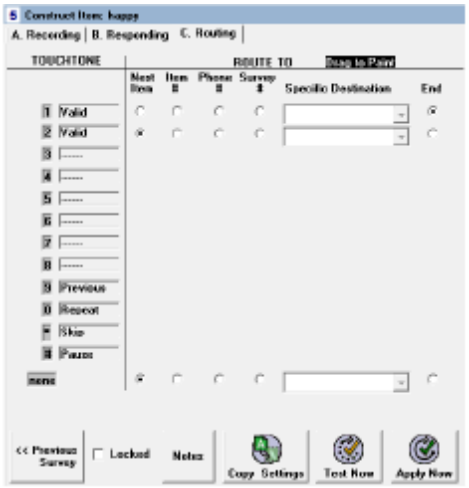
33. In the **Validate Response** section, check the **Reject Invalid Response** checkbox. Enter "1,2" as valid choices.

34. Select the **2. repair** item. Enter "1" for **Minimum Number of Digits** and "2" for **Maximum Number of Digits**.

35. Select the **3. accident** item. Enter "1" for **Minimum Number of Digits** and "1" for **Maximum Number of Digits**.

36. In the **Validate Response** section, check the **Reject Invalid Response** checkbox. Enter "1,2" as valid choices.

Routing



37. Click on the **Routing** tab.

38. Select the **1. happy** item (in the **Select Item** box). 1 and 2 should be marked as **Valid**. Route 1 to **End** and 2 to **Next Item**.

39. Select **2. repair** item. Enter "1" for **Min** and "10" for **Max** and route to **End**.

40. In a new row, enter "11" for **Min** and "99" for **Max** and select **Item Number**.

41. Select **Specific Destination > 3. accident**. (In this case, routing to **Next Item** would have accomplished the exact same result.) Routing to a specific item number is preferable if you are likely to modify the survey later.

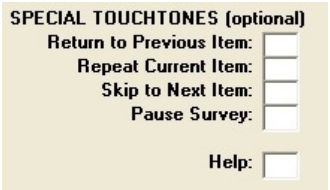
42. For the **3. accident** item route 1 to **End** and 2 to **End**. Click the **Apply Now** button at the bottom right of the screen.

Setting Special Touchtones/Copying Settings

43. Select the **Responding** tab.

44. Select the **1. happy** item from the **Select Item** list.

45. Fill in the **Special Touchtones** box like the one at the right:



- **A.** For **Return to Previous Item**, enter "*"
- **B.** For **Repeat Current Item**, enter "0"
- **C.** For **Skip to Next Item**, enter "#"
- **D.** For **Pause Survey**, enter "9"

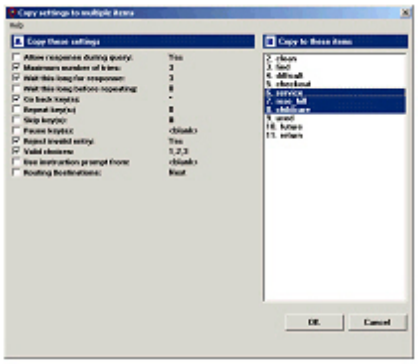
46. Click the **Copy Settings** button at the bottom of the window.

47. A window will appear where you can select the settings you wish to copy and apply them to other Items. Check the checkboxes next to **Go back key(s)**, **Repeat key(s)**, **Skip Key(s)**, and **Pause Key(s)**.

48. Hold down the Control key and click on **2. repair** then **3. accident**. Both should be highlighted.

49. Click **OK**. After you confirm that you wish to apply the settings to these items by responding Yes to the next dialog that appears, the special touchtone settings should appear for the items you specified.

Call your Survey



50. Verify that there is a **Stop Calls** button on the left-hand column of buttons. If there is a **Start Calls** button, click it so it toggles to read **Stop Calls**.

51. Click the **Current Activity** button on the left-hand column of buttons.

52. Call your survey and watch the progress from this screen. You can call your survey at any time by dialing the phone number of the phone line going into your computer. (Think of the computer as answering the phone and dial the number that will make that happen).

53. When the call is done, you can click the **Data** button on the left-hand column of buttons or you can open Microsoft Access to access the data collected.

Saving and Testing

Saving

SmartQ automatically saves your settings when you switch screens, switch surveys or when you switch items. If you wish to save a setting without switching screens, click the **Apply Now** button on the lower right hand corner of the **Survey Design** screen. That will save your work immediately.

Testing

As you create a lead survey and name items, SmartQ automatically creates database fields in the lead survey's Microsoft Access table. When you are finished creating the lead survey, you should check the **Lead Survey** checkbox in the **Select Survey** section. Then, as you are designing your response surveys, lead survey fields are automatically associated with new response survey fields.

This allows all the data collected from a single caller to be shown in the database, whether it is the identifying information that is collected with the lead survey or the survey responses that are collected with the response survey.

If you add fields to your lead survey after you have already created a response survey, you must test the survey to ensure that the new fields will be associated with your response survey!

> ***IMPORTANT***: You should test your surveys as you work so that all the settings are correct and call data has the correct destination field. You can either set up auto-testing (recommended) or manually run testing as you work.

Auto-Test Reminders

1. On the **Survey Design** screen, verify that **Remind me to Auto-Test Surveys** is checked under the **Preferences** pull-down menu (it is checked by default).
2. A small test box will pop up when you exit the **Survey Design** screen (to the **Data** or **Current Activity** Screen) or if you switch to another survey. SmartQ will ask "Test this survey now?" Click **Yes**.
3. SmartQ will ensure that the survey's settings are complete and consistent with each other (such as verifying that the survey has no extra settings and checking that all required item settings have been completed). It also checks that there is a database configured for the survey and that all items have field names in the database. A log detailing any problems will appear at the end of the test.

If you wish to turn this feature off and test your surveys manually without prompting (not recommended), use the Preferences pull-down menu at the top of the Survey Designer window to deactivate the **Remind me to Auto-Test Surveys** feature.

Manual Testing

If you are in the early stages of survey development, you may find the Auto-Test reminders bothersome. You can turn them off from the **Preferences** menu, but if you do, be sure to use the **Test Now** button. The Test Now operation not only checks settings, it will also create any fields, tables or even databases missing from your data configuration.

If you do not have **Remind me to Auto-Test Surveys** checked in the **Preferences** menu you should use the **Test Now** button periodically to test your survey.

Conducting and Monitoring Surveys

Basic Functions

Start SmartQ

SmartQ will load ready to answer calls, administer surveys, and store clients' responses on the hard disk.

Stop and Start Calls

One of the buttons on the left-hand column controls SmartQ's activity status. The label on the button will change from "Start Calls" to "Stop Calls" depending on your connection status.

This is helpful if you wish to discontinue incoming calls to work on a survey (for example, to record a voice prompt or delete a survey question). Click on **Stop Calls** in the column of buttons on the left-hand side of the screen. Calls will stop and the button will toggle to read "Start Calls". When you are ready to receive calls again, click on the **Start Calls** button. Calls will be answered and the button label will change to "Stop Calls".

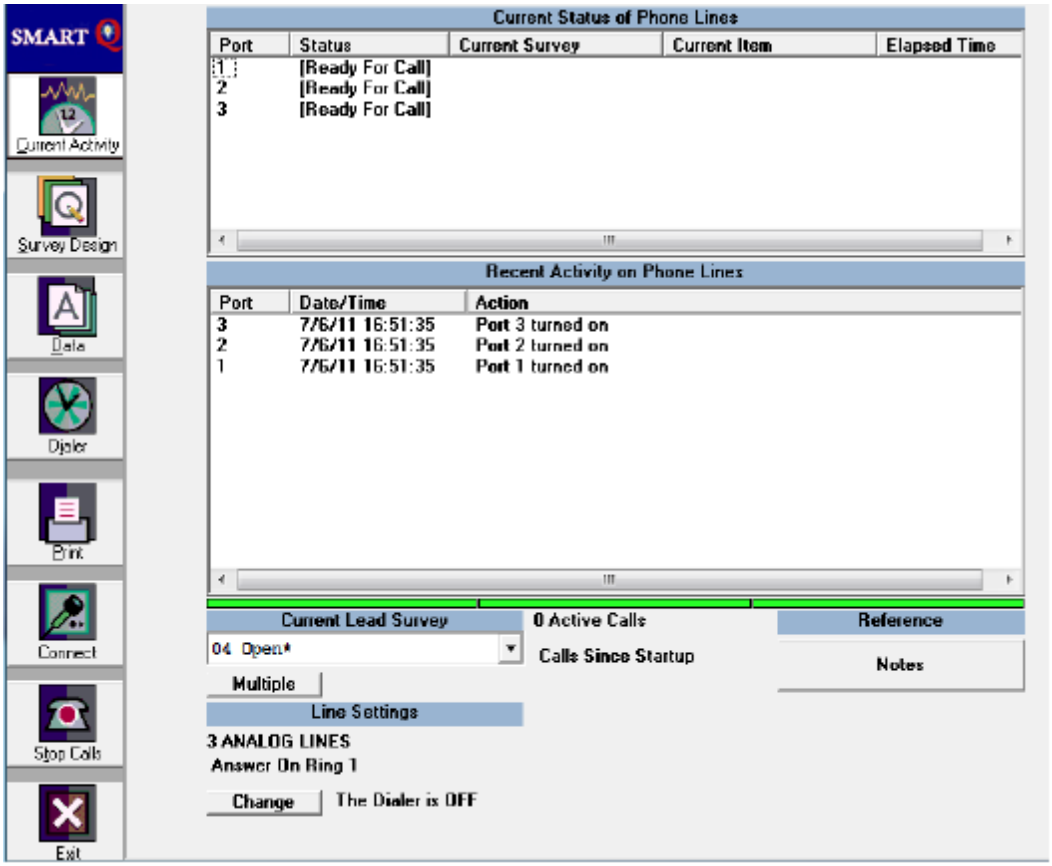
TIP: If calls are in progress, don't hesitate to press **Stop Calls**. When **Stop Calls** is pressed and calls are currently in progress, SmartQ gives you the option to allow current callers to finish their surveys, while not accepting any more incoming calls.

Exit SmartQ

SmartQ must be open and running for calls to be answered. However, if you do wish to exit the program completely and not answer calls, click on the **Exit** button in the column of buttons on the left-hand side of the screen.

Viewing Current Activity and Monitoring Progress

When you start SmartQ or when you click on the **Current Activity** button, you will see a screen showing system activity. This window is divided into two main sections: **Current Status** and **Recent Activity**.



Viewing the Status of Each Incoming Line

The status for each telephone line appears in the **Current Status** window in the **Status** column. The lines can have three different states:

Status	Description
Ready for Call	The incoming line is available and ready to take calls.
Dialing *number*	Currently dialing an outbound call.
Record/Playback	Recording prompt when creating a survey.
Doing Survey	The incoming line is administering a survey.
[Off]	The incoming line is not active. Click on the **Start Calls** button to activate, or refer to the troubleshooting section.

Immediately below the **Recent Activity on Phone Lines** section is the **Port Status Bar**, a thin horizontal bar divided into a number of segments, one for each port, whose color indicates port status.

If you click a segment with the mouse, the **Current Status section** will scroll to display the corresponding port. If you right-click on the **Port Status Bar**, you can select **Choose Colors** to open a window that allows you to reassign the colors used to indicate port status.

Viewing Recent Call Activity on Incoming Lines

In the **Recent Activity** section in the lower portion of the window, an ongoing log of recent call activity for each line is displayed.

Viewing Responses in Real Time

From the **Current Activity** screen, right-click on an active port in the **Current Status** section to bring up a menu and select **View Responses As They Happen**. The resulting screen will help you determine what a caller enters in real time. After the call finishes, responses are still available from this screen and are not cleared until another caller begins a new survey.

You might use this to determine what is wrong with a call taking a very long time, to check responses on a busy system, or simply out of curiosity for how callers react to your survey.

The **Port Status Bar** (the long horizontal bar immediately below the **Recent Activity** section) also provides a very convenient display of the status of all of your ports.

Notes

If you select the **Notes** button, the `IVRNotes.txt` file will be opened by Notepad. This is a convenient place to create a system log and means of accessing it.

> ***NOTE***: If you are upgrading SmartQ from a version that did not contain this feature, the contents of the previous reference fields will be copied into the contents of the `IVRNotes.txt` file.

Printing SmartQ Windows

On the left column of your SmartQ screen, the **Print** button allows you to print any screen that you have open. Open the window that you would like to print and click on the **Print** button.

Call Volume and Port Usage

Accessed through the **Current Activity** screen's **Tools** menu, **Call Volume** and **Port Usage** can help maximize the use of your system.

There are 1,440 minutes in every day. SmartQ shows how these minutes were divided among the number of lines you have:

# Ports In Use	# Minutes
0	**917**
1	**230**
2	**152**
3	**86**
4	**55**

In the above example on a 4-line system, all four lines were in use for a total of 55 minutes on this day. These 55

minutes could have occurred at any time that SmartQ was taking calls, but for 55 minutes, SmartQ could take no more calls. In other words, a caller would receive a busy signal during those times.

Depending on the type of surveys you run, this is not necessarily a problem. If SmartQ mostly makes outbound calls having all lines busy is efficient. However, if you do not want to alienate callers with a busy signal, perhaps you require additional capacity. In any case, the call statistics are yet another useful way to monitor your surveys.

Maximizing SmartQ uptime

The ability of SmartQ to work when you are away is one of its primary functions. Below are some tips to maximize the uptime of SmartQ:

1. Minimize the chance of power failure
    - If your building has emergency backup power on certain circuits, use one of those circuits for SmartQ
    - Use a UPS (Uninterruptible Power Source) for SmartQ. These typically provide backup power for about 30 minutes

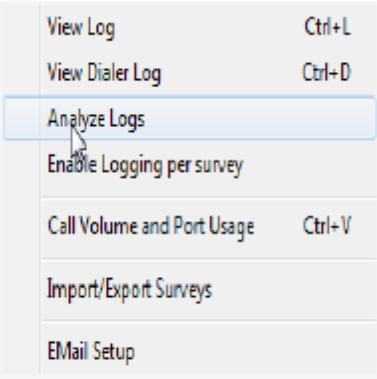
By keeping SmartQ running, you will avoid the delays associated with restarting the computer, loading the drivers, and restarting SmartQ.

2. Configure SmartQ to start when power is restored to the computer
    - Adjust the BIOS setting on the computer so that it powers on automatically when it is plugged in
    - Set Windows to **Auto-Logon** (but beware that this may require disabling some passwords)
    - Set SmartQ to run automatically. Place a shortcut to `Start_IVR_SEND.EXE` (located in the `TeleSage\Ivr` folder in Windows 7 or the `TeleSage` folder in Windows XP) in the `Startup` folder (typically `C:\Users\[Windows Username]\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup` in Windows 7, or `C:\Documents and Settings\All Users\Start Menu\Programs\Startup` in Windows XP). This program displays a countdown while waiting for the Dialogic drivers to load, then runs SmartQ.
3. Call Coverage
    - When SmartQ is unavailable, you have two choices. Callers can either receive a no-answer, or callers can receive a recorded message informing them that your survey is temporarily unavailable
    - If the no-answer ring is acceptable during downtime, no additional configuration is necessary. This is the default. If you have a T-1 circuit, callers may hear a busy signal or a message that circuits are busy/unavailable.
    - If a recorded message is desired, then the SmartQ phone lines should be set up to forward to voicemail on no-answer. In an office PBX environment, a voicemail box could be set up for SmartQ, with an appropriate greeting message. If the SmartQ lines come directly from the Central Office, then the voice mail feature should be ordered from the phone company for each of the lines.
4. Notification of Problems: NightOwl

TeleSage's NightOwl product can be used to monitor SmartQ externally and to notify personnel if SmartQ stops operating properly. Contact TeleSage for more information about NightOwl.

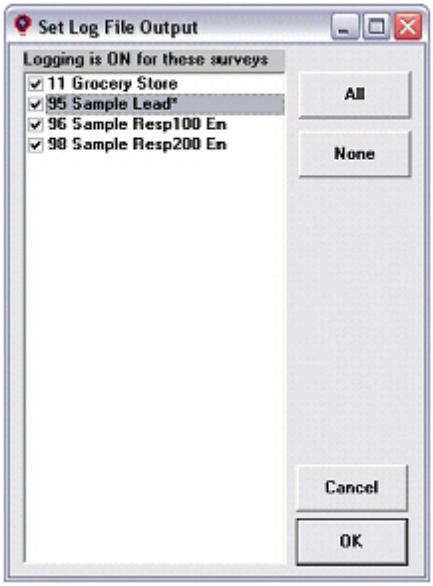
Log Files (for troubleshooting)

SmartQ generates log files for system events, viewable in the `Logs` folder. These include error messages, the exact timing when lines are started or stopped, which lines were active during which times, and when SmartQ begins operating, to name a few examples. These log files are very useful for troubleshooting your system setup.



Log files record from the time SmartQ starts until the program is closed. On larger systems (i.e. large numbers of surveys running simultaneously), writing these log files can occasionally slow the entire system. Thus, for surveys on which you expect high volume and know that few problems exist, you may wish to disable logging.

To enable/disable logging, go to the **Current Activity** screen and select **Tools > Enable Logging per survey**. When the dialog appears, deselect the surveys for which you do not want a log file to be written.

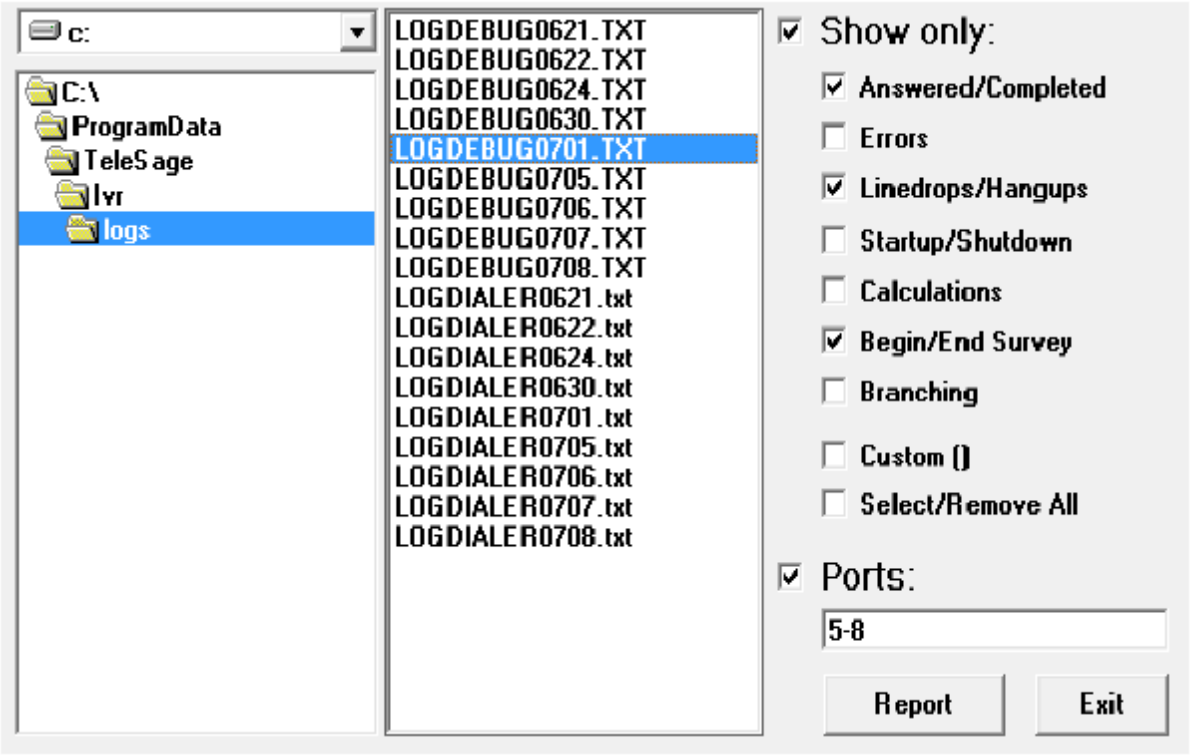


NOTE: When logging is turned off, the beginning and end of each survey are recorded, along with any errors.

To examine the contents of one or more of the log files, select the **Tools > Analyze Logs** menu option. The **Analyze Logs** dialog will appear to allow you to specify which log entries you would like to examine, narrowing down the data selection by:

- File name / Date (file names contain dates)
- Port number(s)
- Types of log entries (Answered/Completed, Errors, etc)

After you select your conditions, press the **Report** button and the corresponding log files will be opened.



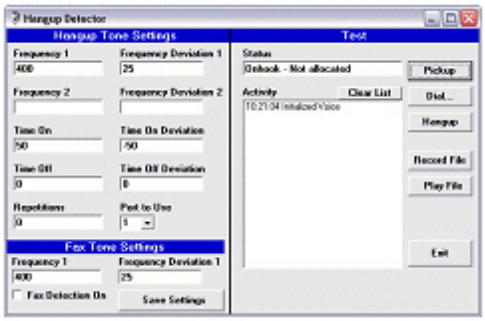
Fax Transfer [Custom only]

If the fax machine in your office can be attached to a phone system extension and share the phone lines with the IVR system, SmartQ can save you the cost of having a dedicated fax line.

Configuring Fax Detection

On the **Current Activity Screen**, click the **Change** button on the bottom of the screen to access **Phone Line Setup**. Select the **Hangup/Fax Detection** button.

Not only can you enable or disable fax transfers from this window, but you can adjust the frequency and cadence so that SmartQ can recognize incoming faxes from your system. This function would be used if you were having trouble with faxes not being recognized properly.



Data Management

Overview

This chapter will explain how SmartQ collects and stores data, as well as how you can view and manipulate the data once it has been collected.

When a client calls your automated telephone survey and answers questions, SmartQ stores the responses on your computer's hard disk. Using the buttons on the **Data Screen**, this call data can be viewed, exported to a text file, and/or imported to a separate program to create reports.

To view the **Data Screen**, click the **Data** button, which will always appear as part of the left-hand column of buttons under the SmartQ logo.

Storing Data

SmartQ Database Architecture

SmartQ stores data directly into a Microsoft Access database. For each lead and response survey on your system, data is stored in the database, table, and fields that you configure when you design each survey in **Survey Designer**. If a client terminates a call before finishing the lead survey, data from that call is stored in the lead survey table. If a client completes the lead survey and at least a portion of the response survey, all of the call data is stored in the response survey table.

Each response survey can write its data to only one table. However, multiple surveys may write to the same table. You may wish to have multiple surveys write data to the same table if, for example, you have the same survey given in multiple languages. Every item in a survey is assigned its own unique field. If you decide to change the database or table that your data writes to, be sure to click the **Test Now** button on the **Survey Design** screen. This button causes SmartQ to check the database, and create any missing fields.

Automatic Call Statistics

All data in your database is organized into fields. Each field has a field name. Each item name you created in **Survey Designer** will show up in your database as a field name. Data collected as part of that item (the answer to a query, a calculation, or a retrieval of information) appears with the appropriate Field Name in the database.

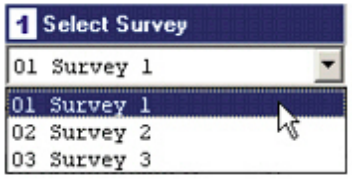
Similarly, call statistics (such as time of call), are automatically collected by SmartQ and have field names. They are stored in your database table, along with the responses to your survey items. No configuration is required from you for them.

Field Name	Friendly Name	Definition
CALLPORT	Port (phone line)	The port that the call came in on. If manual entry, the port will be 999.
CALLDATE	Date of call	Date of the call. If manual entry, this is the administration date of entry.
CALLTIME	Time of call	Time of the call. If manual entry, this is the administration time of entry.
LEADNAME	Lead Survey Name	Name of the lead survey.
LEADMINS	Lead Survey Duration	Duration in minutes of the lead survey (a decimal number to two decimal places).
RESPNAME	Response Survey Name	Name of the response survey.
RESPMINS	Response Survey Duration	Duration in minutes of the response survey (a decimal number to two decimal places).

Viewing Data

Viewing One Record

SmartQ allows you to sort through and view each caller's individual survey records.



1. Make sure you are viewing the **Data** screen (if not, click the **Data** button).
2. In the **Select Survey** pull-down menu, select the survey that contains the information you wish to view.
3. **Select View** should be set to **Data**.

4. Use the **Select Record** arrows to scroll through the data records. Data will appear in the order that it was entered into the survey.

TIP: If you want to sort data by a particular field, click on the field name you want to sort by and all records will sort in ascending order alphabetically or numerically.

Viewing Multiple Records

If Microsoft Access is installed, you can launch it from within SmartQ to sort through and view multiple records at once.

1. Make sure you are viewing the **Data** screen (if not, click the **Data** button).
2. Select **Data > Launch Microsoft Access**. This will open the table you were viewing on the **Data** screen.

Viewing Data Based on a Query

SmartQ normally displays all records in a table. You can filter which records are to be displayed with the **Query > Select By Query** menu command. This menu prompts you for a SQL statement, which is then applied to the data before displaying. Any SQL SELECT statement may be applied, so you can use this to run ad hoc queries that include operations such as COUNT(), GROUP BY, ORDER BY etc.

To return to the default view of all records in the survey's table, choose **Query > Show All Records**.

Data Preferences

Make sure you are viewing the **Data** screen (if not, click the **Data** button).

Under the **Preferences** pull-down menu you can choose from the following options:

Allow Editing of Data

Allow editing of data is unchecked by default to avoid altering any data in the database. Use caution in turning this preference on, as once data is entered in a field it is permanently changed in the database.

Confirm Deletions

The **Confirm Deletions** option is checked by default. A dialog box will pop up when you delete something to safeguard your data against accidental deletion.

Display Surveys Alphabetically

Surveys display numerically by default. Check this preference to display surveys alphabetically instead.

Show Tooltips

When enabled, SmartQ will show you additional information if you hover the mouse above individual fields or buttons.

Colors . . .

SmartQ allows you to customize colors of fields to make it easier to scan the screen visually. You can set colors to differentiate:

- Built-in call statistics
- Lead survey fields
- Response survey fields
- Fields that aren't part of this survey

Manually Entering Data

You may want to enter data by hand if you have a pencil and paper version of your survey that needs to be compiled with the rest of the surveys collected by SmartQ.

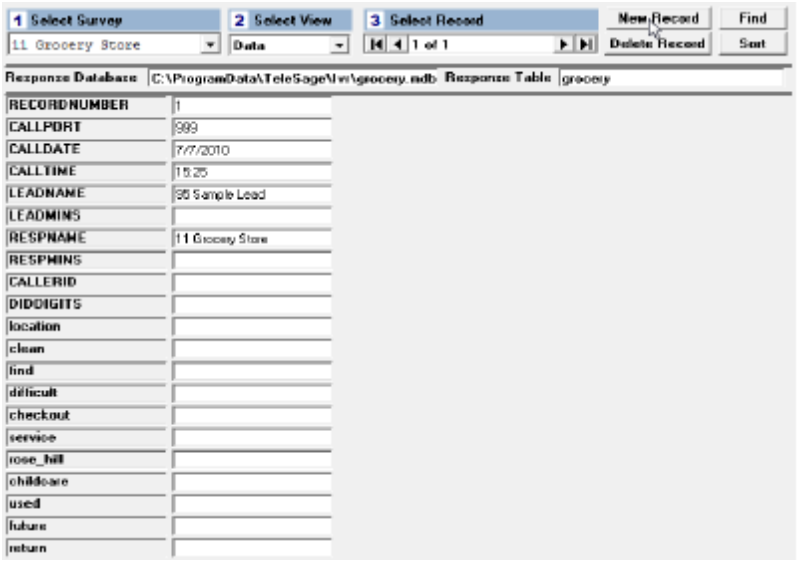
1. Make sure you are viewing the **Data** screen (if not, click the **Data** button).

2. In the **Select Survey** pull-down menu, select a survey.

3. Go to the **Preferences** pull-down menu and check **Allow Editing of Data**.

4. To enter a new record, click the **New Record** button.

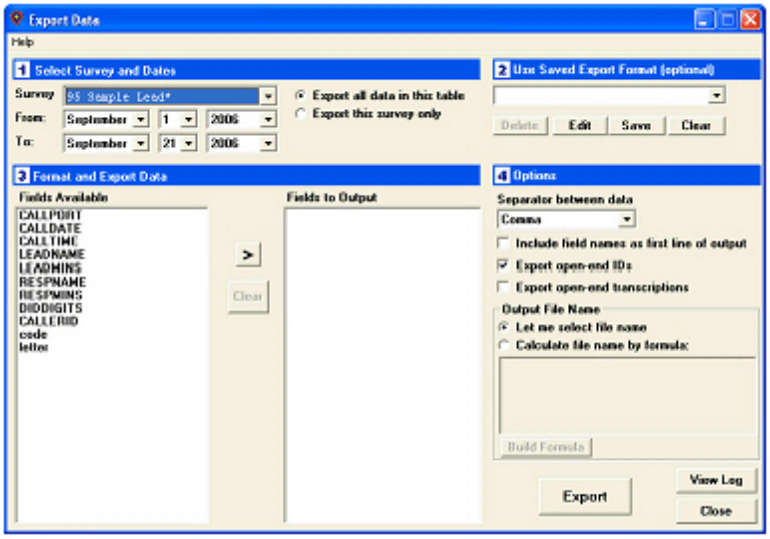
5. Type the information in the appropriate fields.



TIP: The record number, call port, call date (present date), and call time (present time) automatically appear in the first four fields. When manually entering a survey, you may want the call date and time fields to reflect the date and time that the survey was actually administered, rather than when it was typed into the computer. To change this data, simply type over the existing information. The record number uniquely identifies the record and cannot be edited. The call port number 999 identifies the record as manually entered data

Exporting Data

SmartQ can export data to Microsoft Excel and other programs that can import data from text files. You can also view and edit the exported text files in text editors.



1. Make sure you are viewing the **Data** screen (if not, click the **Data** button).
2. Select **Data > Export…**. The **Export Data** window will appear.
3. Specify the data to be exported by selecting a survey and range of dates from the **1. Select Survey and Dates** group.
4. Under **Fields Available**, double-click each data field name you would like to include in the exported data file. It will then be listed in the **Fields to Output** box.
5. Double-click a field name from the **Fields to Output** list to remove it. To clear all of the field names from the **Fields to Output** list, click the **Clear** button.
6. Select a **Separator** between data (such as a comma, tab, pipe, or none) from the pull-down menu. Each data value will be separated by this character in the output file. This is necessary if you plan to import the file into a database.

TIP: If you wish to select multiple fields, hold down the Control key and click on each field you want until you are finished. Click the right arrow to move them to the **Fields to Output** list. If you wish to select consecutive multiple fields, hold down the Shift key while you click the first and last fields of the group. Click the right arrow to move them to the **Fields to Output** list.

7. If you check the **Include field names as the first line of output** checkbox, the first line of the output file will contain the names of the fields. The actual data will begin on the second line of the file.
8. If you check the **Export open-end IDs** checkbox, the numeric IDs of any open-ended responses will be exported to the data file.
9. If you check the **Export open-end transcriptions** checkbox, values entered by the user will be exported to the data file.
10. When you are ready, click the **Export** button to name the data set and specify where the data should be saved.
11. To view a list of all activities in the **Export Data** window, click the **View Log** button.
12. Click **Close** to close the **Export Data** window and return to the **Data Screen**.

Save and Load Settings

If you export the same type of data periodically and want to ensure that the format remains consistent, you can save your settings by using the controls in the **2. User Saved Export Format** group.

1. Press **Save** to enter a name for the settings. Typical names would include the survey name and the purpose, such as "Grocery Monthly." All the settings except the dates will be saved.
2. The next time you want to use these saved settings, select the name that corresponds to your settings from the pull-down list.

Filtering and Dividing Data

If you select **Calculate file name by formula** from the **4. Options** group (rather than **Let me select file name**) you can use the Formula Builder so that the name of the file will be generated dynamically.

You can also use the **Calculate file name by formula** feature to filter the data that is exported or distribute the data into separate files based on the contents. For example, you may want to:

- Export only calls that are completed surveys
- Create a separate file for each month
- Export only calls that surpassed a certain threshold score.

When SmartQ does an export, for each record it will evaluate a formula based on the content of that record. You define that formula so that it evaluates to the appropriate target filename.

The export formula is stored with your other settings in an export (`.exp`) file saved with the **Use Saved Export Format** controls, so you can reuse it later.

Example

You wish to divide the data into different files by month:

```
"C:\Data\Grocery_",&,(,$CALLDATE,FORMAT,"YYYY_MM",),&,".txt"
```

will divide your data into as many files as months that you have data. You will end up with a folder with a name like: `C:\Data\ 2008_02.txt 2008_01.txt 2007_12.txt 2007_11.txt`

Example

You wish to filter the data so that only complete surveys are recorded, one file per day. A survey is considered complete if item 59 has a response:

```
IF,@Item59,THEN,"C:\Completes\",&,YEAR,&,MONTH,&,DATE,&,".txt",ENDIF
```

If the formula evaluates to blank for any record, that record will be skipped in the output.

Database Errors and Recovery

If data from a call cannot be written to the Microsoft Access database for any reason, the data will automatically be saved to a text file. These backup files have the filename extension .dbe and are stored in the `Data` folder within your `Install` directory (the default is `C:\ProgramData\Telesage\Ivr\Data` in Windows 7 and `C:\Program Files\Telesage\Data` in Windows XP). Files are saved with the following naming convention according to the date of the call: *yyyymmdd*`.dbe` (for example, a call that came in October 17, 2004 would be stored as `20041017.dbe`).

SmartQ notifies you that an error has occurred by displaying the **Try Data Export Again…** button on the bottom right of the **Current Activity** screen. When no errors exist, this button is not available. To reconcile the errors that occurred:

1. Click the **Try Data Export Again…** button. (You can alternatively double-click a file to view the raw data.)
2. In the **Data Errors** window that pops up, click **Export** for each file in the list.

Assuming your database is operational when you click Export, SmartQ will fill in the missing data. If you are still having trouble exporting, be sure to check the status of the database that encountered the error.

Other Data Features

Deleting Fields

While in the **Data** screen with the **Data view** selected, you can delete fields from your database simply by right-clicking on the field, and selecting **Delete This Field**.

When deleting a field, SmartQ will always confirm with you when there is data present in that field. If you choose to delete the field and SmartQ begins collecting data for that deleted field, SmartQ will create the necessary field on-the-fly while your survey is taking place.

The menu that appears with the right-click also allows you to sort data by the selected field as well as find values within your database.

Suppressing Write to Database

Change your view on the **Data** screen to the **Configuration** view for the option to make SmartQ omit or suppress certain data from your database.

If you right-click on any field in your database you will be presented with the option **Don't Write to Database**. If you choose this option SmartQ will withhold any new data entries into that field until you specify otherwise. Your pre-existing data will remain intact, and you can resume writing that data to the database at any time by right-clicking a field that has been suppressed and selecting **Write to Database**.

You might choose this option for fields which are only used for intermediary calculations or for conditional branches in your survey logic.

Moving Fields

To rearrange your **Data** screen fields, simply drag-and-drop fields to change their order. This affects only the **Data** screen itself; it does not actually alter the arrangement of fields in your database, nor does it affect your other surveys.

TIP: Arrange fields in your **Data** screen for easy analysis of data. This keeps you from spending time searching for a select few fields when viewing data. For example, if you have three separate items in your survey that relate to customer service (and the rest relate to product features), bring the three items together in order to find them quickly.

Advanced Topics: Group

Overview

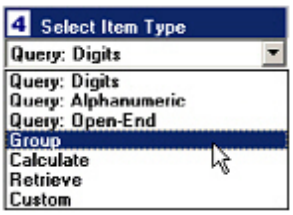
A *group* is an item type that consists of a collection of items. Defining a group is particularly useful if you wish to randomize questions in your survey. There are three types of groups:

- *Fixed*: Start with a fixed question and continue to ask questions in a fixed order.
- *Random*: Start with a random question and continue to ask questions in random order.
- *Rotating*: Start with a random question but continue to ask questions in a fixed order.

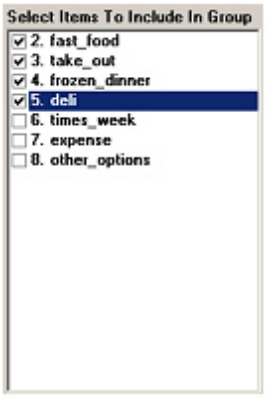
For example, you have three questions in your survey you wish to group. The following chart shows the order in which the questions could appear for a given caller depending on the type of group you select.

	Fixed	**Random**	**Rotating**
Possible Question Order	1,2,3	1,2,3	1,2,3
		1,3,2	2,3,1
		2,1,3	3,1,2
		2,3,1	
		3,1,2	
		3,2,1	

Setting up a Group



1. If you are interested in placing items in a group, it is easiest to set up the items first and then group them afterward. Set up all items to be placed in the group first (as you normally would for any item).
2. Click once on the first item you wish to place in a group.
3. Click the **Insert** button to insert a new item.
4. Enter a name for your new item (which will group the other items) and click **OK**.
5. Select **Select Item Type > Group**.
6. Click on the **Responding** tab.



7. Under the heading **Select Items To Include In Group**, you will see all the items in your survey. Select items for your group by checking boxes to the left of the desired Items. You can select as many items as you want or unselect items you do not want. If you wish to clear all the checked boxes and start selecting again, click the **Clear Selections** button.
8. Once you have selected all the items you would like to group, select the **Fixed, Random, or Rotating** option depending on how you want the group to behave.
9. Click on the **Routing** tab.
10. Each item in the group routes back to the group. The group item itself has the routing logic to decide when the group items can all be considered completed.
11. Decide how to route your caller once the questions in the group have been completed and complete the routing options appropriately.

NOTE: Items in the group may also route to follow-up questions, which then could route back to the group. You could alternatively have routing logic that in some cases never routes back to finishing the group.

Recording Prompts for a Group

You can record **Introduce** and **Inform** prompts if you have **Group** selected as the **Item Type**. The procedure for writing in the script and recording the prompt on the Recording tab is exactly the same as prompts for any of the Query item types.

If you record a prompt, it will be played before each item in the group is played. This may be useful if, for example, you have a set of five questions with the same instructions. You may also want these five questions to be presented in a random order. First, record each of your five questions as separate items (recording only the **Question** prompt). Next, put all of these items in a Group. Record the **Introduce** prompt (with instructions) as part of the group.

Conversely, if all your items have different instructions, record each instruction set as part of the original item; do not record anything for the group.

You may also find the **Inform** prompt helpful for calculating scores as people progress through items in a group.

Advanced Topics: System Voice and Multiple Language Support

In many real-world settings, you will need your survey to be in more than one language. SmartQ allows you to use the same survey for multiple languages, rather than forcing you to create a separate survey for each language.

System Voices and System Prompts

The prompts that you record to welcome your callers, ask them questions and guide them through the survey are called the survey voice. SmartQ comes with a set of built-in prompts for numbers, letters, dates, times and currency. These prompts are recorded for each system voice. The system contains built-in logic to use these at the appropriate time. In a single-language system, you don't need to change them. Your survey voice prompts will be recorded as the native voice and you can use the default system voice called **Amer. English-female**.

Type of Prompt	Wording of Prompt
Goodbye	"That concludes our survey. Thank you and Goodbye."
Invalid Answer	"Your entry is not recognized by the system."
Please Hold	"Please hold while I transfer your call."
System Pause	"Survey Paused. Press any key to resume the survey."
Confirm Number	"You entered [SmartQ reports entry]. If this is correct press 1, if incorrect press 2."
Numbers and Letters	Any numbers and letters specified for playback for the Inform prompt will be spoken by the SmartQ system voice.

In a multilingual system, you can record multiple prompt sets by creating additional survey voices and either use one of the built-in SmartQ system voices for that language or record your own system voice. Each system voice is associated with a language with grammatical rules for constructing dates, times, numbers, and so on. Your callers can select which voice (language) they prefer to hear with a voice selection item. This is just an ordinary survey item that you designate for the purpose of choosing a survey voice. SmartQ provides a screen for you to select what response leads to which survey and system voice.

System voices can be in English, Spanish or German. Future releases of SmartQ will support more languages.

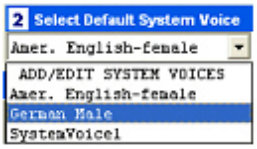
Once you create a system voice, it can be used in any survey.

You might, for example, create four system voices: one for American English, one for the English of Scotland, one for the English of England, and one for the English of India. All of these four system voices use the same language rules but will have their own recorded prompts to reflect differences in pronunciation.

NOTE: You can record a system voice in any language you'd like: the limitation is that the grammar rules will follow one of the built-in languages. For example, some languages parse 24 as "four-and-twenty" while others parse it as "twenty-four." You can only choose from these language rules, not change them or add to them.

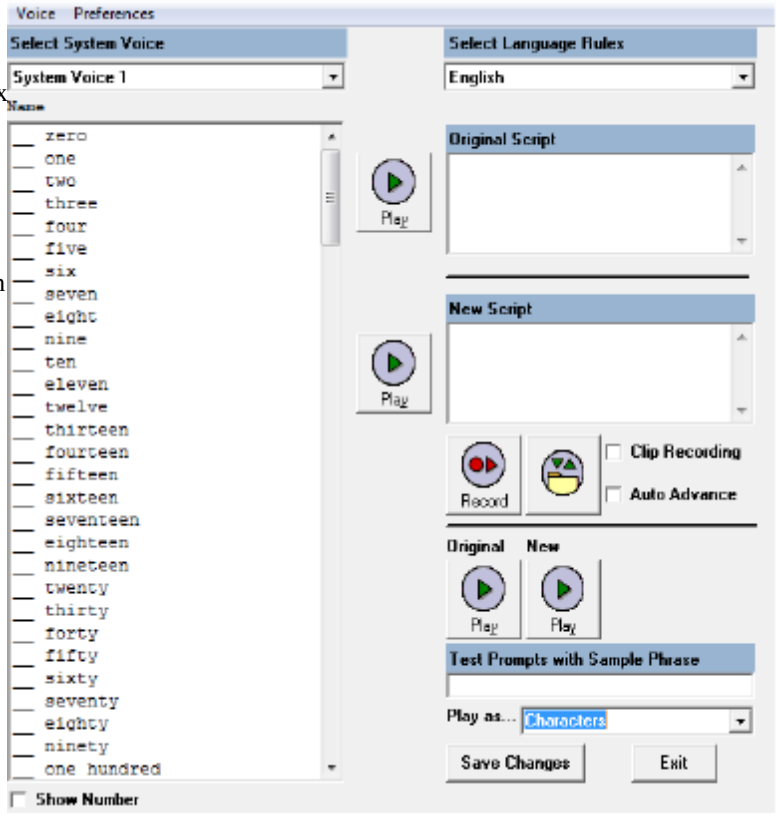
Default System Voice

The default system voice is the voice that will be used until it is changed by a voice selection item. You can choose the default system voice for any particular survey by making a selection from the **2. Select Default System Voice** pulldown menu on the **Survey Design** screen.



Recording a System Voice

Follow these steps to create a new system voice.



1. Select **2. Select Default System Voice > ADD/EDIT SYSTEM VOICES**

2. The **Record System Voice** dialog box will appear. It functions similarly to the **Recording** tab on the **Survey Design** screen.

3. Select the system voice you'd like to work on from the **Select System Voice** menu; if you want to create a new system voice, select **ADD SYSTEM VOICE…**

4. Select the prompt you'd like to create or replace from the **Name** list.

5. Enter the script for the system voice you are recording in the **New Script** textbox.

6. Press the **Record** button when you are ready to record the item.

7. Press the **File** button if you have a file you've already recorded that you'd like to use.

8. Press the **Play** button (to the left of **New Script**) to listen to the recording you've made for the current selection.

9. You can test the items in your new system voice by entering text into the **Test Prompts with Sample Phrase** textbox and specifying how that text should be interpreted with the **Play as…** pulldown menu. Press the **New: Play** button to hear it played.

10. Make sure that you select the appropriate linguistic rules from the **Select Language Rules** pulldown menu. If you don't, the way in which language elements are combined will seem illogical.

11. Nothing you have done will be saved unless you press the **Save Changes** button.

12. Press the **Exit** button to close the dialog box and return to the main SmartQ window.

Editing a System Voice

System prompts are almost always small elements that are combined together into phrases and sentences. It is therefore much more important that they be consistent in pitch, volume, inflection, and amount of leading and trailing silence. The **Record System Voice** screen is designed to allow you to compare changes you make against what you started with before committing your changes.

When you open a system voice for editing, SmartQ makes a working copy of the original file, called `New`. Most of the screen elements occur in pairs: one for your original system voice and one for the new version reflecting the changes you've made.

Editing and rerecording items you've created previous for a system voice works as explained above, although there are features which allow you to listen to and compare the versions of items you recorded previously. These previous items will not be replaced unless you press the **Save Changes** button.

1. The script you wrote previously for the currently selected item will appear in the Original Script textbox.

2. Press the **Play** button to the left of **Original Script** to hear the currently selected item as you recorded it previously.

3. To listen to the text in the **Test Prompts with Sample Phrase** with your previously recordings, press the **Original: Play** button.

Clip Recording

The **Clip Recording** option can automatically clean up your voice recordings. The **Clip Recording** option is made visible or invisible via the **Preferences > Enable Clip Recording** menu command.

The **Clip Recording** option saves time because it automatically stops recording when there is silence. This is useful for words that do not contain breaks in sound, such as "one" or "done". If you do not use the Clip Recording option, the recording may have "white noise" before and after the speech you recorded, which sounds messy and takes up time. Recording with this option enabled takes practice, but the results sound much cleaner. To use this method, you will need to speak as soon as you press the **Record** button. You can rerecord your prompts as many times as you wish.

The **Clip Recording** option should be turned off for words that have momentary breaks in sound, such as words that contain the letters "T", "K", or "X", or any type of phrase. This is because your natural pauses in speech sound (of which you are probably not even conscious) will automatically stop the recording before you are finished with your prompt.

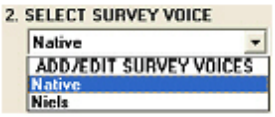
Auto-Advance

The **Auto-Advance** option is intended to save you the trouble of having to find and click each prompt when you are recording a number of prompts. The **Auto-Advance** option is made visible or invisible via the **Preferences > Enable Auto-Advance** menu command. If **Auto-Advance** is checked, then each time you record a prompt and click "Stop", the next prompt in the System Voice will automatically be selected. This allows you to record all of the prompts with the mouse in one place - over the Record button - and only needing to click Record and Stop.

Survey Voice

You can define any number of survey voices for each survey, each with its own name.

How Create a Survey Voice



1. Select **2. SELECT SURVEY VOICE > ADD/EDIT SURVEY VOICES** from the **Recording** tab.

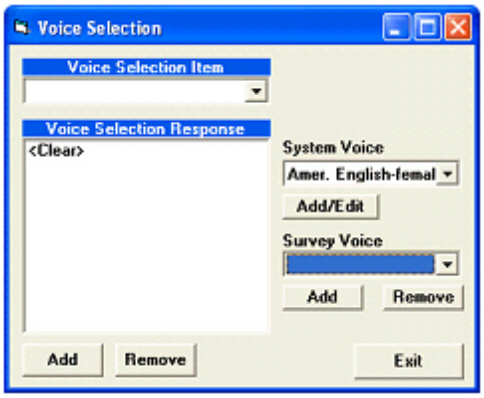
2. The **Voice Selection** dialog box will appear.

3. The survey voice must be associated with a pre-existing system voice. Choose the system voice with which it will be associated from the **System Voice** pulldown menu.

4. Press the **Add** button below **Survey Voice**.

5. Enter the name for this new survey voice in the dialog box that appears. The name will then appear in the **Survey Voice** pulldown menu.

6. Press **Exit** to return to the **Survey Design** screen



Recording Survey Voice Prompts

Chapters 2 and 3 have already discussed the basics of recording prompts for your survey. Once you add survey voices, you will need to record a prompt for each of these survey voices for every item in your survey (after the survey branches with the voice selection item).

Choose between your survey voices with the **2. SELECT SURVEY VOICE** pulldown menu on the **Recording** tab of the **Survey Design** screen.

Notice that all of the boxes, checkboxes and buttons will change after you select a different survey voice to reflect what scripts have been entered and what prompts have been recorded for it.

How to Create a Voice Selection Item

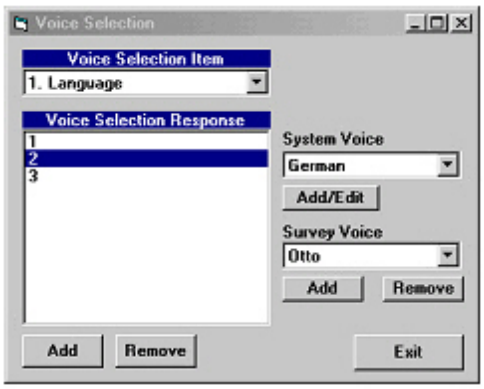
You can designate one item in your survey to be the voice selection item, which changes the survey voice that will be used for the rest of the survey. It may be any item type, so you could, for example, ask your callers, "Press 1 for English, or, para espanol empuje el dos." Or you could perform a lookup or calculation with a calculation or custom item. In any case, this will cause SmartQ to use a particular system voice and survey voice for the remainder of the call.

IMPORTANT: If one survey routes to another, the second survey will attempt to use a survey voice with the same name chosen by the first survey. If a survey voice of that name does not exist in the second survey, the second survey will automatically use its Native prompts.

The voice selection item will cause a survey voice to be chosen for the rest of the survey. The result of the item - whether it is a query from the user ("Select 1 for English …"), a lookup (referring to a previously recorded selection of the user's preferred language), etc - must be a number. The **Voice Selection** dialog box allows you to associate a numeric values with the survey voices.

1. Create a new item on the **Survey Design** screen. Make the appropriate selection from the **4. Select Item Type**

pulldown menu.



2. Make the appropriate selections on the **Recording**, **Responding** and **Routing** tabs, depending on whether you are asking the caller for a language selection, looking it up in a table, etc.

3. Select the **Recording** tab and select **2. SELECT SURVEY VOICE > ADD/EDIT SURVEY VOICE**.

4. Choose the item from the **Voice Selection Item** pulldown menu.

5. The **Voice Selection Response** list will be empty initially. You will need to add the possible numeric outcomes to the list and associate each one with a survey voice.

6. Press the **Add** button in the bottom left corner.

7. The **Add Voice Selection** dialog box will prompt you for a numeric value. Enter a value.

8. That value will appear in the **Voice Selection Response** list.

9. Select the value and then select a voice from the **Survey Voice** pulldown menu to associate with it. This is the voice that will be chosen if this value is the result of the item.

Advanced Topics: Formula Builder

Overview

After your call information is collected, it is likely that you will analyze the data in another program. However, you can also make calculations from within SmartQ. Formula Builder helps to score questions, collect the right data to read it back to callers, route answers based on calculations, and more.

There are three places in SmartQ where you will use Formula Builder most often:

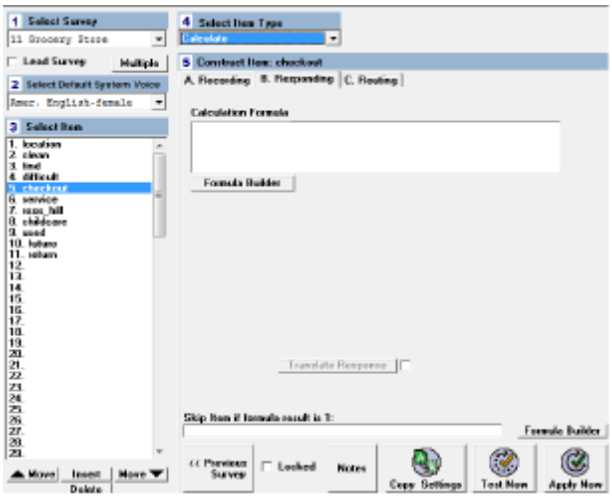
- If you choose **Calculate** as your item type, you will use Formula Builder to recall or score your data.
- If you use the **Inform Prompt** to read back data to a caller, you may calculate information using Formula Builder (under **Inform Data**).
- If you use **Retrieve** as your item type, you can route callers according to data from previous surveys using Formula Builder.

Many advanced features of SmartQ rely upon the Formula Builder to make calculations dynamically.

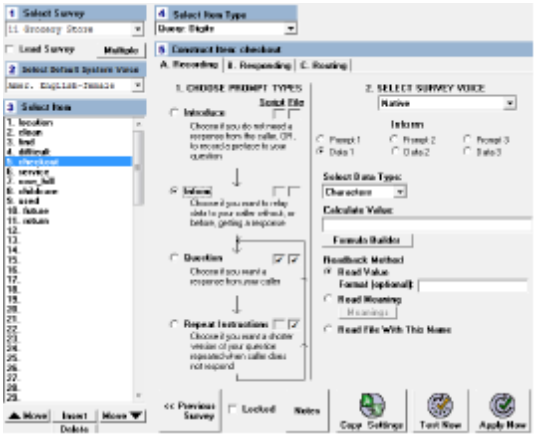
Calculate

If **Calculate** is highlighted under **Select Item Type**, you will find a **Formula Builder** button on the **B. Responding** tab. Useful applications include:

- Score calculations (either for immediate storage or for further branching based on scores).
- Route callers during a survey based on a previous answer in the same survey.



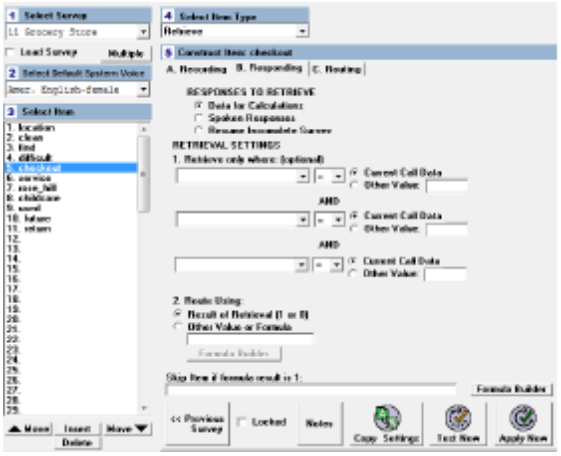
Inform Data Calculations



You will find a **Formula Builder** button on the **A. Recording** tab when **Inform** is selected as a prompt. SmartQ can read any Inform calculations back to the caller using the **Inform Prompt**. Useful applications include:

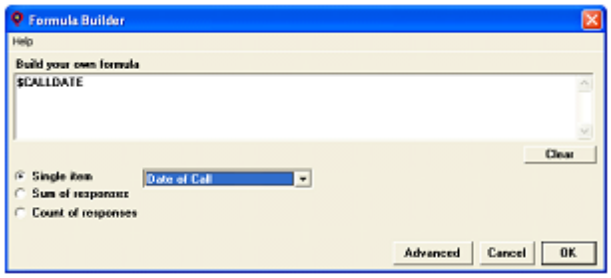
- Score calculations (to read back to the caller).
- Calculate the next time a caller will call (to read back to the caller).

Retrieve



If **Retrieve** is highlighted under **Select Item Type**, you will find a **Formula Builder** button on the **B. Responding** tab. Useful applications include routing or calculating answers that have been retrieved from past surveys.

Basic Formula Builder



In the initial screen of **Formula Builder**, you can recall a response to a **Single Item**, create a **Sum of responses** or generate a **Count of Responses**. If you wish to do anything more sophisticated, you will need to use the Advanced Formula Builder.

Single Item Recall

Normally you would ask questions, gather the answers, and route callers right away based on their answers using the **Routing** tab. But what if you want to ask a series of questions, gather the answers, and at the end of that series of questions route based on the answer to just the first question?

SmartQ allows you to recall the answer to a previous item in your survey. Create an item, specify **Calculate** as the type, bring up the Formula Builder and select **Single Item** to choose the item with the answer you would like to recall. Finally, use the **Routing** tab to direct the answers to the correct destinations.

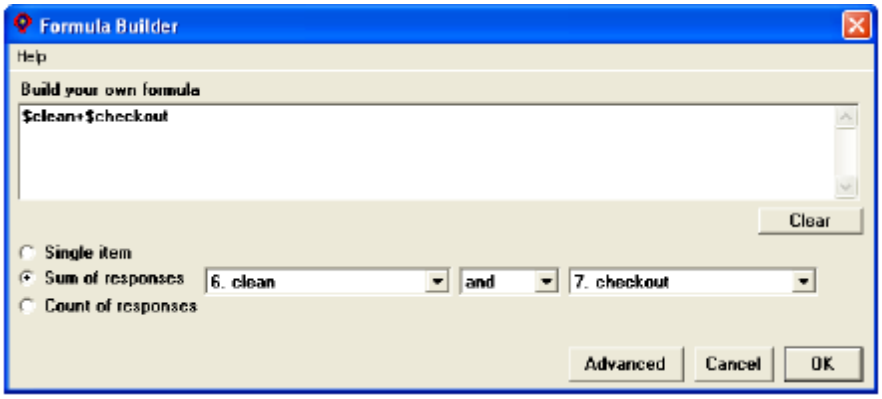
Example

One of your first questions (called "location") is "Which store do you frequent most often? Enter 1 for Downtown or 2 for Uptown." You ask several more questions that apply to the store in general. After that you ask a set of questions that apply specifically to the downtown or uptown location. You don't have to ask the question again in order to branch; just use a calculation to recall the response to a previous item.

1. Insert or create a new item called "store_calc" at the point in the survey where you wish to start branching questions.
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Check **Single Item**.
5. Choose the item name location from the pull-down menu.
6. Click **OK**.
7. Click on the **C. Routing** tab to route the responses to the correct places based on the answer to the previous question.

Sum of responses

You can add the numeric values of caller responses quickly and simply by selecting the **Sum of responses** option. You can use this function to add response scores at any point in your survey at the end.



If you are only adding together two values, you should choose the two values from the first and last pull-down menus and then choose and from the middle menu. If you have a continuous range of menu items you'd like to sum (such as responses 4 through 7), you can select the first and last items from the menu and then choose through from the middle menu.

Example

You want to sum two items named "clean" and "checkout".

1. Insert or create a new item called "positives".
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, press the **Formula Builder** button. The **Formula Builder** window will appear.

4. Check **Sum of responses**.
5. Choose **clean** from the first pull-down menu.
6. Choose **and** from the second pull-down menu.
7. Choose **checkout** from the third pull-down menu.
8. Click **OK**.
9. Click on the **C. Routing** tab to route the responses to the correct places.

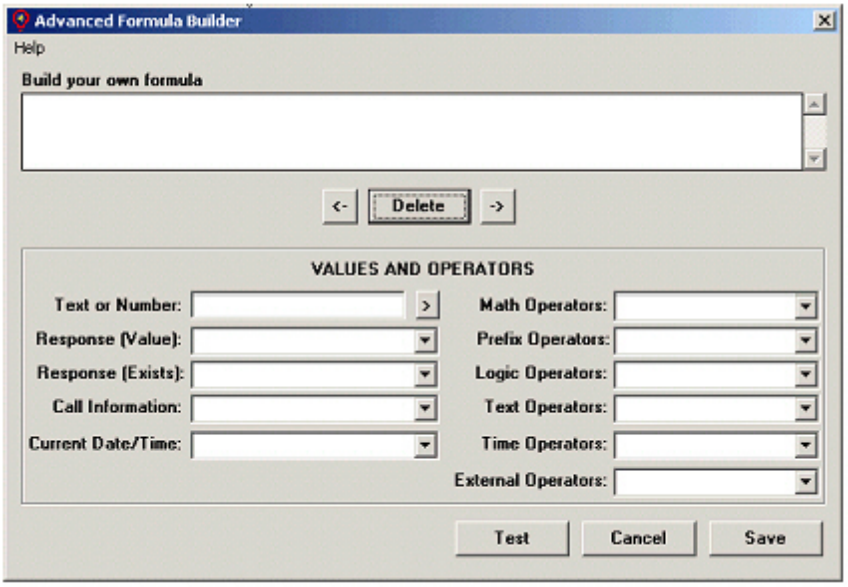
Count of Responses

The **Count of Responses** option on the **Formula Builder** window works similarly to the **Sum of Responses** option, except that it counts the number of items that were answered rather than adding together their numerical values.

IMPORTANT: Previous versions of SmartQ required tokens (numbers, operators, etc.) to be separated by commas. The use of commas has now been deprecated, although SmartQ will still parse commas in equations correctly. You may separate tokens with spaces, but this is not necessary unless the string would be ambiguous without them (such as in the case of Time Operators).

Advanced Formula Builder

The Advanced Formula Builder allows you to make sophisticated formulas tailored to your exact specifications. Click the **Advanced** button in Basic Formula Builder to bring up the Advanced Formula Builder.



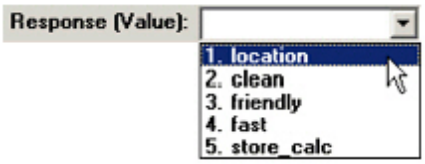
The Advanced Formula Builder has several pull-down menus that contain all the elements you need to build your formula. Select what you need from the appropriate pull-down menu and SmartQ will enter it into the **Build your own Formula** bar.

Your formula may also contain symbols such as "$" or "@" depending on the type of values and operators you use. These are a necessary and normal part of the formulas that SmartQ adds in for you automatically when you use the pull-down boxes to create your formula. As you become more adept at creating formulas you may wish to type directly into the box.

If you need to erase an element of the formula, use the back and forward arrow buttons as well as the **Delete** button. Do not edit the formula in the formula bar directly without the use of these buttons.

The rest of this chapter contains examples of how you can build your own formulas. Unless otherwise specified, use the pull-down menu to select each element of the formula. Item names and numbers are used in the examples for clarity, but you can adapt the examples to suit your needs.

Response (Value)



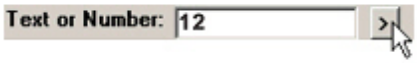
Click the pull-down menu next to **Response (Value)** to include the caller's answer to a particular question in your formula. Almost all calculations will involve a selection from this menu, as the subsequent examples will show.

Example

In the first example in this chapter with Basic Formula Builder, we recalled the response to a previous item (named "location") in order to branch based on that answer in a later point in the survey. You can accomplish the same result using Advanced Formula Builder instead of Basic Formula Builder. In a simple example like this one it makes no difference which method you use. We use the example here to allow you to see how Advanced Formula Builder works so that you can create more complex examples later.

1. Insert or create a new item called "store_calc".
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Select **Response (Value) > location** (the item name will only appear if it has already been created). SmartQ will automatically enter your selection into the formula box at the top of the screen.
6. When you are finished using Advanced Formula Builder, click **Save**.
7. Click **OK** in the Formula Builder window to close it.
8. You can now route callers based on their answers using the **C. Routing** tab.

Text or Number



If you want to enter text or numbers, enter them into the **Text or Number** box and click the > button to enter it. This is the only exception to the pull-down menu format. SmartQ will automatically add quotes to anything you enter into the **Text or Number** box (unless it is a number, which does not require quotes).

TIP: It is important to use this box (instead of just inserting the cursor and typing in the formula box) because SmartQ will add the proper syntax (such as quotes) to make your formula work correctly.

Example

One of your previously created items, named "visits", asks how many times the caller visits a clinic in a typical month. You wish to multiply the answer to this item by 12 to get an idea of how many times they visit in a year.

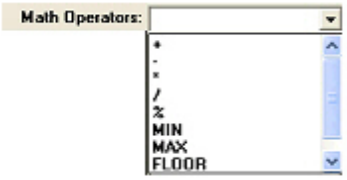
1. Insert or create a new item called "visit_calc".
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Select **Response (Value) > visits** (the item name will only appear if it has already been created). SmartQ will automatically enter your selection into the formula box at the top of the screen.
6. Select **Math Operators > *** (for multiplication). SmartQ will automatically enter it into the formula box at the top of the screen.
7. Enter "12" into the **Text or Number** box and click the **>** button to enter it into the formula box at the top of the screen.
8. "$visits * 12" should now appear in the formula box at the top of the screen. To avoid erasing essential parts

of the formula, use the back and forward arrows underneath the formula box as well as the delete button to highlight and delete parts of a formula if you make a mistake.

9. When you are finished using Advanced Formula Builder, click **Save**. Next, click **OK** in the Formula Builder window to close it.

10. You can now route callers based on a previous answer using the **C. Routing** tab.

Math Operators



Math operators provide functions for addition, subtraction, multiplication, division, the modulus operator (%), floor, and randomization. SmartQ will perform the operations as it reads the formulae, although operations are executed in the order in which they are encountered rather than according to any order associated with the symbols (for example, "5 + 20 * 4" is interpreted as 25*4=100, not 5+80=85)

You can use parentheses to specify the order in which the formula is parsed. The above formula could be written as "5 + (20 * 4)" to agree with the order of precedence recognized by most modern computer languages.

If a formula divides by zero, the result will be zero no matter what was being divided. No error condition will result.

Example

You wish to add up a set of scores from three previously created items (named "speed", "quality", and "service") and divide them by the number of questions asked (3).

1. Insert or create a new item called "satisfaction_calc".

2. Select **Select Item Type > Calculate**.

3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.

4. Click the **Advanced** button.

5. Build the formula

```
$speed + $quality + $service / 3
```

TIP: How to build the formula

- `$speed, $quality` and `$service` are under Response (Value).
- + and / are Math Operators.
- Enter "3" into the Text or Number box.

6. When you are finished using Advanced Formula Builder, click **Save**.

7. Click **OK** in the Formula Builder window to close it.

TIP: Other Math Operators

- The modulus operator (%) will divide and retain only the remainder. Example: `12345 % 100` will result in 45 in the database. (12345/100 is 123 with a remainder of 45.)
- The floor operator will round down a floating-point number. Example: `1.6 FLOOR` will give you 1. The random operator will generate a random number. Example: `1 RANDOM 6` results in a random number between 1 and 6.

Response (Exists)

The **Response (Exists)** operation allows you to determine whether or not a caller answered a question. It will automatically return a value of 1 if there is data present and 0 if there is no data for that item.

Example

If you wanted to do the same example as above (under Math Operators) but make it slightly more sophisticated, you could add **Response (Exists)** to the formula. Let's say that you wish to add up a set of scores from three previously created items dealing with customer satisfaction (named "speed", "quality", and "service") and then divide them by the number of questions answered (you don't want to divide by 3 if only 2 of the questions were answered).

In this example, we set up two items with different calculations. First, we determine how many questions were answered. Then we take the answer to each question and divide it by the previous answer (the number of questions answered).

1. Insert or create a new item called "satisfaction_calc".
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Build the formula

```
@speed + @quality + @service
```

TIP: How to build the formula
- `@speed, @quality` and `@service` are under Response (Exists).
- + is a Math Operator.

6. When you are finished using Advanced Formula Builder, click **Save**.
7. Click **OK** in the **Formula Builder** window to close it.
8. Insert or create a new item called "satisfaction_calc2"
9. Select **Select Item Type > Calculate**.
10. On the **B. Responding** tab, click the **Formula Builder** button. The Formula Builder window will appear.
11. Click the **Advanced** button.
12. Build the formula

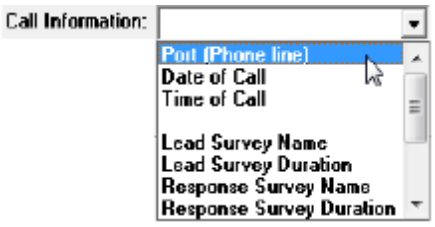
```
$speed + $quality + $service / $satisfaction_calc
```

TIP: How to build the formula
- `$speed, $quality, $service` and `$satisfaction_calc` are under Response (Value).
- + and / are Math Operators.

13. When you are finished using Advanced Formula Builder, click **Save**.
14. Click **OK** in the Formula Builder window to close it.

Call Information

Call Information includes statistics on the call such as the port the call came in on, the time and date of the call or the amount of time spent on a survey. The pull-down menu shows the friendly version of what will appear in the actual formula.



Friendly Name (listed in pull-down menu)	Item Name (as it will appear in formula)
Port (Phone line)	$CALLPORT
Date of Call	$CALLDATE
Time of Call	$CALLTIME
Lead Survey Name	$LEADNAME
Lead Survey Duration	$LEADMINS
Response Survey Name	$RESPNAME
Response Survey Duration	$RESPMINS
DID/DNIS digits	$DIDDIGITS
Caller ID info	$CALLERID

Time Operators

Time operators add and subtract units of time.

Example

You call clients back for a follow-up interview four months and two weeks after the day they take your SmartQ survey. You want to store that exact date in the database so it is easy to see when you need to call clients back.

1. Insert or create a new item called “callback_calc”.
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Build the formula

```
$CALLDATE +MONTHS 4 +WEEKS 2
```

TIP: How to build the formula

- `$CALLDATE` is under Date of Call from the Call Information menu.
- `+MONTHS` and `+WEEKS` are Time Operators.
- “4" and "2" are entered with the Text or Number box.

6. When you are finished using Advanced Formula Builder, click **Save**.
7. Click **OK** in the **Formula Builder** window to close it.

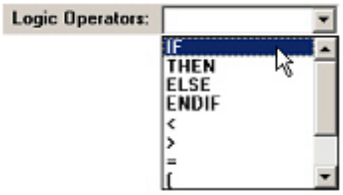
TIP: Other Time Operators
You can add a date and an integer:
`"11/14/2012" +WEEKS 1`
results in the date: 11/21/2012.

You can find the difference between two dates:
`"11/14/2012" -WEEKS "11/7/2012"`
results in the integer: 1

You cannot combine the elements in other ways (you cannot add a date to a date). To subtract a number of months, weeks, etc, from a date, add a negative number:
`"11/14/2012" +WEEKS -2`
results in the date: 10/31/2012

WARNING: You must preceed time operators by a space because they begin with a plus or minus, which could also be read as operators themselves.

Logic Operators



Example

Your first item "age" includes the question "Please enter your age." You want to route callers to different questions based on their ages. If you want to route callers starting with the subsequent question, you can use the **Routing** tab as usual.

However, let's say you want to route callers based on that question, but not until later in the survey. You ask the age, then you have a set of questions you want everyone to answer, then you route to a particular set of questions for those under 15 and another set of questions for those 15 and over.

1. Insert or create a new item called "age_calc" at the point where you want to begin routing callers.
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Build the formula

```
IF $age < 15 THEN 0 ELSE 1 ENDIF
```

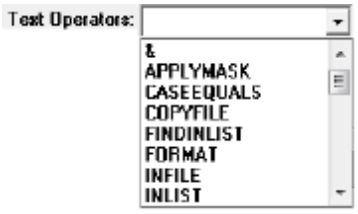
TIP: How to build the formula
- `IF, <, THEN, ELSE,` and `ENDIF` are Logic Operators.
- `$age` is under Response (Value).
- "15", "0", and "1" are entered with the Text or Number box.

6. When you are finished using Advanced Formula Builder, click **Save**.
7. Click **OK** in the Formula Builder window to close it.

TIP: Other Logic Operators
You can either build an `IF…THEN…ELSE…ENDIF` statement or an `IF…THEN…ENDIF` statement. `ELSE` is not a required part of the syntax, but all the other elements (including `ENDIF` at the end) are

required.

Text Operators



Text operators provide powerful tools for processing and searching through user responses in textual format.

Example

You have collected five single digit responses from users and wish to test the number of times the response "3" was given. An easy way to do this is to use the NTIMES operator, which looks for the number of times that a character occurs in a string. You need to concatenate the responses together as a single string before searching for the number of occurrences:

```
$R1 & $R2 & $R3 & $R4 & $R5 NTIMES "3"
```

You can combine multiple operators in a single query line to test complex sets of conditions. Say, for example, that you wish to ensure a minimum number of entries with the value "3" but the exact minimum (4 or 3) depends on another user response (the item "Y" in this case):

```
$R1 & $R2 & $R3 & $R4 & $R5 NTIMES "3" > ( IF $Y = 2 THEN 3 ELSE 2 ENDIF)
```

Example

Your callers enter a 10-digit code at the beginning of the survey as a response to an item named "code". This number breaks down into smaller parts: the first 3 digits signify the county, the next 3 signify the city, and the last four digits signify the hospital.

```
1234567890
county city hospital
```

You are interested in isolating the city code for a later calculation. The following calculations are set up so that if a caller enters "1234567890", you can isolate "456", the city code. The first part of the calculation isolates the leftmost six numbers, "123456". The next part of the calculation takes the number from the first part and isolates the rightmost three numbers, giving you your desired numbers 456.

1. Insert or create a new item called "code_calc".
2. Select **Select Item Type > Calculate**.
3. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
4. Click the **Advanced** button.
5. Build the formula

```
$code LEFT 6 RIGHT 3
```

TIP: How to build the formula
- `$code` is under Response (Value).
- LEFT and RIGHT are Text Operators.
- "6" and "3" are entered with the Text or Number box.

6. When you are finished using Advanced Formula Builder, click **Save**.
7. Click **OK** in the Formula Builder window to close it.

TIP: Other Text Operators (See the Quick Reference Guide)
`&` is another useful string operator. It concatenates numbers, or strings them together without adding. For example, the formula `1,&,1` will return "11" not "2".

Current Date/Time

To use the Current Date/Time in your calculation, choose one of the appropriate unit of time from the pull-down menu. This feature is most often used with the **Inform Data** prompt (with item type **Query**) to read back the date to a caller.

Example

You want to place an Inform prompt after your Introduce prompt so that the caller hears "Welcome to our Survey. The time is 11:35 AM on January 1, 2010" (with the real time calculated and read back to the caller).

"The time is" can be recorded as the First Inform Prompt and "11:35 AM" can be calculated and read back using First Inform Data. "On" is recorded as the Second Inform Prompt and "January 1, 2010" is calculated and read back using Second Inform Data. The item that currently contains your introduction is called "welcome".

1. Select the previously created item called "welcome". Inform prompts do not record data, so you can set them up as part of an existing Item.

2. Select **Select Item Type > Query**.

3. On the **A. Recording** tab, click on the **First Inform Prompt**. Type "The time is" in the **Script** box and record the prompt.

4. Click on **First Inform Data**.

5. Select **Select Data Type > Date**.

6. Click the **Formula Builder** button. The **Formula Builder** window will appear.

7. Click the **Advanced** button.

8. Build the formula

```
HOUR & ":" & MINUTE
```

TIP: How to build the formula

- `HOUR` and `MINUTE` are under Current Date/Time.
- `&` is a Text Operator.
- `:` is entered with the Text or Number box.

9. When you are finished using Advanced Formula Builder, click **Save**.

10. Click **OK** in the Formula Builder window to close it.

11. Click on the **Second Inform Prompt**. Enter "on" into the **Script** box and record the prompt.

12. Click on **Second Inform Data**.

13. Select **Select Data Type > Date**.

14. Click the **Formula Builder** button. The **Formula Builder** window will appear.

15. Click the **Advanced** button.

16. Build the formula

```
MONTH & "/" & DATE & "/" & YEAR
```

TIP: How to build the formula

- MONTH, DATE and YEAR are under Current Date/Time.
- & is a Text Operator.
- / is entered with the Text or Number box.

17. When you are finished using Advanced Formula Builder, click **Save**.

18. Click **OK** in the Formula Builder window to close it.

Prefix Operators

There are two options under **Prefix Operators**, ~F~ and ~P~. Both of these operators must be used in conjunction with the item type Retrieve because they refer to past surveys. Past surveys are only made available after Retrieve finds them.

~F~ is the signal for SmartQ to look for the value of the query in the first survey rather than the value from the current survey.

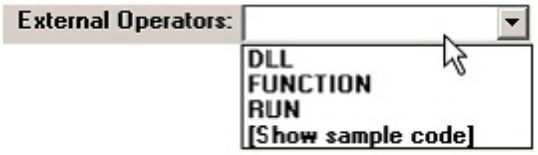
~P~ is the signal for SmartQ to look for the value of the query in the most recent (previous) survey rather than the value from the current survey.

The prefix operators may be used in formulas constructed at any point in the survey after the retrieval has been performed. (If you retrieve something once, that information can be used for all subsequent calculations in the survey.)

The prefix operators can also be used to route the results of the Retrieve item.

Examples of both of these can be found under the section about Retrieve.

External Operators (Advanced)



SmartQ has the ability to call functions in a registered COM DLL. This feature allows the SmartQ user to create specialty functions (typically created through Visual Basic®) customized for unique projects.

The syntax is:

XXXX.xxxxx DLL *yyyy* FUNCTION *zzzzz* RUN

Where *XXXX.xxxx* is the qualified name of a class in the DLL, *yyyy* is the name of the desired function, and *zzzz* is the argument to be passed to the function. (If you hover your mouse over the **External Operators** menu the Tooltip associated with calling External Operators will display the command syntax.)

The External Operator function would be useful in a situation where the user has an existing DLL component that is currently used with other software, or in a situation that requires a tremendously complex calculation, beyond the capacity of the Formula Builder.

TIP: To create your own DLL from a template, select **External Operators > [Show Sample Code]**. This opens a text file containing instructions and sample Visual Basic 6 code.

Tips and Tricks

Quotes

Quotes are automatically added if you enter text into your formula using the **Text or Number** box. If you enter a

number, quotes are not necessary so they are not automatically added.

Entering Times and Dates

In Formula Builder, time should take the form

```
HOUR & ":" & MINUTE
```

In Formula Builder, dates should take the form

```
MONTH & "/" & DATE & "/" & YEAR
```

Formula Tester

The **Advanced Formula Builder** dialog has a **Test** button to ensure your formulas are working the way you expect them to work.

1. When you are using Advanced Formula Builder, click the **Test** button.
2. If there are any syntax errors, SmartQ will bring them to your attention.
3. The **Formula Tester** window will appear. The **Variables** appear in the left hand column.
4. Click in the right hand column labeled **Test Value** to fill in a test value for each variable. The variables are the parts of your formula the caller provides as he or she answers questions, so enter in test values that the caller might enter.
5. Click **Test**. The result will appear in the **Result** box.

If the result is not what you expected, check your formula for errors and test it until it works properly. Click the **OK** button to return to the **Advanced Formula Builder** window.

Quick Reference Guide to Symbols in Formula Builder

Symbol	Category	Usage Details	Example
-	Math Operator	Place a - between the numbers you wish to subtract.	`12345 - 100` Result: 12245
% (modulus operator)	Math Operator	Divides and retains only the remainder. Place % between a number, and the number you wish to divide by.	`12345 % 100` Result: 45 (12345/100 is 123 with a remainder of 45.)

&
(concatenation operator)
	Text Operator	Concatenates numbers (joins them together as text).
		Place & between two values you wish to string together.
			`1 & 1`
			
			Result: 11
			
			`$concern & $budget`

(,) (Parentheses)	Logic Operators	Used to affect order of execution. Values are resolved in innermost parentheses first.	`5 - (3-2)` Result: 4 (not 0)
*	Math Operator	Place a * between the numbers you wish to multiply.	`12345 * 100`

			Result: 1234500

/	Math Operator	Integer division: place a / between the numbers you wish to divide.	`18 / 6`
			Result: 3
			
			`5 / 2`
			Result: 2

~F~ ~P~
(first and previous call operators)
	Prefix Operators	Refers to the first or most recent (previous) survey value. Enter ~F~ followed by the Item you want from the first survey, or ~P~ for the previous survey.	`~F~$score`
			
			`~P~$CALLDATE`

+	Math Operator	Place a + between the numbers you wish to add.	`12345 + 100` Result: 12445

+DAYS
+WEEKS
+MONTHS
+YEARS
+HOURS
+MINUTES
+SECONDS
(future date operators)
	Time Operators	Add a date and an integer to find a date. Enter a number or Item first, then the operator, then the number you wish to add.	`"11/14/2002" +WEEKS 1`
			Result: 11/21/2002.
			
			`"2:00PM" +HOURS 3`
			Result: 5:00PM

< (Less than)	Logic Operator	Returns true if left operand is less than right operand.	`IF 1 < 2 THEN "True" ELSE "FALSE" ENDIF` Result: “True”

=
(Equals)
	Logic Operator	Returns true if left operand value is the same as the right operand value. For text values, case does not matter.	`IF 1 = 1 THEN "True" ELSE "False" ENDIF`
			Result: “True”
			`"a" = "A"`
			Result: 1

>
(Greater than)
	Logic Operator	Returns true if left operand is greater than right operand.	`IF 2 > 1 THEN "True" ELSE "FALSE" ENDIF`
			Result: “True”
			`IF $answer > 0 ”True” ELSE "False" ENDIF`

LT, EQ, GT LE, NE, GE	Logic Operators	Compares left to right operand: the comparisons are, in order, Less Than, Equal, Greater Than, Less	`IF 2 GE 3 THEN "True" ELSE "FALSE" ENDIF` Result: “False”

		than or Equal, Not Equal, Greater than or Equal	
AND	Logic Operator	Used to combine logic tests.	`IF (1=1) AND (2=2) THEN "True" ELSE "False" ENDIF` Result: “True”
APPLYMASK	Text Operator	Inserts characters into a string. Place APPLYMASK between a string and a mask to apply.	`$ENTERDATE APPLYMASK "??/??/????"` Result: “12/31/2008” if user enters “12312008”

CASEEQUALS	Text Operator	Compares two strings with case sensitivity. Numbers and symbols are acceptable.	`"Cat" CASEEQUALS "cat"`
			
			Result: 0
			
			`"CAT" CASEEQUALS "CAT"`
			
			Result: 1
			
			`"*#9" CASEEQUALS "*#9"`
			
			Result: 1

COPYFILE	Text Operator	Copies a file on the hard disk with one name and location to another. Formulas can be evaluated, but the right side must be enclosed in parenthesis because of precedence rules.	`"oldfile.txt" COPYFILE "newfile.txt"`
			
			`"C:\MyFiles\" & $DocID & ".txt" COPYFILE( "C:\FaxOutFiles\" & $FaxNum & ".txt")`

-DAYS -WEEKS -MONTHS -YEARS -HOURS -MINUTES -SECONDS (date difference operators)	Time Operators	Use to subtract a date from a date to find an integer. Enter a number or Item first, then the operator, then the date or Item you wish to subtract.	`"11/14/2002" -WEEKS "11/7/2002"` Result: 1
DLL FUNCTION RUN [Show sample code]	External Operators [Custom only]	Invokes a function in an external Visual Basic COM dll that you create. Returns the value that your function returns. To see sample Visual Basic code, choose [Show sample code] from the pulldown box.	Syntax: `"DLLName.ClassName" DLL "MyFunctionName" FUNCTION params RUN` Example: `"MyDll.MyIVRClass" DLL "CustomerPasswordForID"`

			`FUNCTION "369158" RUN` Result: The function call `CustomerPasswordForID(` "369158") is run synchronously by your DLL, and the result is passed back to SmartQ as the result of this calculation.

FINDINLIST	Text Operator	Returns the position a string occurs within a comma-delimited list. Returns 0 if the string is not contained in the list or if the search string or list are blank.	`"X" FINDINLIST "A,B,X,Z"`
			Result: 3
			`36 FINDINLIST "1-10,11-20,21-30,31-40,41-50"`
			Result: 4
			`"A,B,C" FINDINLIST "A,B,A,B,C"`
			Result: 3

FLOOR	Math Operator	Rounds down a floating-point number to the nearest integer. Place FLOOR after a floating-point number.	`1.6 FLOOR` Result: 1

FORMAT	Text Operator	Used to convert a string to a format you specify. All Visual Basic string formats are supported. Place FORMAT between a string and the format to convert it to.	`"June 6 2002" FORMAT "GENERAL DATE"`
			Result: 6/6/2002
			`0.97 FORMAT "percent"`
			Result: 97.00%

IF,THEN,ELSE,ENDIF
(Conditional classifier)
	Logic Operator	Performs a Boolean test on what exists between the 'IF' and 'THEN' statements. If the test passes (resolves to TRUE), whatever is between the next 'THEN' and the following 'ELSE' or 'ENDIF' is returned. If the test fails (does not resolve to TRUE), execution of the formula resumes following the next 'ENDIF', or 'ELSE' statements.
		(Boolean: 0 =True, 1=False)
		ELSE is optional. If there is no ELSE and the condition is false, the result is blank (zero-length)
			Tests are performed by invoking the following Logic Operators
			`IF 1 THEN "True" ELSE "False" ENDIF`
			Result: "True"
			`IF 0 THEN "True" ELSE "False" ENDIF`
			Result: "False"

			`IF 0 THEN 1 ENDIF` Result: Nothing

INLIST	Text Operator	Checks whether a value is contained in a comma-delimited list of values and ranges. List must be in quotes!	`3 INLIST "1,2,4,5"`
			Result: 0
			`15 INLIST "9,10,14-15,99"`
			Result: 1
			`"Bean" INLIST "Ant, Be-Bz"`
			Result: 1

INSTRING INFILE (search operators)	Text Operators	Search for a string in a string, file, or range. Returns 1 for true, 0 for false. Place the operator between the string to be searched and the string to find.	`123 INSTRING 23`
			Result: 1
			`"test" INFILE "myfile.txt"`
			Result: 1 if found, 0 if not

INRANGE	Text Operator	Place INRANGE between a constant and a range, or between two ranges. Result will be 1 if the first parameter is entirely within the range of the second parameter.	`"5" INRANGE "1-5"`
			Result: 1
			`"1-5" INRANGE "4-10"`
			Result: 0

ISALPHA ISNUMERIC	Text Operators	Used to check if a string contains only alpha or only numeric characters. Place ISALPHA or ISNUMERIC after a string to be checked. Returns 1 for true, 0 for false. "Alpha" means upper or lower case letters, including international letters but not space (" "), numbers or punctuation.	`"test" ISALPHA`
			Result: 1
			`"test" ISNUMERIC`
			Result: 0

ISFILE	Text Operator	Search for a file on the hard disk or network. Returns 1 if found, 0 if not found. If path is a directory, it must have a trailing backslash (\). Returns 1 if it contains files, 0 if empty or not found.	`"C:\WINNT\" ISFILE`
			Result: 1, because files exist within `c:\winnt`
			`"C:\WINNT" ISFILE`
			Result: 0 because folder does not end with trailing backslash
			`"C:\MyFile.txt" ISFILE`
			Result: 1 if file exists, 0 if not

ISVALIDSWEDISHID	Text Operator	ISVALIDSWEDISHID is a unary function that checks whether a number fits the format of the personal identity number (personnummer) used by the Swedish government.
		It returns a 1 if valid or 0 if invalid. It works by checking the number of digits, and the valid ranges for each component of the identity number.
			`6408233234 ISVALIDSWEDISHID`
			Result: 1
			
			`6408233230 ISVALIDSWEDISHID`
			Result: 0
			
			`640 ISVALIDSWEDISHID`
			Result: 0

LEFT
RIGHT
RIGHTFROM
	Text Operators	Returns the leftmost or rightmost characters you specify. Place LEFT or RIGHT between a text segment (or "string") and the number of digits you wish to keep. Place RIGHTFROM between a text segment and the starting position of the string or segment you wish to keep.	`12345 LEFT 2`
			Result: 12
			`12345 RIGHT 2`
			Result: 45
			`45678 RIGHTFROM 2`
			Result: 5678
			`12345 RIGHTFROM 3 LEFT 1`
			Result: 3

LENGTH	Text Operator	Returns the length of a string. Place LENGTH after a string	`"test" LENGTH` Result: 4
LOOKUP	Text Operator	Looks up a key value in a text file containing key-value pairs. Place LOOKUP between the key and the file to be searched.	`1 LOOKUP "myfile.txt"` Result: The associated value for the key 1 in myfile.txt
MAKEGUID	Text Operator	MAKEGUID Creates a GUID (Globally Unique Identifier) in the form: 00000000-0000-0000-0000-000000000000 If you need a GUID enclosed in curly braces, you would use: "{" & MAKEGUID & "}"	

MIN
MAX
	Text Operators	Returns the minimum or maximum of two values. If both strings are numeric, their values are compared. Otherwise strings are compared as ASCII values.	`9 MIN 100.1`
			Result: 9
			`"A" MIN "a"`
			Result: "A"

			`"abc" MIN "abcd"`
			Result: "abc"
			`"[" MIN "a"`
			Result: "["
			`"[" MIN "A"`
			Result: "A"

NTHTOKEN	Text Operator	Parses a comma-delimited string, and returns a chosen token from the string.	`"These,are,4,tokens" NTHTOKEN 2` Result: "are"
NTIMES	Text Operator	Returns number of times that character occurs in string	`"3235331" NTIMES "3"` Result: 4
OR	Logic Operator	Used to combine logic tests.	`IF 1 = 1 OR 1 = 2 "True" ELSE "False" ENDIF` Result: “True”
RANDOM	Math Operator	Gives a random number between two integers. Place RANDOM between two integer values. The values must be between -32,768 and 32,768, but order does not matter.	`1 RANDOM 6` Result: random number between 1 and 6

REMOVECHARS	Text Operator	Removes characters. Place between a string and the character you want to remove.	`45678 REMOVECHARS 6`
			Result: 4578
			`"ABACAD" REMOVECHARS "A"`
			Result: BCD

REORDER	Text Operator	Reorders the string. Place REORDER between a string to be ordered and a string to specify the order.	`"ABCD" REORDER "4321"` Result: “DCBA”
REPLACECHAR	Text Operator	REPLACECHAR will replace all instances of one character with another character.	`"ABCABC" REPLACECHAR "CD"` Result: “ABDABD”

SORT	Text Operator	SORT is a unary operator that sorts a comma-delimited list. If all values are numeric, then sorting is done by value, with blanks treated like zero.
		Otherwise all items will be sorted alphabetically.
			`"B,A,AA" SORT`
			Result: "A,AA,B"
			`"1000,10,9,8" SORT`
			Result: "8,9,10,1000"

			`"1000,10,A,9,8" SORT` Result: "10,1000,8,9,A"

SORTBYRANKINGA
SORTBYRANKINGD
	Text Operator	Sort a list in an order determined by another list. SORTBYRANKINGA sorts in ascending order, SORTBYRANKINGD sorts in descending order.
		
		Typically the list to be sorted represents things, such as products or symptoms, while the other list represents a ranking such as preference or severity.
		
		If the preferences are all numeric, they will sort by numerical value, otherwise they will sort alphabetically. In both cases, blanks will sort first.
			`"A,B,C,D" SORTBYRANKINGA "4,3,2,1"`
			
			Result: "D,C,B,A"
			
			`"A,B,C,D" SORTBYRANKINGD "3,2,1,4"`
			
			Result: "D,A,B,C"
			
			`"A,B,C,D" SORTBYRANKINGA "100,A,,3"`
			
			Result: "C,A,D,B"

SQLESCAPEQUOTES	Text Operator	In Custom items you can run SQL statements against databases. In SQL, if your data contains a ' character, that character must be "escaped", that is, replaced by ''. SQLESCAPEQUOTES makes this process easy by replacing ' with '', except not the first and last character.	`"I wasn't sure" SQLESCAPEQUOTES` Result: "I wasn''t sure"

WRITETOFILE	Text Operator	Writes a string to the end of a file. Creates the file if it does not exist. Does not erase the current contents – just adds to the end, with a carriage return. Returns 1 if successful, 0 if not.	`"Some text" WRITETOFILE "c:\myfile.txt"`
			
			Result: 1. Creates c:\myfile.txt if it didn't exist already.
			
			`"My lost text" WRITETOFILE "c:\invalidfilename***"`
			
			Result: 0

Advanced Topics: Setting up Retrieval of Data for Calculations

Overview of Retrieval

The *Retrieve* item type allows you to access data from previous surveys. It will retrieve data from the first survey taken by the caller and the most recent survey taken by the caller. Once retrieved, this information is available for the rest of the call. This is useful for different purposes:

- Route a caller to a specific set of questions based on an answer to a previous survey
- Use information from a previous survey in a calculation

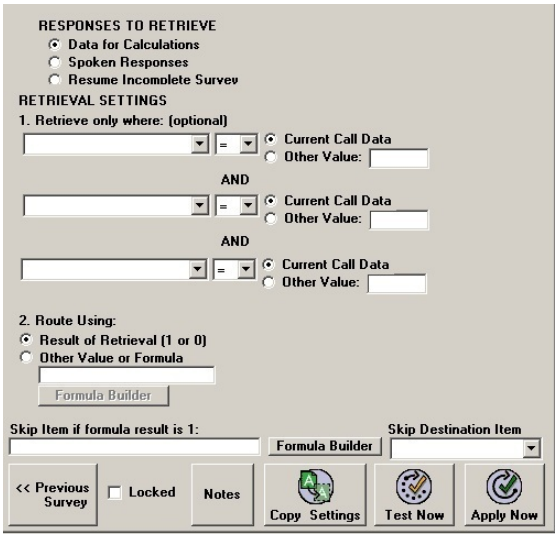
The Retrieve item type is easy to use: you specify criteria for lookup and SmartQ will search through past surveys for a match. Whether the data was in the first survey taken by the user or the most recent, the information will be made available to you in the current survey. You will know if SmartQ was successful in finding past surveys because there will be a value of 1 in the database field if the Retrieve item was successful.

If SmartQ does not find any information (because either no previous survey exists or the caller did not answer any of the questions you wished to match), a value of 0 will be stored in the database field. The survey information will not be available for later routing or calculations.

The values 1 and 0 are especially important for routing, as you will see in the following instructions.

TIP: Once you retrieve data from a previous survey, that information can be used for all subsequent calculations in the current survey.

Retrieve Information from Previous Surveys



1. Create or insert an item.
2. Select **Select Item Type > Retrieve**.
3. Select the **B. Responding** tab.
4. Click **Retrieve Data for Calculations**.
5. In the first column under **Retrieve only where:**, tell SmartQ what field to look at when searching through past surveys.
6. Select **Current Call Data** to look for past surveys with the same field entry as the current caller. For instance, if you always want to bring up the current caller's most recent survey, you would specify ID or code (the item containing the caller's unique identifying information) and then you would check **Current Call Data**. The box in between lets you specify if the value of the item you find should be equal to, less than, etc. the value of the same item in the current caller's survey.
7. Select **Other Value** if you want to find surveys with a specific value that may not be the same as that particular item in the current survey. For instance, you may want to look up the first survey where the caller entered "4" as an answer to a particular question, regardless of what they answer during this call. In that case, you would simply check Other Value and enter the number "4" into the text box.
8. Select on the **C. Routing** tab.
9. Retrieve returns either a value of 1 or a 0 to its own database field. Route 1 (information was found) and 0 (no information was found) to Next if you want to continue on with the survey or make a calculation in the next item. You could also branch at this point, routing 1 to the survey questions you want to ask if the caller has taken the survey before and 0 to questions for a new caller.

If SmartQ finds information, it stores a value of 1 in the database and makes the information available for use. If the information does not exist, it stores 0 in the database.

Include-in-Resume feature: If there are specific items in your survey that you want callers to hear when they resume, you can designate these items in the **3. Don't skip over these items menu** on the responding tab.

Advanced Examples

Retrieve and Calculate

The first item in your lead survey asks for an identification number and is called “id”. In the response survey, you ask five questions. The last item in the response survey is called “score” and averages the answers to the five questions. Now you want to retrieve the last survey taken by the caller to calculate and store in the database the caller’s change in score.

The first step is to retrieve the last survey from the database that has the same ID number as the current caller’s ID. Then the caller will be routed so that the survey continues and the information is calculated.

1. Insert or create an item in the response survey. Name it “id_retrieve”.
2. Select **Select Item Type > Retrieve**.
3. Select the **B. Responding** tab.
4. Under **1.Retrieve** only where: use the pull-down menu to select id.

5. Use the pull-down menu to select =, and select **Current Call Data**.
6. On the **C. Routing** tab, route 0 to **Next Item**. Route 1 to **Next Item**.
7. Click on the **Apply Now** button.
8. The next step is to set up a calculation to tell SmartQ what to do if a score is found or not found.
9. Insert or create the next item. Name it "change_score".
10. Select **Select Item Type > Calculate**.
11. On the **B. Responding** tab, click the **Formula Builder** button. The **Formula Builder** window will appear.
12. Click the **Advanced** button.
13. Using Advanced Formula Builder, build the formula:

```
IF ~F~$score = "" THEN 0 ELSE 1 ENDIF
```

> ***TIP:*** How to build the formula
> - `IF, THEN, ELSE,` and `ENDIF` are Logic Operators.
> - `~F~` is a Prefix Operator.
> - `$score` is under Response (Value).
> - "0" and "1" are entered with the Text or Number box.
> - "" is entered with the Text or Number box by simply pressing the > button.
> - = is a Logic Operator.

14. When you are finished using Advanced Formula Builder, click **Save**.
15. Click **OK** in the Formula Builder window to close it.
16. On the **C. Routing** tab, route 0 to Goodbye. Route 1 to Next Item.

The final step is to calculate the change in score.

> ***TIP:*** `~F~` is the signal for SmartQ to look for the value of the query in the first survey rather than use the value from the current survey.
> `~P~` is the signal for SmartQ to look for the value of the query in the most recent (previous) survey.

17. Insert the next item. Name it "calc_score".
18. Select **Select Item Type > Calculate**.
19. Under **Construct Item**, select the **B. Responding** tab.
20. Click on the **Formula Builder** button to bring up Formula Builder.
21. Click the **Advanced** button.
22. Using Advanced Formula Builder, build the formula:

```
$score - ~F~ $score
```

> ***TIP:*** How to build the formula
> - `$score` is under Response (Value).
> - - is a Math Operator.
> - `~F~ is a Prefix Operator.`

23. When you are finished using Advanced Formula Builder, click Save.
24. Click OK in the Formula Builder window to close it.

Using Formula Builder within Retrieve

The first item in your lead survey asks for an identification number and is called “id”. The response survey contains a question called “concern”. It asks the following question:

“Which of the following issues is of the greatest concern to you in this election right now? Press 1 for Healthcare or 2 for the Economy.”

You want callers to be routed based on their answer to “concern” unless they have already taken the survey. SmartQ can look up the id of the caller and see if it is already in the database. If it is, you can route the caller to a different set of questions.

1. Insert or create an item in the response survey. Name it “id_retrieve”.
2. Select **Select Item Type > Retrieve**.
3. Select the **B. Responding** tab.
4. Under **1. Retrieve Only Where**, use the pull-down menu to select **id**.
5. Use the next pull-down menu to select =, then select **Current Call Data**.
6. Select **2. Route Using: > Other Value or Formula**.
7. Click the **Formula Builder** button.
8. Click the **Advanced** button.
9. Build the formula:

```
$concern & $id_retrieve
```

> ***TIP:*** How to build the formula
>
> - `$concern` and `$id_retrieve` are under Response (Value).
> - & is a Text Operator.
>
> & is a text operator that joins text together. The possible answers for the item "concern" are "1" (healthcare most important) or "2" (economy most important). The possible answers for the item "id_retrieve" are "0" (no previous survey found) or "1" (previous survey found). Consequently, all the possible results will be:
>
> - 10 = healthcare most important & no previous survey found
> - 20 = economy most important & no previous survey found
> - 11 = healthcare most important & previous survey found
> - 21 = economy most important & previous survey found

10. When you are finished using Advanced Formula Builder, click **Save**.
11. Click **OK** in the Formula Builder window to close it.
12. On the **C. Routing** tab, route 10, 20, 11 and 21 to the appropriate places. For this example, route 10 to a later item called “ed_stand”, 20 to a later item called “health_stand”, and 11 to an item called “still_agree” and 21 to the same item called “change”.

To complete the example, the items referenced might be the following:

- ed_stand: “Do you think there is enough attention focused on healthcare issues in this election? Enter 1 for yes, 2 for no.”
- health_stand: “Do you think there is enough attention focused on the economy in this election? Enter 1 for yes, 2 for no.”
- change: “Has the issue most important to you received more attention since you last took this survey one month ago? Enter 1 for yes, 2 for no.”

13. Click on the **Apply Now** button.

Advanced Topics: Setting up Retrieval of Open-End Responses

Overview

If you have created open-end responses items in your response surveys, there are two methods for enabling users to listen and transcribe them:

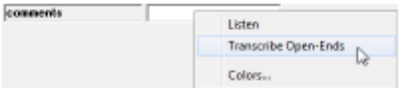
- Data Screen: the user has direct use of the computer on which the database is stored and plays back messages using SmartQ
- Telephone Play-back: the user(s) call in from remote locations and listen to the messages played back to them.

The advantages of each type of access and play back are described below:

Data Screen	Telephone
Allows saving, deleting, and flagging messages for priority.	
Must be heard at the computer where SmartQ is installed.	Can be heard from any touchtone telephone.
Can see data in context with the rest of the response data for that call.	Can be configured to present a filtered subset of the messages, such as comments only from certain sites.
Can transcribe calls and save text directly to database.	Hands-free message presentation.
	Can be set up with password protection.

IMPORTANT: SmartQ will discard messages that contain only silence.

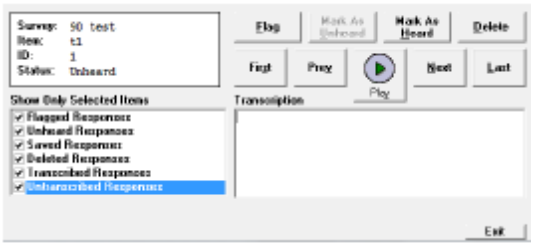
Listen to Open-End Responses: Data Screen



1. Click on the **Data** button to view the **Data Screen**.
2. Select the survey with the open-end responses you wish to hear.
3. All of the items in your survey should appear on the screen with their

associated data values displayed. Click the data box next to the open-end response item. Select **Transcribe Open-Ends** from the pop-up screen.

4. The **Edit Open-Ends** dialog box will appear. To hear the message, press the **Play** button. If you wish to play only those open-end responses that meet specific requirements, check the desired boxes under **Show Only Selected Items**. Options include:



- **Flagged Responses**
- **Unheard Responses**
- **Saved Responses**
- **Deleted Responses**
- **Transcribed Responses**
- **Untranscribed Responses**

5. You can mark each message you hear with one of the following buttons:

- **Flag**
- **Mark as Unheard**
- **Mark as Heard**
- **Delete**

6. If you wish to transcribe the message, enter it in the **Transcription** box.

7. Click the **Previous** or **Next** buttons to go to same item in other surveys (i.e. to hear other callers' open-end responses to the same question). The **First** and **Last** buttons will allow you to jump to the first and last surveys containing the same item.

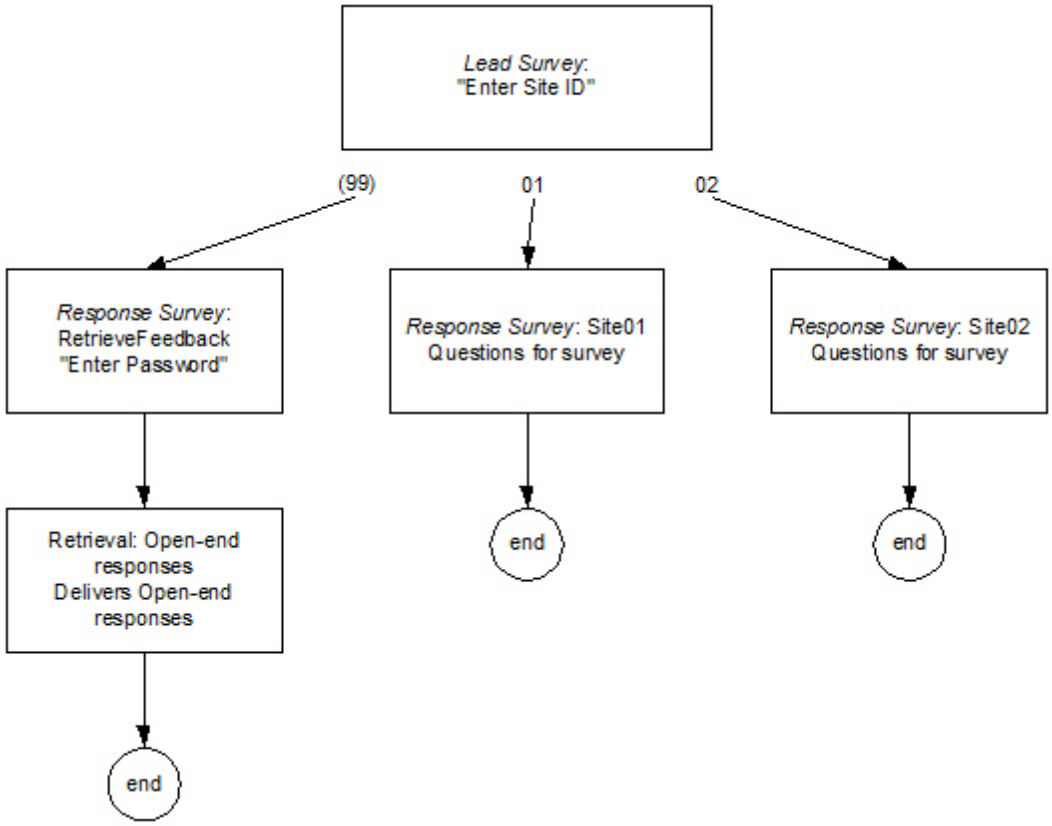
> ***TIP:*** Shortcuts include:
> - Control-Shift-Return starts or stops playing message (same as pressing the Play/Stop button)
> - Control-Return moves to the next record (same as pressing the Next button)
> - Shift-Return moves to the previous record (same as pressing the Previous button)

Listen to Open-End Responses: Telephone Play-back

You can also listen to open-end responses stored by SmartQ from any touchtone telephone. After you have set up lead and response surveys for callers, you can add the capability to listen to the open-end responses.

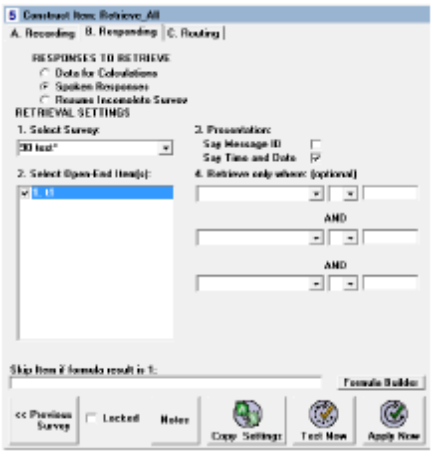
In a typical survey design, a lead survey collects information about the caller and routes them to the appropriate response survey where they will answer survey questions. For example, in this diagram the lead survey prompts callers to enter site IDs. Callers are then routed to the appropriate survey based on their answer.

The lead survey can also be used to allow call managers access to a hidden menu that lets them hear and organize their messages. For example, you might set up a survey structure similar to the example below:



To accomplish this, set the site ID item on your lead survey to also accept an input ("99" in this example) that will route to the retrieval item, but do not record in the prompt that the option to hear open-end responses exists. You can safely distribute a number that will not be entered by a survey-taker (like "99") to those who will call in to hear open-end responses. Instruct the staff to enter the access number at any time during the first prompt to hear the open-end responses.

Set Up a Survey to Retrieve Open-End Responses



1. **Add New Survey**. Name it something that will remind you of its purpose, such as "RetrieveFeedback".
2. Add an item. Name it something that will remind you of its purpose, such as "Retrieve_All".
3. Select **Select Item Type > Retrieve**.
4. Select the **Responding** tab.
5. Click **Spoken Responses**.
6. Under **Select Survey**, select the survey that contains the responses you would like to make available.
7. The **Select Open-End Item(s)** box contains all items that are open-end responses. Use the checkbox next to each item to indicate the responses you would like to make available.
8. Under **Presentation**, select whether you would like the **Message ID**

and the **Time and Date** to play with the rest of the open-end response.

9. Click the **Apply Now** button to save these settings. Either continue with advanced options or simply click on the **Routing** tab to route callers to the "End" item.

Make the Survey Available to Callers

Now that you have created the survey, you will want to make it available to certain staff members and hidden from survey-takers. Distribute the access number that branches to open-end responses only to those who need it.

1. In the lead survey, click on the first item that contains routing information.
2. Select the **Routing** tab.
3. Choose a number that staff members can enter to access the open-end response survey, such as 99, 9#, or another combination of keys that a survey-taker would not enter by mistake. Fill in this number and route it to the open-end response survey that you just created.
4. Check to ensure that the following settings are correct:
    - On the **Recording** tab, make sure **Allow response during question** is checked.
    - On the **Responding** tab, verify that your code is within the range of the minimum and maximum digits allowed. If you have a list of **Valid Choices** make sure that the number you distribute is included in the list.

What the Caller Will Hear

Once the access number is entered, the open-end responses will play. The following options are also available during and immediately after playback of open-end responses:

Option	Key
Save Open-End Response as new (Skip)	1
Save Open-End Response as old	2
Delete Open-End Response	3
Rewind 5 seconds	4
Pause	5
Fast forward 5 seconds	6
Hear ID & Time/Date	8
Exit	*
Flag message for priority	#

TIP: Skip will leave current message marked as unheard.

Advanced

Adding Additional Criteria

To add additional restrictions for the open-end responses that are played back, set them using the boxes under **Retrieve Only Where:** on the **Construct Item** screen.

For example, you have an item in one of the response surveys called “feedback” that asks, “Please leave a brief statement describing the quality of your experience at our office.” The next item, called “callback”, asks “Would you like a call back from our office? Press 1 for yes. Press 2 for no.” You want to assign someone to listen to all the open-end responses for people who pressed 1 so that they can be called back immediately and their concerns can be addressed.

1. If you do not yet have a survey created to allow retrieval of open-end responses, follow all the steps under Set Up a Survey to Retrieve Open-End Responses above, checking the box next to the item called “feedback”.
2. Select **Retrieve Only Where: > callback**.
3. Select = in the second pull-down box.
4. Enter “1” into the third pull-down box.
5. Click the **Apply Now** button to save the settings.
6. You can now continue with other advanced options or simply click on the **Routing** tab to route callers to the item named “End”.

Setting Up A Password to Retrieve Open-End Responses

For extra security, you may want to distribute individual passwords along with the hidden access number (99, 9#, etc.) for retrieval of the open-end responses.

1. Add an item to your open-end response survey. Call it “password”.
2. On the **Recording** tab, record a prompt such as “Enter your password now, followed by the pound sign.”
3. On the **Responding** tab, enter the **Minimum** and **Maximum Number of Digits** (remembering to include an extra digit for the pound sign).
4. Check **Reject Invalid Response** and list all the passwords distributed as **Valid Choices**.
5. Route all responses to next item, or route individuals based on passwords if you wish.

Retrieving Responses from More than one Survey

You must set up separate items if you want to retrieve open-end responses from more than one survey. If you have different groups of people who are calling and who need to hear different responses (from different surveys or different items from the same survey) simply route these callers to multiple items set up to retrieve open-end responses.

For example, in the survey outlined above, some staff members might be monitoring the responses from Site 01 and others might be calling for Site 02. You can repeat this process for as many different response surveys as you wish.

1. **Add New Survey**. Name the survey something that will remind you of its purpose, such as “RetrieveOpenEnd”.
2. Add an item. Name it “Site_Choice”.
3. On the **Recording** Tab, record a prompt such as “Please enter the Site ID of your institution such as 01 or 02.”
4. Select the **Responding** tab and enter “2” for **Minimum Digits** and “2” for **Maximum Digits**.
5. Add an item. Name it “Retrieve_01”.
6. Select **Select Item Type > Retrieve**.
7. Select the **Responding** tab.
8. Click **Play responses to open-end survey items**.
9. Under **Survey**, select the response survey for Site 01. Check all the open-end responses that you want to make available.

10. Add an item. Name it "Retrieve_02".

11. Select **Select Item Type > Retrieve**.

12. Select the **Responding** tab.

13. Click **Spoken Responses**.

14. Under **Survey**, select the response survey for Site 02. Check all the open-end responses that you want to make available.

15. Go back to the first item ("Site_Choice"). On the **Routing** tab, route 01 to the item **Retrieve_01** and 02 to item **Retrieve_02** so the correct open-end responses are played for the caller.

Avoiding Unwanted Recordings [Custom only]

Sometimes callers will reach an open-ended question and will simply hang up, or attempt to key in a response (which has the effect of creating a very short and useless recording).

The **Minimum open-end message length** setting on the **Advanced Survey Settings** window is meant to help minimize this problem (see Chapter 23).

The minimum open-end message length is set by default to 0. This means that SmartQ retains any message, regardless of how short. If you do not wish to keep these short messages, a greater number is required. One second takes 8000 bytes.

> ***IMPORTANT:*** This is a system-wide setting, which means that every survey in SmartQ will be bound by this setting.

Advanced Topics: Multiple Lead Surveys [Custom only]

Overview

The use of multiple lead surveys is an advanced feature that is only needed when you have several completely independent multi-survey projects running concurrently. (Routing among several surveys is a standard feature of SmartQ and does not require this option.)

In a typical SmartQ usage scenario, you create a lead survey, which asks questions that you want all callers to answer (such as ID number or location). You can then use that value to route among one or more response surveys.

> ***TIP:*** When data for a response survey is saved, the answers to the lead survey are saved in the same record in the database. Calculation items in a response survey may refer to items in the lead survey. Automatic testing and configuration of the Microsoft Access database will ensure that fields for the proper lead survey are included in the table for the response survey.

Example

Let's say that you have a project with a lead survey that asks for a Customer ID number and a survey choice. It then routes the caller to one of three response surveys. Your supervisor hears about how well the IVR survey is going and asks you to do another survey, completely unrelated to the first one. You could extend your lead survey, adding additional prompts for the new project and putting in calculation items to route callers to the correct subset of prompts.

There are three problems you may encounter:

1. As the number of projects grows, your lead survey's complexity will grow geometrically.

2. Each response database will contain fields for all items in the lead survey, not just the ones relevant to the project.

3. Modifying the lead survey while projects are live introduces risk to the ongoing projects. A mistake in the new project could route callers to the wrong questions.

The multiple lead surveys feature solves these problems.

How Multiple Lead Surveys Work

- Any survey can be designated as a lead survey. There is no limit on how many surveys can be lead surveys.
- Any survey that is not a lead survey is by definition a response survey.
- Each response survey is associated with one and only one lead survey. If no selection is made, the response survey is associated with the default lead survey (shown on the Current Activity screen).
- Your callers are routed to the correct lead survey by the phone number that they dialed.

Setting Up Multiple Projects

1. Click on the **Multiple** button from the **Survey Design** screen or **Current Activity** screen.

2. On the **Multiple Lead Surveys** screen, check the **Enable Multiple Lead Surveys** checkbox. Click **OK**.

3. Create a new lead survey, even if you are not yet ready to set it up. Check the **Lead Survey** checkbox.

4. Create the first response survey and immediately associate it with the lead survey in the **Multiple Lead Surveys** screen by clicking the **Multiple** button again. This will ensure that no fields from the default lead survey are created in your response survey's database.

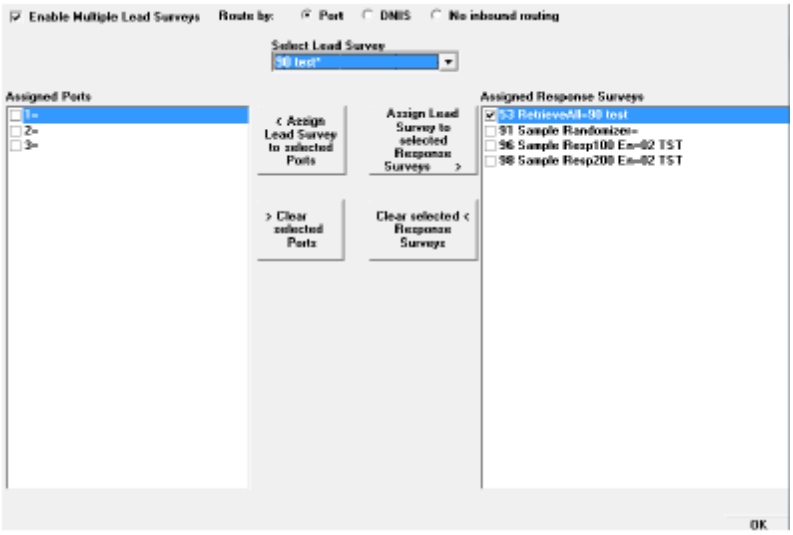
5. Create any additional response surveys and associate them with the appropriate lead survey.

6. Create items, record prompts, set calculations, routing, etc. for the lead and response surveys.

7. Click the **Multiple** button again to assign ports or DNIS numbers to route callers to your new surveys.

DNIS

DNIS (Dialed Number Identification Service) is a service provided with T-1 lines. It allows the T-1 carrier to indicate what phone number was dialed by the caller to reach your IVR system. Thus, you can have several distinct phone numbers all answered by the same pool of IVR lines and SmartQ will know which survey to use for each caller by checking which phone number they dialed.



Routing Callers

1. You can create and edit new surveys without any effect on the calls already in progress. Your new surveys don't become "live" until you set a port or DNIS to route to them.

2. The simplest way to route callers to the appropriate project is to designate certain lines to certain projects. For example, you assign ports 1 through 5 to a product order survey, and ports 6 through 8 to a customer satisfaction survey. You will designate which line goes to which survey from the multiple lead surveys screen.

3. If you have a T-1 or DID line, you will probably have DNIS or DID information coming into SmartQ. If you know the DNIS or DID numbers, you can route to the appropriate lead survey using the DNIS or DID.

Organizing Surveys

X-Ray Views of Surveys

SmartQ can create customized cross-sectional or *X-Ray Views* of your survey. Some examples of the use of this feature include:

- Quick Quality Assurance: Easily check all of your survey settings.
- Survey documentation: Provide a snapshot of your survey for later reference.
- Recording script: Create a printout suitable for a recording session by selecting only the item name and script.

Creating a New View

To create a customized view of your survey:

1. Go to the **Survey Design** screen.
2. Select **Views >ADD/EDIT**.
3. This causes the **Edit Views** window to appear. To begin building your customized view, click the **New** button near the top left.
4. Name your new view (for example, "Digit Range Check").

Editing Your View

The **Edit View** window will build a template based on the elements you select from the **Settings** list. Each element

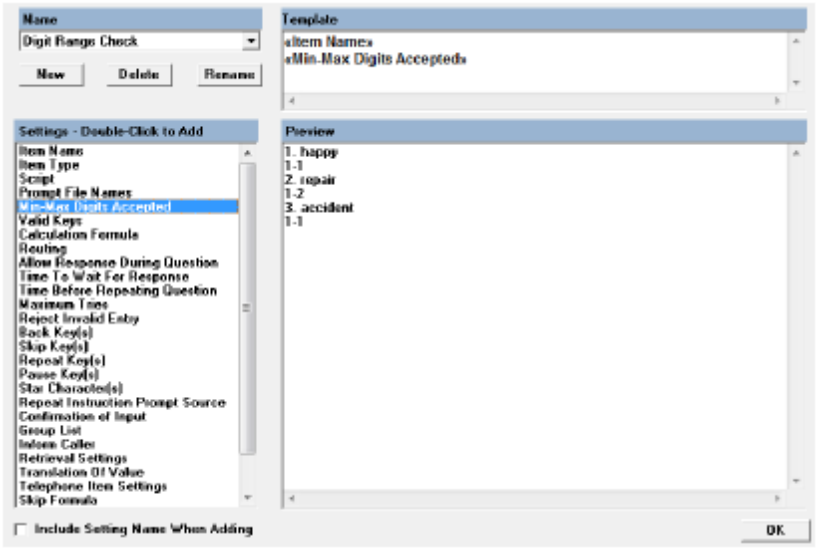
(or setting) corresponds exactly to settings on the **Survey Design** screen.

1. Double-click an element to add it to your view. Sample output appears in the **Preview** field and the name of the element appears in the **Template** field.

2. To remove items, click on the element or setting in the **Template** field that you wish to remove and press the Delete key on your keyboard.

3. When you are finished customizing your view, click **OK** to return to your survey.

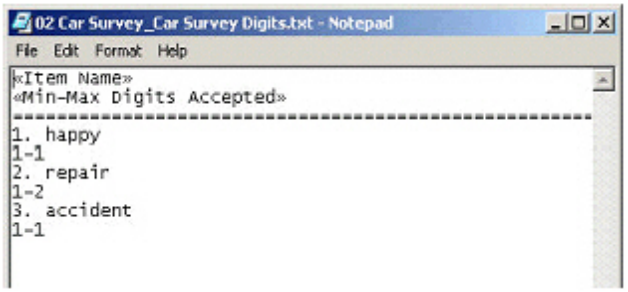
4. To see the final output of your customized view, click the **Views** menu and select the name of the view that you created. Remember that this view is not survey-specific and that it can be used with any of your surveys.



Example

You would like to check that each item in your survey is allowing the correct range of digits.

Create a new view from the **Settings** menu, first selecting **Item Name** and then **Min-Max Digits Accepted** (the order determines the output). Open your new view for the final output, shown below.



This view shows both the name of each item and the minimum-maximum digits that are allowed. The first item, 1. happy, yields a result of "1" for the minimum and "1" for the maximum allowable digits. We see that item 2. repair will allow anywhere from 1 to 2 digits in our survey.

> **TIP:** For an easy recording session, select **Item** Name and **Script**, and print the final output. This also helps you screen your survey scripts for errors.

Typically, this output is easiest to read when **Item Name** is included. However, SmartQ allows the user to select any desired combination of settings.

These customized views can be useful when troubleshooting, designing multiple or very large surveys, or preparing for a recording session. You can add your own text in the **Template** box to make the data more meaningful to your surveys.

Survey Organizer [Custom only]

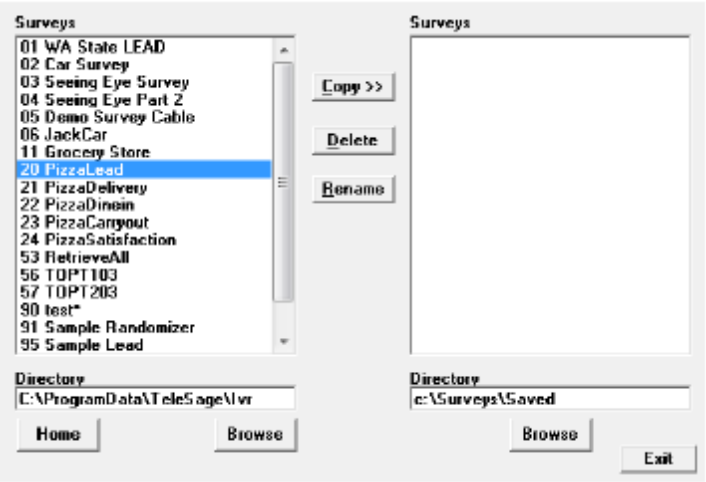
You can use the Survey Organizer to copy, move, and rename any SmartQ survey from within SmartQ. To open the Survey Organizer, go to the **Survey Design** screen and select **Survey > Organize…**.

Copying a Survey

1. Browse to the destination **Directory** on the lower right.

2. Select the survey to copy in the **Surveys** menu on the left.

3. Click the **Copy** button.



Moving a Survey

1. Follow the instructions in "Copying a Survey" above to move the survey to a new location.

2. Delete the original survey.

Renaming a Survey

1. Select the survey you wish to rename, and click **Rename**.

2. A dialog will warn you that if you rename a survey, other surveys currently routing to that survey (if any) will not route properly. Click **OK** if you want to continue renaming your survey.

3. Follow the prompts, which will ask you to enter a new survey ID first and then to enter a new name for your survey. You do not need to change the survey ID in order to change the survey's name.

Survey Power Editor (Advanced) [Custom only]

SmartQ's Survey Power Editor enables the survey designer to change entire surveys with only a few clicks of the mouse.

To open the Survey Power Editor, go to the **Survey Design** screen and select **Survey > Power Edit Survey…**. Select the survey to edit from the top left pull-down menu.

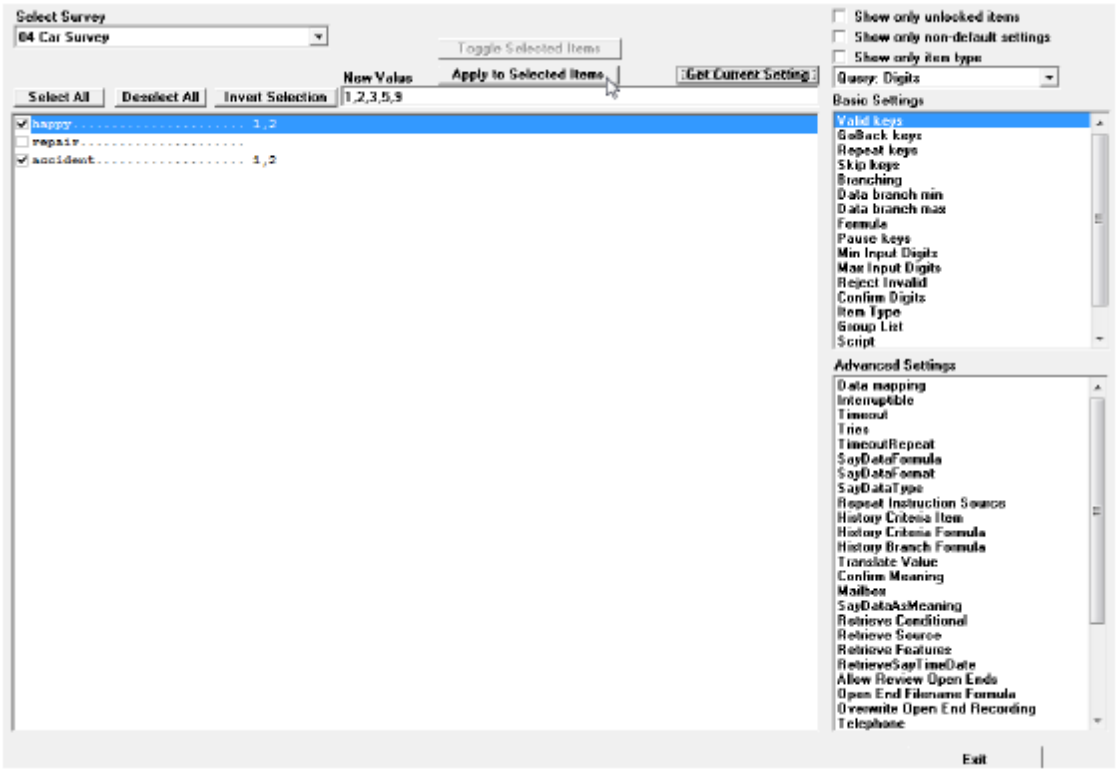
Let's look at a sample version of the "Car Survey" from Chapter 5.

View By Settings

1. On the right side of the screen in the **Basic Settings** list, click **Valid Keys**. You will see a list of all items in your survey and their respective **Valid Keys** settings (if any).

2. Click on the checkboxes of items you will be changing. Here we have selected **happy** and **accident**.

3. The current setting of **Valid Keys** is "1, 2". To change this setting, enter the desired setting into the field above the items. Here we will enter "1, 2, 3, 5, 9". Click **Apply to Selected Items**. (This enables callers to press 1, 2, 3, 5, or 9 when answering the happy and accident items during the survey.)



This is a simplified example of the method you can use to alter your survey items.

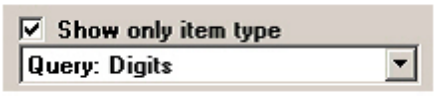
Show only unlocked items

This checkbox filters the resulting list by only showing items that have been left unlocked. This prevents items which you can't change anyway from appearing on the screen.

Show only non-default settings

This checkbox filters the resulting list by only showing items that have been edited or changed from the default settings. This can be helpful when you want to edit only those items in your survey that you have already customized, as opposed to viewing all items and then trying to remember which item values you meant to change.

Show only item type



This checkbox filters your results by item type, which allows for simple editing of large groups of similar items.

Example

Let's say that you have created a 99-question survey to ask your customers to rate your company's service on a scale of 1 through 5, but you accidentally allowed only the digits 0, 1, 2, 3, and 4. To quickly remedy this problem,

you could open the **Survey Power Editor**, select your survey and then select Show only item type Query: Digits to restrict your results.

You would then click select all, enter "1, 2, 3, 4, 5" and click **Apply to selected items**. Within a matter of seconds you just saved the time it would have required to review your entire survey using the **Survey Design** screen.

Additional Features and Notes

Get current setting will put the value of the highlighted item into the text box, so that you do not have to re-enter the information. This is useful if your values are difficult to type accurately.

Invert Selection refers to the checkboxes next to the items. If you have 4 items in your survey and items 1 and 3 are checked, clicking **Invert Selection** will check items 2 and 4, leaving items 1 and 3 unchecked.

Some item settings, such as the **Reject Invalid** setting, have binary values of either 0 or 1. As in many other computer programming languages, 0 corresponds to False while 1 corresponds to True. A value of 1 in the **Reject Invalid** setting means "Yes, Invalid numbers will be rejected".

All changes are permanent within your survey (there is no "undo" option), so be sure to back up your survey beforehand, and refer to the user's manual or SmartQ technical support if you are unfamiliar with certain settings or phrases.

Auto-Export of Responses (Advanced)

By default, SmartQ stores responses in a Microsoft Access© database at the end of each call. You can also have data exported to a text file, to an ODBC-compliant database, to an XML file or to a TeleSage web survey format file.

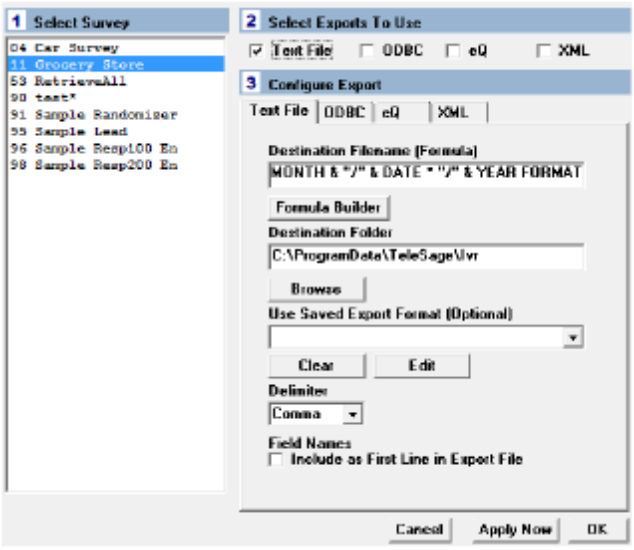
This feature is useful if you use a SQL server database or other external tool, because SmartQ can export the type of data that is most useful to your current application. For example, in an organization that uses IVR as one of several data collection methods, data might need to be passed to a centralized SQL server. SmartQ can be configured to save survey responses directly to a chosen table in the SQL server. Similarly, when XML output is needed SmartQ can define the exact format of the XML files and create an XML file when each survey is completed.

Using Auto-Export

1. From the **Data** screen, select **Data > Auto-Export**.
2. Select the survey that you would like to configure from the list on the left.
3. Select which export type(s) to generate from the checkboxes in section **2: Select Exports To Use**.
4. Configure each export type under the appropriate tab.

SmartQ will continue to write to the Microsoft Access© database regardless of how many exports are selected. Each export operates independently, so you can use more than one at a time.

Text File



Enter a file path in the **Destination Folder** field (files can be on either a local or network drive) and a file name in the **Destination Filename** field. The file name can be a fixed name (such as `exportdata.txt`) or a formula used to calculate the name dynamically.

If you check **Field Names: Include as First Line in Export File**, the first line of the text file will contain the names of the fields separated by the **Delimiter** you choose.

If a file already exists with this name, the auto-export function will append any new data into the existing file.

For example, if you use this formula for the file name:

```
MONTH & "/" & DATE & "" & YEAR
FORMAT "YYYYMMDD" & ".txt"
```

If the date is August 5, 2006 the resulting filename will be `20060805.txt`. In the case of this formula, a new file would be created each day and data would be written to this file until the end of the day.

> ***TIP:*** Use the date, time, and port fields in the formula to ensure unique file names.

The **Saved Export Format** option allows you to use any format previously defined from the Export Data feature (**Data > Export**). An export format lets you specify which survey items are to be included and in what order.

Select a previously-saved export format to edit. You will then be able to modify the justification, space-padding, and re-ordering as desired. Fields are left-justified, space-padded and not restricted to a certain width by default. These defaults are acceptable for comma-delimited or tab-delimited files. For fixed-width, non-delimited files, you would need to change the defaults to match your desired format.

ODBC

The auto-export to ODBC function uses a connection string to connect to your database. Click **Get Connection String**. The Microsoft Windows **Select Data Source** dialog appears.

For SmartQ, TeleSage recommends this procedure:

1. Choose the **Machine Data Source** tab.
2. Click **New**.
3. Choose the **System Data Source** option and click **Next**.
4. In the next dialog box, choose the appropriate driver.

For Microsoft Access©:

1. Choose Microsoft Access Driver (`*.mdb`).
2. Click **Next**.
3. Click **Finish**. Now you will see the ODBC Microsoft Access Setup screen.
4. Enter a short identifier for the **Data Source Name** (for example, "Project ABC Responses").
5. Enter an explanation into the **Description** field, such as "ABC Phase 1, started January 2006". This

description will be visible if you select **Administrative Tools > Data Source** in Windows' **Control Panel**, but it is not visible in SmartQ.

6. Select **Database > Select...** and browse to your Microsoft Access© database file.
7. Leave system database with **None** selected.
8. Click **OK** on the next two screens.
9. The second **OK** is on the **Select Data Source** screen where you will see your new connection displayed and selected.

After this step is complete, the connection string that tells SmartQ how to find the database is automatically placed in SmartQ's **Connection String** field.

For SQL Server (the driver may be listed last, and not prefaced with "Microsoft".)

1. Select **SQL Server** and click **Next**.
2. Click **Finish**.
3. Enter a short name, optionally a description, and choose your server.
4. Click **Next**.
5. Select your authentication method and click **Next**.
6. Click **Change the default database to…** and then select which database should be used.
7. On the next screen, accept the defaults unless you have reason to change them and click **Finish**.
8. A summary screen will appear. Click **Test Data Source** to verify that the connection can be made and authentication works properly.
9. Click **OK** until the wizard exits.

Once you have created the connection string, SmartQ will connect to your database and populate the Table dropdown list. Select your desired destination table for export.

Click **Map Fields**. The resulting screen lets you pair up each SmartQ item to a destination field in your database table. You are not required to export every survey item.

The ODBC auto-export function is set up on a per-survey basis, so each survey can write to a different table. SmartQ writes the data when the call has ended.

Some database systems (such as Oracle) do not allow brackets around field names in a SQL statement, while others (Access and SQL Server) require brackets if the field or table name contains spaces or is a reserved word. The checkbox **Bracket table and field names in SQL** lets you choose the appropriate setting.

eQ

eQ is TeleSage's web survey product. It uses a vertical structure for saving survey responses. Instead of having a column for each item in the survey, and a table for each survey, eQ uses two tables called "SESSION" and "RESPONSE". Each call is a session with an ID, date and time.

The SESSION table has eight columns:

- SESSION_ID: Autonumbered primary key
- SESSIONDATE: Date of the call
- STARTTIME: Time of the call
- PORT: Line that the call came in on
- LEADNAME: Name of first survey in call
- LEADMINS: Duration in minutes of first survey in call
- RESPNAME: Name of last survey in call
- RESPMINS : Duration in minutes of last survey in call

The RESPONSE table has five columns:

- RESPONSE_ID: Autonumbered primary key
- SESSION_ID: Foreign key that references the SESSION table
- SURVEY_ID: Contains the eQ survey ID, which you set on the Auto-Export screen
- DATANAME: Contains the name of the SmartQ item
- ANSWER : Contains the response entered by the caller

If you have a database with these two tables, the connection to the database and the Survey ID for each survey are all you need to configure: all of the table and field mapping is done for you. When the data is written, a separate row is written in the RESPONSE table for each survey item with the name of the item, the response and the relevant IDs that tell you which call from which the data was retrieved.

XML

Data collected by SmartQ can also be exported in XML files.

Use the **XML** tab to specify a custom **Destination Filename** and **Destination Folder** for the exported XML file. The Destination Folder can be either a local or a network drive. Be sure to choose a file naming convention that yields unique filenames: unlike the text file export function, SmartQ will overwrite an existing XML file. The filename must end with `.XML`.

The format of the XML output is controlled by a saved XML format file. There is one of these files per survey, with extension `.exm`. A default file is created automatically when you first enable XML export for a survey.

When you click **Edit XML Format**, the file will be opened for you in Notepad. This file provides a template for the contents of your output files. Insert a SmartQ formula, enclosed in curly braces {}, in each place where you need to insert a survey response or other conditional text. These formulas are evaluated when SmartQ writes the output file so that the appropriate values are filled in. The curly braces themselves will not be included in the output.

Export Existing Data

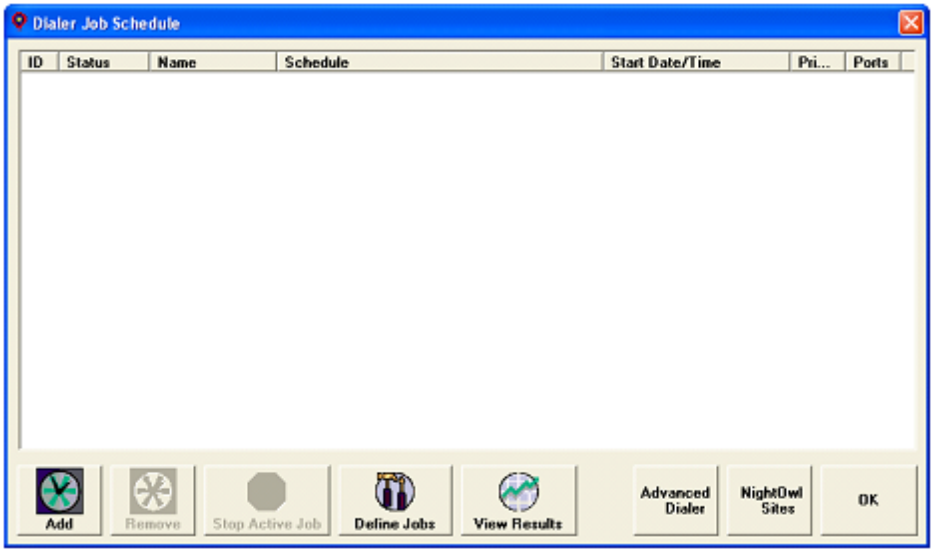
You can have the data collected from calls exported in XML format at any time. When you click **Export Existing Data** on the **Auto-Export** screen, you will be prompted for a starting and ending date. All calls completed during that date range (inclusive of both start and end) will be exported to XML files.

> ***NOTE:*** When you export existing data, XML filenames are calculated at the time of export. This means that the current date or time will most likely be quite different from the time that the call was originally placed. For this reason, it is preferable to use CALLDATE or CALLTIME rather than YEAR, MONTH, HOUR, etc. in your filename formula.

Standard Dialer: Getting Started

Launching the Standard Dialer

Click the **Dialer** button on the left-hand menu. This will open the **Standard Dialer** and take you to the **Dialer Job Schedule** screen.



How the Standard Dialer Works

1. You design a Dialer Job on your PC by selecting a set of phone numbers in a database and specifying dates, times, and quotas to call.
2. At the specified date and time, your PC begins calling your list of phone numbers.
3. SmartQ, your automated survey system, will administer a survey you created or leave a message on an answering machine.

How the SmartQ Dialer Determines Call Result

SmartQ's dialer uses a simple heuristic with parameters you can specify (see the **Outbound Call Progress** settings of the **Phone Line Setup** dialog in Chapter 1) to determine whether the call is answered by a person or an answering service.

When attempting an outbound call, the dialer goes off-hook, dials a number and listens to the line. It establishes a cadence for the ring signal and then times the duration of the first sound that is out of the ring signal pattern, the "salutation." When establishing the cadence of the ring signal, it can detect rising tri-tone operator intercept and busy signals.

The length of the salutation generally indicates if a person or an automated answering service has answered the call. The assumption is that if a person answers, he or she will say just a few words before waiting for a response, while a machine will deliver a much longer greeting.

If you are using the Advanced Dialer, the variable `_DIAL_RESULT_CODE` will contain the call result, which can be examined in the code you write for Update queries (see Chapter 22).

Licensed Dialer Features

If you have a license for the Advanced Dialer, the **Advanced Dialer** button will be enabled. See Chapter 22 for information about the Advanced Dialer.

The Standard Dialer: Creating a Job

Overview

This chapter will help you to set up a dialer job in the Standard Dialer. For each job, the Standard Dialer dials a set of phone numbers. When a live person answers, the designated SmartQ survey will begin. The survey logic will continue as you have set it up in SmartQ. See the survey design chapters for instructions on setting up your survey.

The Five Basic Steps of Job Designing

Click on the **Define Jobs** button. The **Dialer Jobs** screen will appear. Here you will see the five basic steps of designing a job:

1. **Select Job**: Create, delete, or modify a dialer job.
2. Select **Phone Number Database**: Choose the database, table, and fields where your phone numbers and results are stored.
3. Set **Dialing Specifications**: Specify how to dial out, which survey to give, and what to do in case of a busy signal, no answer, or an answering machine.
4. Set **Job Schedule**: Choose the times and days of the week that your job will run.
5. Set **Job Quotas**: Specify whether the Standard Dialer should dial all of the numbers in your database or only numbers that meet certain requirements.

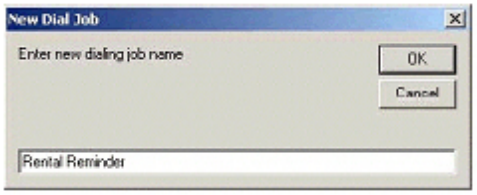
At any time, you can click **OK** to save changes and return to the **Dialer Job Schedule** screen.

- Click **Cancel** to return to the **Dialer Job Schedule** screen without saving changes.
- Click **Apply** to save changes and continue working in the **Dialer Jobs** screen.
- Click **Refresh** to add any new databases, tables, fields, or surveys to the pull-down menus.

Step 1. Select Job

1. Select **Select Job >Add New Dial Job**. You can also click the **Add Job** button.

2. A dialog box will ask you to enter a name for your job. When you are finished, click **OK**.



Step 2. Select Phone Number Database

3. You will need to create a database and a table that contains your set of phone numbers. This database must be located in the same directory as SmartQ (in a standard installation, this directory will typically be `C:\ProgramData\TeleSage\Ivr` for Windows 7 or `C:\Program Files\TeleSage` for Windows XP).

4. On the **Dialer Jobs** screen, make a selection from the **Database** pull-down menu.

5. After you have selected your database, the tables and queries your database contains will appear in the **Table or Query** pull-down menu. Select the table or a query that contains your set of phone numbers. (Importing data and building a query are discussed in Chapters 5 and 6.)

6. After you have selected your table or query, the fields that the table contains will appear in the **Phone Field** and **Result Field** pull-down menus. For the **Phone Field**, select the field that contains the phone numbers to be dialed. For the **Result Field**, select the field reserved for the Standard Dialer to report the result of each dial attempt.

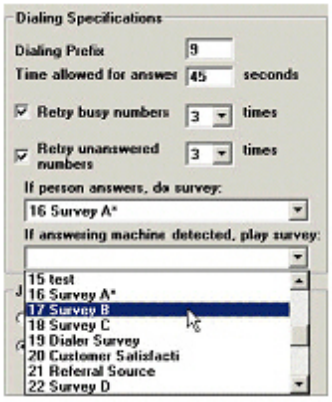
> ***TIP:*** In the database, the phone field should be populated with phone numbers and the result field should be blank so that the Standard Dialer can write information about the dial attempt. If the result field is not blank, it will not call the corresponding number in the phone field.

Step 3. Set Job Schedule

This feature allows you to choose when the Standard Dialer will make calls. Use the checkboxes to select which days of the week calls will be made. Use the pull-down menus to set the range of hours calls will be made.

> ***TIP:*** If your database contains phone numbers from across the country, schedule different jobs for different time zones. All times refer to the real-time clock on your PC.

Step 4. Set Dialing Specifications



You can specify settings for your Dialer Job, such as which survey to administer and how to dial out of your phone system.

7. Enter any prefix your phone system requires to dial out (such as "9") in the **Dialing Prefix** box. If all the numbers in your database are in the same area code, you can leave out the area code in the database and enter it here in the **Dialing Prefix** box instead. If you need a prefix to dial out and you also wish to use an area code, simply separate with a comma (example: 9,206).

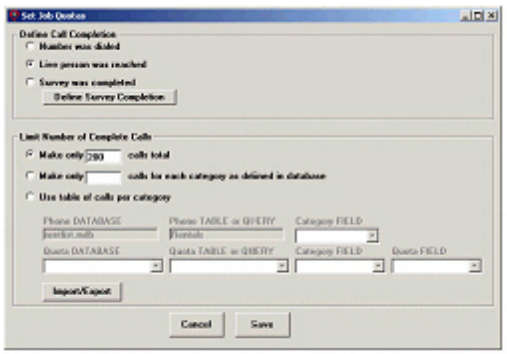
8. In the **Time Allowed for Answer** box, enter the number of seconds you would like the Standard Dialer to try each number. If no busy signal, answering machine, or live person is obtained, the Standard Dialer will continue to ring for the number of seconds you enter here.

9. You may want the Standard Dialer to redial phone numbers that initially return busy or unanswered results. Check the box next to **Retry busy numbers** and/or **Retry unanswered numbers** and then use the pull-down menu to select the number of times you would like the Standard Dialer to redial the phone numbers.

10. Select the survey you want SmartQ to administer when a person answers the phone. Use the pull-down menu under **If person answers, do survey** to select your survey. If you do not select a survey here, SmartQ will administer its current lead survey.

11. You may want SmartQ to use a different survey if an answering machine is detected. Use the pull-down menu under **If answering machine detected, play survey** to select the survey you would like to playback when a machine answers the phone. If you do not select a survey here, the Standard Dialer will hang up when a machine answers the phone.

Step 5. Set Job Quotas (Advanced Feature)



You may want the Standard Dialer to stop dialing when a certain number of calls have been placed, a certain number of surveys have been completed, or other criteria have been fulfilled. For instance, you may have a job that consists of phone numbers across a city and you want to make sure you get 10 completed surveys from each zip code. Defining quotas can help you reach your specific goals.

If you want the Standard Dialer to dial all the numbers in your table as per your dialing specifications (described in the previous section), regardless of the result of the calls, select **Dial all the numbers**.

If, however, you want the Standard Dialer to stop dialing when certain criteria have been fulfilled, select **Stop when quotas are reached** and then click the **Set Quotas** button. This will take you to the **Set Job Quotas** screen to define your criteria. Once your quota has been met, busy and unanswered numbers will not be retried, regardless of the dialing specifications you set in Step 4 above.

Define A Complete Call

The Standard Dialer can consider a call complete if the **Number Was Dialed**, a **Live Person Was Reached**, or the **Survey Was Completed**:

- **Number was dialed**: If you want the Standard Dialer to call a set of phone numbers and count all outcomes (live person, answering machine, busy signal, etc.) toward meeting the quota, choose **Number was dialed**.

- **Live person was reached**: If you want the Standard Dialer to call a set of phone numbers and count only responses where a live person was reached toward meeting the quota, choose **Live person was reached**.

Example

You want to reach 200 live people. Choose **Live Person Was Reached** and enter "200" into the **Make Only ___ Calls Total** box below. After the Standard Dialer has detected 200 live people answering the phone, it will consider the quota met and stop dialing. Over 200 calls will be placed overall since the Standard Dialer will not count answering machines, busy signals, etc. toward the 200 call quota.

- **Survey Was Completed**: If you want the Standard Dialer to call a set of phone numbers and count only the outcomes in which your survey was completed, choose **Survey Was Completed**. If the person completes the survey logic, the call will be counted toward the quota total. If no one picks up, a busy signal is returned, an answering machine picks up, or the person answers some questions but does not reach the end of the survey, the call will not be counted toward the total.

> ***TIP:*** If the call is only useful to you if a particular survey question is answered, you can define the call as complete if the person answered that particular Item. Click **Define Survey Completion**. Select your survey in the right-hand column and select the item in the left-hand column, then click **OK**.

Limit Number of Complete Calls

Tell the Standard Dialer how to limit the number of complete calls. Options include:

- **Make Only __ Calls Total**: If you want the Standard Dialer to make a certain number of calls from your database, choose **Make Only __ Calls Total** and enter the number of completed calls you need.
- **Make Only __ Calls for Each Category as Defined in the Database**: If you have several categories and need a certain number of calls for each one, choose **Make Only __ Calls for Each Category as Defined in the Database** and enter the number of completed calls you need per category. The Phone Database and Phone Table or Query settings contain values according to what you have selected on the **Dialer Jobs** screen (see Step 2). Select your **Category Field** from the pull-down menu.

Example

You want to survey 15 households in each zip code in your database and you have a field named "Zip Code" in your table. Enter "15" in the text box to indicate that you want 15 completed surveys from each category. Below, select **Zip Code** from the **Category Field** pull-down menu to indicate that you want the Standard Dialer to categorize your records by zip code.

- **Use Table of Calls Per Category**: If you have several categories and need a different number of complete calls made in each category, choose **Use Table of Calls Per Category**. In your database, you will need to create a table that links each category with a quota. Before each call, the Standard Dialer will check this table and determine if the quota has been met for the category. It will meet the quota for each category before considering the dialer job complete. Point the Standard Dialer to the Quota database, Quota table or query, Category field and Quota field by selecting them from the pull-down menus. Use separate tables for the phone numbers and the quotas.

When you are finished, click **Save** to return to the **Dialer Jobs** screen.

> ***NOTE:*** If there are not enough available numbers to meet the quotas you establish, the job will finish without meeting the quota. For example, if you establish your quota as 1000 complete calls but there are only 500 numbers in your table, the quota will not be met.

Example

You want to survey households in several zip codes, but want to survey a different number of households in each zip code.

1. In your database, create a table called "quotas" that has two fields: "Zip Code" and "Quota". The name "Zip Code" should correspond to the "Zip Code" field in your Phone table.

2. In the Zip Code field in your new table, enter each unique zip code from your Phone table.

3. In the Quota field, enter the number of surveys you need from each zip code.
4. On the **Set Job Quotas** screen, the **Phone Database** and **Phone Table or Query** are filled in according to what you have selected on the **Dialer Jobs** screen. Select **Category Field > Zip Code**.
5. From the **Quota Database** pull-down menu, select the database in which your new "quotas" table is contained.
6. Select **Quota Table** or **Query > quotas**.
7. Select **Category Field > Zip Code** to indicate the field in which the category is contained.
8. Select **Quota Field > Quota** to indicate the field in which the quota is contained.

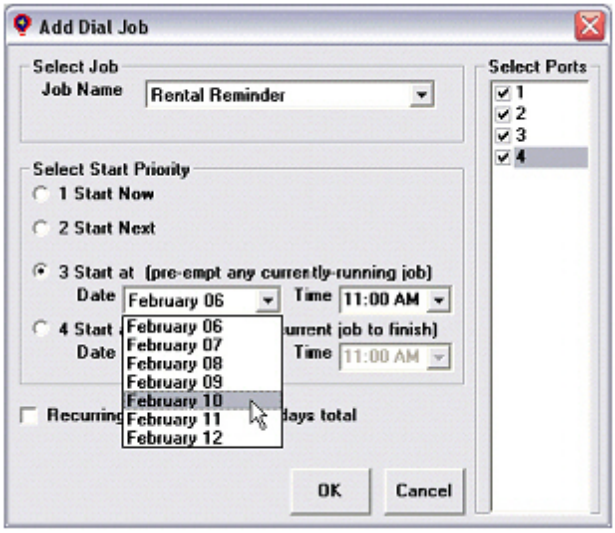
The Standard Dialer: Scheduling

Overview

After you have defined your job, add it to the Dialer Job Schedule.

Adding a Job

1. On the **Dialer Job Schedule** screen, click **Add**.
2. Select the job you wish to add from the **Job Name** pull-down menu.
3. Select a starting time and priority for your job. Options include:
    - **Start Now**: Begin the job, interrupting all active jobs.
    - **Start Next**: Begin the job as soon as the ports are available, but do not interrupt any job.
    - **Start At**: Begin the job at the specified date and time, interrupting all active jobs. You will need to select a date and time from the pull-down menus.
    - **Start At or After**: Begin the job at the specified date and time and as soon as the ports are available, but do not interrupt any job. You will need to select a date and time from the pull-down menus.



4. Select the port(s) the Standard Dialer will use for your job.
5. When you are finished, click **OK**.

Removing a Job

1. On the **Dialer Job Schedule** screen, select the job you wish to remove by clicking on its ID number.
2. Click **Remove**. This will not delete the job; it will remove the job from the schedule.

Stopping or Pausing an Active Job

1. When a job is active, the **Stop Active Job** button will become visible. Clicking the red stop sign will stop the active dialer job.
2. You may want to pause an active job. You can pause jobs in SmartQ by clicking the **Stop Calls** button on the main left-hand menu. To restart the job, click the **Start Calls** button.

Restarting a Job

Dialer jobs that get interrupted will automatically re-queue themselves. You may wish to restart a cancelled or interrupted job.

1. On the **Dialer Job Schedule** screen, click on the **View Results** button to open the **Dialer Job Results** screen.
2. On the **Dialer Job Results** screen, select the job you wish to restart from the pull-down menu at the top of the screen.
3. Click the **Restart Selected Job** button. This will open a dialog box that will ask if you would like to restart a particular job ID number. Click **OK**.

Recurring Jobs [Custom only]

If you need to call the same people repeatedly (for a daily checkup, for example), you can easily set a job to run for any number of days.

1. Check the box **Reset All When Done** on the **Dialer Jobs** screen.
2. When you click **Add** from the **Dialer Job Schedule** screen, the **Add Dial Job** dialog gives a **Recurring Job** option. Check this checkbox
3. Enter the number of consecutive days for which you want the job to run.
4. If the job runs only certain days of the week, set its schedule on the **Dialer Jobs** screen.

The Standard Dialer: Viewing Results

Viewing Dialer Job Results

Dialer job results are stored in your database, but you may occasionally want to check your progress. The **Dialer Job Results** screen allows you to view the results from previous or current jobs.

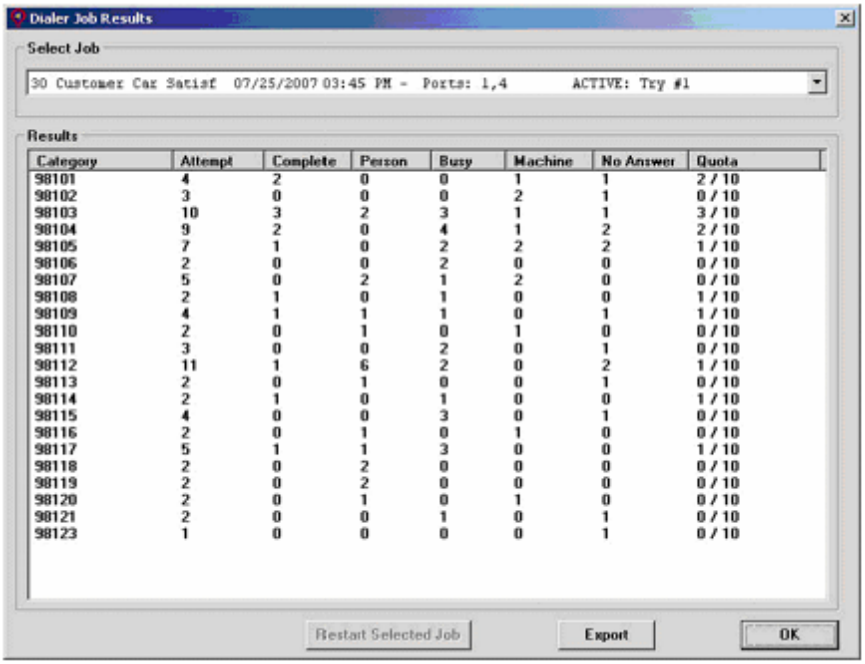
1. On the **Dialer Job Schedule** screen, click on the **View Results** button to see the **Dialer Job Results** screen.
2. Select a job from the **Select Job** pull-down menu at the top of the screen.

Job details are listed in the **Select Job** box. After the job name, you can see the date and time the job ran, which ports were used, and the status of the job (e.g. active, finished, cancelled).

Results are listed in the **Results** box by category (if no categories were defined, all results are listed in the category "ALL"). For each category, you can see the number of attempts, complete calls, answers by a live person, busy signals, answers by a machine, and calls with no answer. A complete call is defined when you set quotas. If no quotas have been set, then the number of complete calls will be zero. The quota and number of calls made toward the quota are also listed.

If you wish to see results sorted by a column, click on the column heading. To view results in a tab-delimited file, click the **Export** button.

When you are finished viewing results, click **OK** to return to the **Dialer Job Schedule** screen.



Category	Attempt	Complete	Person	Busy	Machine	No Answer	Quota
98101	4	2	0	0	1	1	2 / 10
98102	3	0	0	0	2	1	0 / 10
98103	10	3	2	3	1	1	3 / 10
98104	9	2	0	4	1	2	2 / 10
98105	7	1	0	2	2	2	1 / 10
98106	2	0	0	2	0	0	0 / 10
98107	5	0	2	1	2	0	0 / 10
98108	2	1	0	1	0	0	1 / 10
98109	4	1	1	1	0	1	1 / 10
98110	2	0	1	0	1	0	0 / 10
98111	3	0	0	2	0	1	0 / 10
98112	11	1	6	2	0	2	1 / 10
98113	2	0	1	0	0	1	0 / 10
98114	2	1	0	1	0	0	1 / 10
98115	4	0	0	3	0	1	0 / 10
98116	2	0	1	0	1	0	0 / 10
98117	5	1	1	3	0	0	1 / 10
98118	2	0	2	0	0	0	0 / 10
98119	2	0	2	0	0	0	0 / 10
98120	2	0	1	0	1	0	0 / 10
98121	2	0	0	1	0	1	0 / 10
98123	1	0	0	0	0	1	0 / 10

Permanent Storage of Dialer Results

The result of each call attempt is permanently stored in the Result column your database. You can open your database easily from the Standard Dialer.

1. Click the **Define Jobs** button to open the **Dialer Jobs** screen.
2. Click the **Open Database** button in the **Phone Number Database** section. This will open the database and table selected in the pull-down menus above.

Viewing Survey Results

The responses to your survey are stored in the Result column of the response database, just as responses to an in-bound survey. The results are viewable from the **Data** screen. Please see the "Viewing Data" section in Chapter 8.

Result Values

The Result column can contain one of the following values and corresponding titles:

Value	Title	Notes
01	Stopped	The dial job was manually cancelled or pre-empted by another job in the middle of the call
02	No dial tone	Dialer was not able to dial out due to lack of dial tone or loop current on the line
03	Operator intercept	Rising tri-tone signal was detected
04	Busy	Busy cadence (typically .5 second on, .5 second off) was detected.

05	No ring	Only silence was detected for 7.5 seconds after dialing was completed.
06	No answer	Maximum waiting period for answer exceeded
07	Live person	Salutation was shorter than or equal to setting
08	Fax	For future implementation
09	Answering machine	Salutation was longer than setting
10	Survey completed	A survey was finished (the item designated as the completion item has a response)
99	Error	The error message should explain the error. This is typically a problem with the phone line or voice board

The Standard Dialer: Data Management

Overview

The phone database that the Standard Dialer uses to store phone numbers and the results of call attempts is independent of the survey database that SmartQ uses to store survey responses. To manage your survey database, see Chapter 8 ("Data Management").

When dialing, the Standard Dialer looks in the Phone database at the Phone table you selected on the **Dialer Jobs** screen. The Phone table has a field that contains phone numbers and has an unpopulated field in which the Standard Dialer records information about the dial attempt. It will dial each phone number whose corresponding Results field is empty. You can manipulate the contents of your Phone database by importing data or resetting some results. You can also export data if you need to transfer it to another location.

Importing Data

Instead of entering a list of phone numbers by hand, you may want to import your phone numbers directly into your Phone database. Using the Standard Dialer, you can import data from a text file to a table in your database. From the **Dialer Jobs** screen or the **Set Job Quotas** screen, click the **Import/Export** button. This will open the **Database Import/Export** dialog.

1. Enter the name of your import file either by typing the pathname into the **Text File** field or by browsing to it using the **Browse** button on the right.
2. Select the destination database either by selecting it from the **Database** pull-down menu or browsing to it using the **Browse** button on the right.
3. Select the destination table from the **Table** pull-down menu.
4. Backup cycles refers to the number of copies of the current database you want to create. Select a number from the **Backup Cycles** pull-down menu. Set this to 0 if you don't need to view the data again.
5. Click the **Import** button to import the data from the text file into your destination table and database. This will not append the data; it renames the existing database to a backup name and then creates a new database with only the records imported from the text file.

Resetting Results

You may want to edit your Phone database to clear the Results Field for phone numbers that previously returned "Busy," "No Answer," "Machine Answer," or all results so that the Standard Dialer will call these phone numbers the next time you run the job. You can do this from the **Dialer Jobs** screen.

- To clear the results field of Busy results, click the **Reset Busy Numbers** button.
- To clear the results field of No Answer results, click the **Reset No-Answers** button.
- To clear the results field of Machine Answer results, click the **Reset Machine Answers** button.
- To clear the results field of all results, check the **Reset all when done** checkbox.

Exporting Data

Table data

Using the Standard Dialer, you can export data from the tables in your database to a text file. From the **Dialer Jobs** screen or the **Set Job Quotas** screen, click the **Import/Export** button. This will open the **Database Import/Export** dialog box.

1. Enter the name of your text file either by typing the path or browsing to it using the **Browse** button on the right.
2. Select the database that contains the data you want to export either by selecting it from the pull-down menu or browsing to it using the **Browse** button on the right.
3. Select the table that contains the data you want to export from the pull-down menu.
4. Select the number of backup cycles from the pull-down menu. This is the number of copies of the current database you want to create as backups.
5. Click the **Export** button to export the data.

Job results

You may want to export your job results to a tab-delimited text file. From the **Dialer Job Results** screen, click the **Export** button. This will generate and open a text file with the name

```
JobID_NameOfJob_UniqueTwoDigitNumber.txt
```

containing the results for the currently selected job.

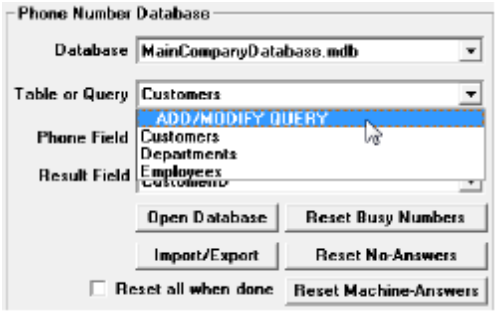
The Standard Dialer: Building a Query

Overview

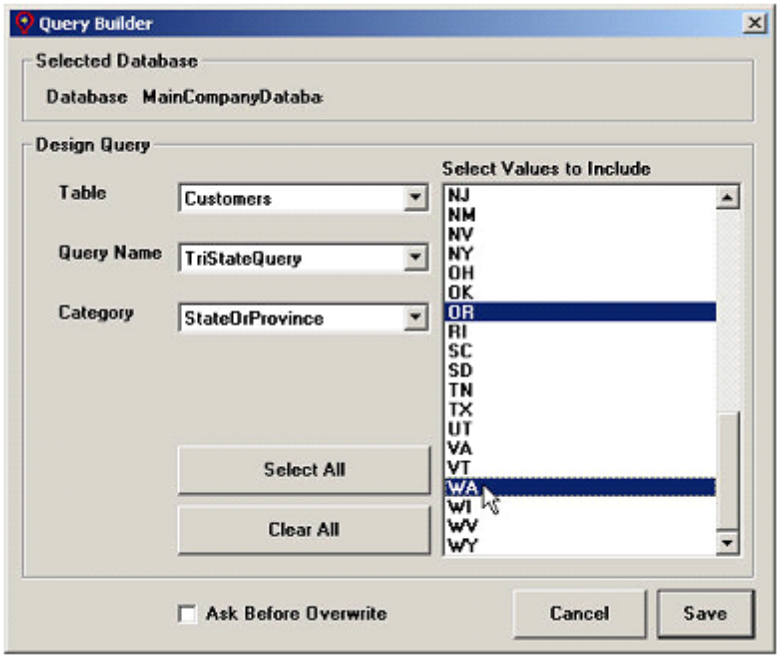
A *Query* is a database filter through which you can view, modify, and analyze data in different ways. You may want to create a query specifically for your Dialer Job. The Standard Dialer Query Builder allows you to create Microsoft Access queries easily.

Building A Query

1. Select **Add/Modify Query** from the **Table or Query** pull-down menu on the **Dialer Jobs** screen. This will open the **Query Builder**.
2. Select your table from the pull-down menu.
3. Select **Query Name > Add New Query**.
4. A dialog box will appear. Enter a name into the **Query Name** field. When you are finished, click **OK**.
5. Make a selection from the **Category** pull-down menu. You will use this field to filter or sort your data.
6. From the list on the right, select the values to include in your filter. The Standard Dialer will call only the phone numbers that correspond to the values you select here. To select multiple values, hold down the Control key. To select all the values, click the **Select All** button. To clear your selection(s), click the **Clear All** button.



7. Click **Save** to save the query and return to the **Dialer Jobs** screen.



Example

You have a table named "Customers" that contains all your customers, but you only want to reach those within your tri-state area.

1. Select **Table or Query > Add/ Modify Query**.
2. When **Query Builder** opens, select **Table > Customers**.
3. Select **Query Name > Add New Query**.
4. When the dialog box appears, enter a name for your query, such as "TriStateQuery".
5. Select the field that contains the customer's state from the **Category** pull-down menu.
6. The list of values contained in the StateOrProvince field will appear in the box on the right. Hold down the Control key and select the three states in the tri-state area.
7. Click **Save** to return to the previous screen.

Advanced Dialer

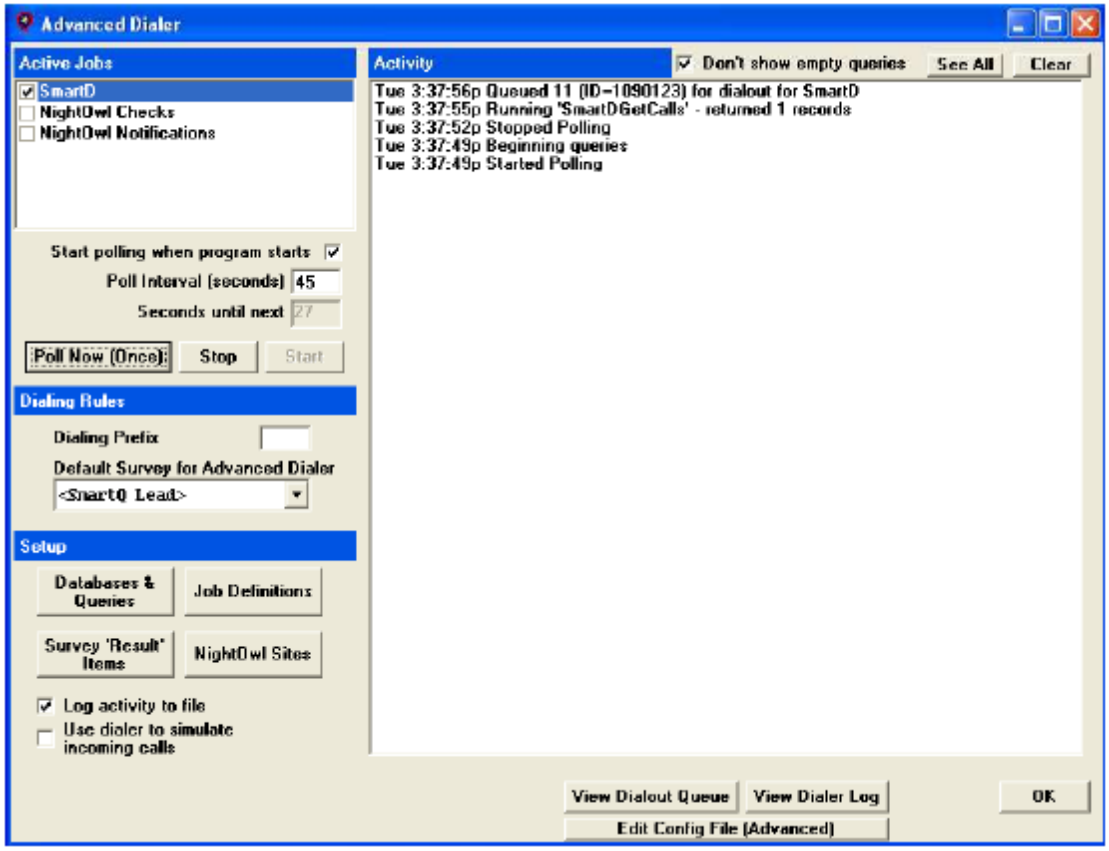
Introduction

The Advanced Dialer will link to the contents of any database and follow complex rules for dialing out using the data there. You might think of the Advanced Dialer as a complex control system whose behavior is determined by SQL statements and the contents of a database. By defining SQL queries, you can control which survey is given to each caller and how each survey defines the "result" to return to your database.

All of these settings are saved as a job and you can have as many jobs as you wish on your system. Potential uses include:

- Triggering calls according to a condition in a database, such as a service coming due
- Allowing callers to specify when they would like to receive the next call
- Defining individual call-retry patterns, such as calling in the afternoon if there is no answer in the morning
- Making a batch of calls during a specific time window, but adjusting for individual time zones

To access the Advanced Dialer, click the button on the bottom of the **Dialer** screen.



How It Works

The Advanced Dialer continually polls a database for calls to be made. In addition to the phone numbers, the database typically includes fields for status, date and time to place the call, criteria that determine when a call should be made (such as a time zone), and other data to be used during the call (such as a customer ID number).

The Advanced Dialer keeps track of what calls are already in progress, so that no duplicate calls are made. Each time a call is completed, the database is updated according to rules that you establish.

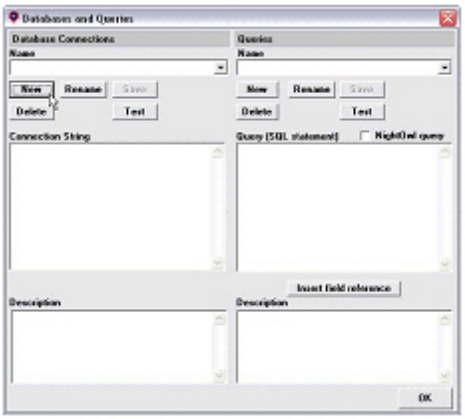
Jobs

The settings for which database and queries to use, and how to manage the results of the calls, are all stored in a job. Configure these settings from the Advanced Dialer's **Job Definitions** screen. Multiple jobs can run concurrently.

Database

SmartQ uses an ADO connection string to connect to your database. If you know how to make a connection string, you can simply type it in. Alternatively, you can browse to your database with the database connection wizard.

To set up a connection string to your database:

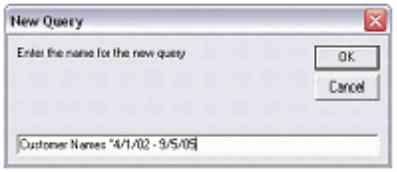


1. Go to the Advanced Dialer's **Databases and Queries** screen.
2. Under **Database Connections**, click **Add**. Then choose the appropriate type of database in the list.
3. Browse to your database, select it and click **Open**.
4. SmartQ now prompts you for the name of this database. A good practice is to name it with the same name as your project that uses it. This name is how the file will be referred to when you are making selections on the dialer job screen, just use a convenient name - no path or ".mdb" is needed.
5. This will create a Data Source Name (DSN) for y ou and place the connection string in the appropriate box on the SmartQ screen.
6. Click the **Test** button to verify that SmartQ can open the database. If successful, you will also have the option to view the table and field structure of the database.
7. When the connection has been successfully configured, click **Save**.

Queries

The right side of the **Databases and Queries** screen lets you define queries to use with your databases. The queries you define here are saved within SmartQ, not in your database. You must type in the SQL statement for each query, an optional description, and give the query a name.

On the **Jobs** screen, you can select from the list of queries you define. To create a query:



1. Select **Queries > New**. Enter the name you want to use for this query. Names may include any characters except equals sign or square brackets. Spaces and other special characters are allowed.
2. Enter your SQL statement. If you need to refer to the database for table or field names, just click the **Test** button under **Database Connections** and choose **Yes** when prompted if you would like to view the database structure.
3. Test your statement with the **Test** button. If the query returns records, they will be displayed in a grid so you can check whether it works as intended. If the query is an UPDATE, INSERT or DELETE statement, it will be run as a transaction with the option to roll back. This means that the query will temporarily run, reporting back how many records would be affected.

You may also refer to the example queries at the end of this chapter.

Advanced Dialer Variables

The Advanced Dialer sets the values of several variables during the process of executing a call and the GetCalls query. You can refer to these variables in your Update query; all variable names must be enclosed by curly brackets, such as `{_STATUS_INITIAL}`.

Variable	Explanation
_STATUS_INITIAL	Initial status of the call (when it was retrieved from the database)
_STATUS_FINAL	Final status of call (calculated by SmartQ after the call is

	completed)
_DIAL_RESULT_CODE	Two-digit dial result code (see Chapter 19 for values and explanations)
_DIAL_RESULT_STRING	Result string (description of the call disposition)
_ERROR_MESSAGE	A description of any resulting error
_PHONE_NUMBER	The phone number that was dialed
_UNIQUE_ID	The unique ID used by SmartQ to identify this call attempt

Compiling Your Results

You may want to link information in the dialer database with responses made by the people you called. The Standard Dialer uses a different table for storing information than SmartQ uses for survey responses. If you want to access the data created or used by it, you will need to create a bridges between the two databases. Here are two strategies to accomplish this:

Strategy 1 - Passing all data to the SmartQ Response table

Pass all the data you will need from the Standard Dialer database into the Response database by creating a SmartQ item for each needed field. These SmartQ items would be Calculation items, with formulas that reference the field, such as `^MyField`. This method makes it simpler to analyze the data on the back end, but is cumbersome to set up.

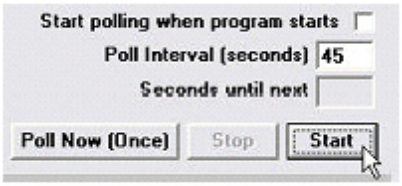
Strategy 2 - Joining tables via an ID

This approach uses a common ID in the Dialer database and the Response database. To link dialout records with response records, therefore, you will need to include a unique ID field from your dialout database in your GetCalls query and put an item in the SmartQ survey that brings it into the response data. That would be a Calculation item with formula `^MyUniqueID`.

Polling

Polling is the operation of querying the database on an on-going basis. The dialer keeps a list of calls that are already in progress. If a query happens before a call is completed, which can happen frequently, SmartQ recognizes the duplicates and does not redial them. In order to recognize duplicates, there must be a field or combination of fields that contains a unique ID in the database.

To begin polling continuously (until the conditions you specified for your survey are met), click **Start** on the **Advanced Dialer** screen. **Poll Now (Once)** is used for testing your survey. A **Poll Interval** setting between 45 and 60 seconds is typical for most applications.

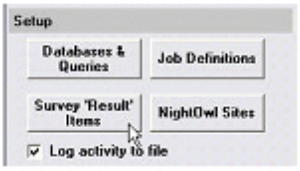


Transitions: Status and Result

"Status" and "Result" are values used by Advanced Dialer applications in conjunction with GetCalls and Update queries. A Status list is compiled to indicate when or whether a call should be made. Then a table is created to control how a call that originates in each Status record should be updated, based on the Result of the call. The final Status is determined based on the initial Status combined with the data retrieved from the survey (the Result).

The Result is the response to an item in a survey. The simplest example is to make a Calculation item through the Survey Designer called "Result" with a formula of 1. The Result item can be named anything you like.

Using Transitions

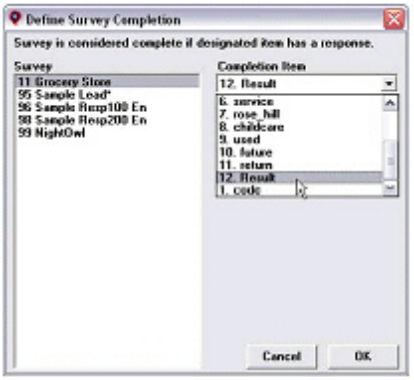


1. Create an item named "Result" (or something similar) in the survey in Survey Designer. Include a formula that contains information you want as factors in the Status determination. Make sure your survey routes to this item.

2. Click on **Survey 'Result' Items** and identify your survey's item which will act as a Result of the call for this survey.

3. Define Status transitions for all possible Results and initial statuses. To access this screen, click on **Job Definitions** from the **Advanced Dialer** window, select **Use Status Transition Table**, and then click on **Details**.

4. This will bring up the transition table. The Result can be any number, a blank, or "ERROR". You specify these transition rules as discussed in the example below.



Example

Your survey calls people in the morning on their birthday and asks them if they would like flowers delivered to their house. If they do not answer in the morning, your survey tries again in the afternoon. If they answer "no" either time, your survey does not call again. If the answer is "yes" either time, your survey calls the flower shop and orders flowers.

This can be implemented using two surveys. We will name them "01 Happy Birthday" and "02 Order Flowers". This example assumes that other items have already been created for the contents of the surveys. The Result item in the Happy Birthday survey would be an item called Want Flowers. This item will be a "press 1 for yes, press 2 for no" question.

The Order Flowers survey will also have a Result item which we will call "Order Confirmed". This item will have a script asking "Press 1 to confirm that your order was received and press 2 if your order was not received."

It is now time to set up the transition table. We need to define every possible outcome within your survey and to assign a number to each outcome. These are the possible states of this survey:

0: Do Not Call

1: Try in the morning (would come through GetCalls query)

2: Try in the afternoon

3: Order flowers

4: Flowers ordered

5: Flower order failed

6: No Flowers desired

7: Person could not be reached

From the **Advanced Dialer** window, click on **Job Definitions**. Select your survey and click on **Use Status Transition Table**. Click on the **Details** button to open the transition table.

The column headings represent values taken from your survey, while the row headings represent statuses for which a call will be made. In this example, states 1, 2, and 3 above will be used because no call will be made for any of the other possibilities. The possible values are seen in the row across the top. These are taken from the "press 1 for yes, press 2 for no" result items from both surveys. The table would appear as follows:

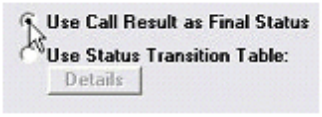
	1 (caller's response)	2 (caller's response)	<blank>	ERROR
1 (status)	3 (result)	5	2	2
2	3	6	7	7
3	4	5	5	5

Your GetCalls query would select records from your table, where the BirthDate field is today, and:

- The status is 1 and it is now morning calling hours, OR
- The status is 2 and it is now afternoon calling hours, OR
- The status is 3.

Your Update query would simply update the field you have designated for Status in your database, with the _FINAL_STATUS from the call. Advanced Dialer uses your settings for the Results and Transitions, plus the setting of which field contains Status, to provide the proper value in _FINAL_STATUS.

A Status will only change based on the Result of a call. When a call is complete, the dialer can refer to the transition table to determine how to update the status field through an Update query described above.



NOTE: Not all applications require a transition table. A simpler survey would take the caller's entry and use that entry as the final Status of the call. Thus, if the caller enters a "2" on the Result question of the survey, "2" will become the Status. Your queries can use this Status to update the database.

Additional Advanced Dialer Information

Detecting Live or Machine

SmartQ decides whether a live person has answered the call by listening to the duration of the first sound after the ring is interrupted. If the sound is longer than 1.8 seconds, it is deemed to be a machine. If the sound is shorter than 1.8 seconds, then it is treated as a connection to a live person. This setting can be altered by clicking on the **Change** button on the **Current Activity** screen.

Maximum queue duration

By default, if a call is not completed within 5 minutes of being placed on the dialout queue, it is cancelled and removed from the dialout queue. If this happens, no Update query is run for the cancelled call. If the call is selected again by a GetCalls query, it will be queued up for dialout.

Calls can be cancelled if you stop dialer ports for some time while a job runs, or if the dialer is overloaded and cannot get to the queued call in a timely manner. Calls are cancelled so they are not placed long after they are due (for example, after a certain hour or event). The time limit can be changed under **Dialing Rules** on the **Advanced Dialer** screen.

Example Queries

GetCalls Query

Your database has one table with people, their phone numbers, and other personalized information. Your database has another table containing the time a call should be made, the ID of the person, and a CallStatus field. The person should be called when the date and time in the CallDateTime field has been reached, and tried a second time 10 minutes later if they didn't answer the first time:

```
SELECT Calls.*, People.PhoneNumber FROM People, Calls WHERE
(People.PersonID=Calls.PersonID) AND ((([CallDateTime]<Now()) AND
([CallStatus]='0')) OR ((DateAdd("n",10,[CallDateTime]))<Now()) AND
([CallStatus]='1')) ORDER BY [CallDateTime];
```

Update Queries

Your GetCalls query returned a uniquely-identifying field named "CallID" and another field containing the status named "CallStatus". This query will simply update the correct record in the Calls table with the calculated final status:

```
UPDATE [Calls] SET CallStatus={_STATUS_FINAL} WHERE CallID={CallID};
```

This next example saves the date and time when the database update was done and identifies itself as the TeleSage product (SmartQ). It also uses three fields which, together, uniquely identify the record:

```
UPDATE [Calls] SET [status]='{_STATUS_FINAL}',
last_mod_dttm=Now(), last_mod_user_nm='TeleSage' WHERE
((asst_request_id={asst_request_id}) AND (vndr_id={vndr_id}) AND
(purch_order_id={purch_order_id}));
```

CleanUp Query

If a call was supposed to have been made (CallStatus equal to 0 or 1), but 45 minutes have elapsed since the call was due, set the CallStatus to an "expired" value of 4:

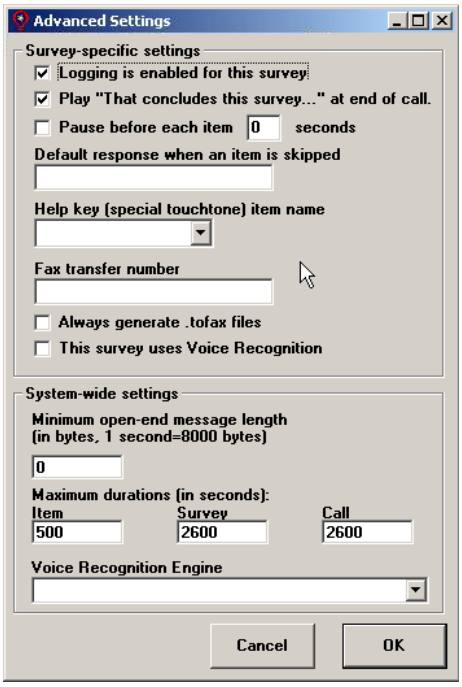
```
UPDATE [Calls] SET CallStatus='4' WHERE (((CallStatus='0') OR
(CallStatus='1')) AND (((DateAdd("n",45,[CallDateTime]))<Now())));
```

Advanced Survey Settings

Overview

The **Advanced Survey Settings** window allows you to set advanced parameters, some of which are applied only to the current survey and others of which operate system-wide. Go to the **Survey Design** page and select **Survey > Advanced Survey Settings**.

Survey-specific settings



- Select the checkbox to indicate whether **Logging is enabled for this survey**. It will be checked by default.
- If you check the **Play "That concludes this survey…" at end of call** checkbox, this message will be played for the caller once the survey is complete to indicate that the system is just about to hang up.
- If you check **Pause before each item**, then SmartQ will add an extra pause of the specified number of seconds after the previous response before the following prompt is played to the user. This is particularly useful in situations when an extra time delay is necessary between user response and message, as when the user is on a cell phone.
- The value you enter into the **Default response when an item is skipped** field will be stored as the response value for items that a user skips over. This can be empty or may contain one or more numbers, letters, spaces or any other characters.
- Use the **Help key (special touchtone) item name** menu to designate the item that you want your chosen help key (entered on the Responding tab) to route to.
- If SmartQ detects a fax tone on the line, it will automatically transfer the call to the phone number that you specify in the **Fax transfer number** field. If this field is left blank, SmartQ will take no action when a fax is detected.
- If you check **Always generate .tofax files** then a file with the suffix `.tofax` will be generated at the end of each call whose contents is two lines (the names of all fields and the values of responses). Leave this

unchecked unless you have TeleSage SendQ.

- If you have purchased the Voice Recognition feature, you can turn it on and off for this survey by checking or unchecking **This survey uses Voice Recognition**.

> ***IMPORTANT***: If you check this for a survey whose prompts have not been designed for voice recognition, your callers may experience unexpected results if they speak during the survey.

System-wide settings

- **Minimum open-end message length** contains the size (in bytes) of the smallest file the system will record from open-end queries. If the recorded response is smaller than this setting, the system will not keep the file.

- **Maximum duration (in seconds)**: Item is the maximum length of time that SmartQ allows a single item to last. It is assumed that an item that lasts longer than this has a problem and will be terminated. This prevents SmartQ's phone lines from being tied up indefinitely.

- **Maximum duration (in seconds)**: Survey is the maximum length of time that SmartQ allows a session with a single survey to last. It is assumed that a session that lasts longer than this has a problem and will be terminated. This prevents SmartQ's phone lines from being tied up indefinitely.

- **Maximum duration (in seconds)**: Call is the maximum length of time that SmartQ allows a call (which may include multiple surveys) to last. It is assumed that a call that lasts longer than this has a problem and will be terminated. This prevents SmartQ's phone lines from being tied up indefinitely.

> ***NOTE:*** It is a good idea to be generous in these limits, especially if you allow use of a pause ke
> (see section on Special Touchtones in Chapter 5). Some legitimate calls may be taking longer t
> average, especially when a pause key is available.

Urn Randomization

Urn Randomization

SmartQ can assign subjects to experimental cohorts according to the standard Urn Randomization method. This method adaptively weights the probability of assignment to a given cohort in order to balance the cohorts according to each of an arbitrary number of qualifications.

For real projects:

- Any number of qualification questions can be used.
- Qualification questions may have any number of possible answers, up to a total of 250 possible qualification categories.
- The number of cohorts is also not limited.

For example, you could randomize a sample of 65,000 subjects into 7 cohorts randomized by race, age decade, blood type, and several aspects of medical history.

> ***TIP:*** Survey **91 Sample Randomizer** (included in SmartQ) is a sample survey using the Urn Randomization technique. See below.

Utilization

To use this feature, you need a separate *randomization database*, an SQL query to retrieve the counts associated with each cohort from the randomization database (the *counts query*), and an SQL query that updates the randomization database with the cohort assignments (the *assignment query*).

Randomization Database

The randomization database must have fields for:

- a SubjectID
- the cohort assigned
- a field for each qualification.

Counts Query

The counts query returns the cohort name in the first column. Each of the other columns must represent the count of subjects having that qualification. Each possible answer to a qualification question merits a column. For example, if you are randomizing based on whether the subject is employed, you would need two columns, for the number that are employed and for the number that are not. This way you will get balancing of those who don't have a qualification as well as the number that do. This is easy to understand if you consider a qualification like gender: you wouldn't want to only balance one gender and leave the other to chance.

- Every possible group must have a row. If there are no subjects assigned to that group, the other field values will be 0.
- First field is the group name (not an ID).
- The order of the fields after the first field matters. They must be the qualification counts in a consistent order.

Within the SmartQ survey, you ask the qualification questions and then invoke the randomization. This is done with a Custom item as follows: In the `[Database]` section, invoke the query of counts of those already assigned.

- The `[Database]` section must invoke the counts query
- In the `[Variables]` section (or in another item if that is more convenient), assemble a string consisting of 1s and 0s that act as flags for each qualifier for the subject you want to assign.
- In the `[Output]` section, for the `DataValue=` entry, put `RANDOMIZESUBJECT` *`YourCalculatedStringOfQualifierFlags`*. You may reverse the order: `DataValue=`*`QualifierFlags`* `RANDOMIZESUBJECT`. It is not case sensitive.

Example

```
;Hard-coded subject flags.
[Output]
DataValue=RANDOMIZESUBJECT "0110"
```

```
Example
;Calculated within this item
[Variables]
V1=IF $Gender = "1" THEN "1" ELSE "0" ENDIF
V2=IF $Gender = "1" THEN "0" ELSE "1" ENDIF
V3=IF $UsesDrug = "1" THEN "1" ELSE "0" ENDIF
V4=IF $UsesDrug = "1" THEN "0" ELSE "1" ENDIF
V5=V1 & V2 & V3 & V4 & V5
[Output]
DataValue=RANDOMIZESUBJECT V5
```

Example

```
;Flags are assembled in an earlier item called QualifierFlags
DataValue=RANDOMIZESUBJECT $QualifierFlags
```

Assignment Query

After the subject has been randomized in this Custom item, you must save this subject to your randomization database, including the Subject ID, all the qualifications, and any other associated non-qualification data.

Multiple Studies or Sites

You can allow for multiple independent randomizations at the same time, for different sites, for example. Your survey collects or calculates a site identifier. The site identifier needs to be included in the WHERE clause of the counts query. The assignment query must also save the site identifier.

Sample Randomizer Survey

The following is the script for the sample survey included with SmartQ, 91 Sample Randomizer.

```
1. Login
QUERY:  Hello, this is the randomizer demo.  Please log in with your
password.  For this demonstration, use 87654321.
2. ValidateLogin
[Check the Login that was entered]
3. InvalidLogin
QUERY:  The password is invalid.  Please try again.
4. SubjectID
QUERY:  Please enter a 3-digit SubjectID
5. ValidateSubjectID
[Check that the Subject hasn't already been randomized]
6. InvalidSubjectID
QUERY:  The Subject ID is invalid. Would you like to try again?
For Yes, press 1
For No, press 2
7. AlreadyAssigned
INTRODUCEPROMPT1:  Subject
INTRODUCEDATA1:  [Read Subject Id to caller]
INTRODUCEPROMPT2:  is already assigned to group
QUERY:  To hear this again, press 1.  Otherwise press 2.
8. Q1
QUERY:  Gender: Is the subject male or female?
For Male, press 1
For Female, press 2
9. Q2
QUERY:  Age: Is the subject over 35?
For Yes, press 1
For No, press 2
10. Q3
QUERY:  Education: Has the subject completed some college or more?
```

```
For Yes, press 1
For No, press 2
11. Q4
QUERY:  Doctor: Has the subject seen a doctor in the last year?
For Yes, press 1
For No, press 2
12. AssignToGroup
[Invoke Counts Query here]
13. SaveResult
[Invoke the Assignment query here]
14. ShowResult
INTRODUCEPROMPT1:  Thank you.  The subject
INTRODUCEDATA1:  [Read Subject Id to caller]
INTRODUCEPROMPT2:  has been assigned to group
QUERY:  To hear this assignment again, press 1, otherwise press 2.
15. DoAnother
QUERY:  Would you like to randomize another subject?
For Yes, press 1
For No, press 2
```

Sample Surveys

Overview

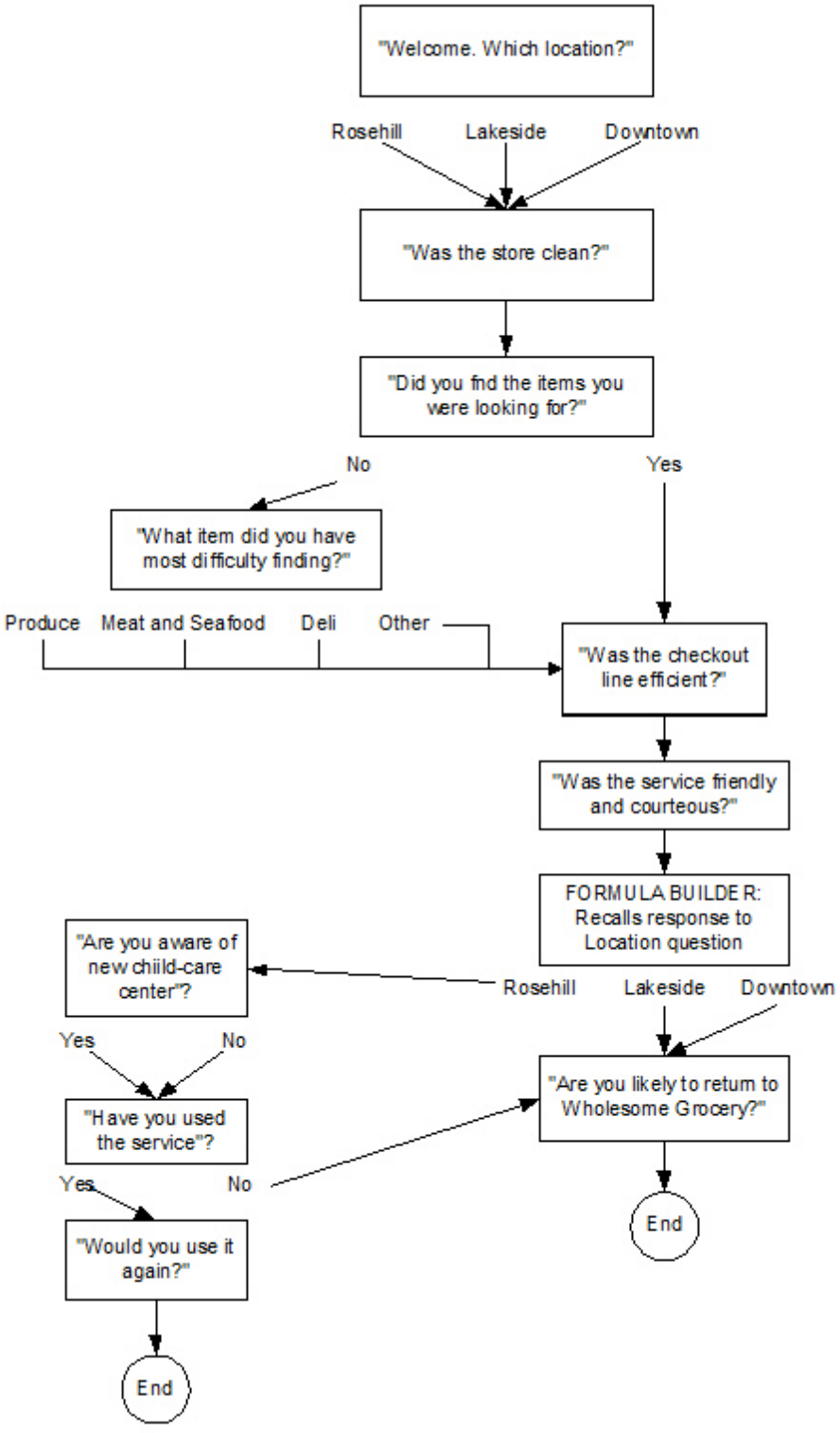
The materials in the manual are designed to help you understand how the sample surveys included with SmartQ were designed and scripted. The method outlined here is the method we recommend for creating your own surveys.

1. Define the questions you would like to ask.
2. Organize the questions into logical groups: should you create a lead survey for gathering basic information or routing to different surveys? Should you create a response survey? How many response surveys do you need branched from your lead survey? Etc.
3. Create a flow chart of questions and where their answers lead for each survey.
4. Fill in the details using a blank script sheet. You can copy the one provided in this manual and use it to create your own survey scripts.
5. Create your survey with SmartQ.

Sample Survey 1: Customer Satisfaction

Background

There is a customer satisfaction sample survey included within SmartQ. Here, an owner of a grocery store chain might want to know if customers are satisfied at each store. He would like to know if anyone has difficulty finding a particular item. Finally, he wants to find out how many callers who regularly come to one of his stores with a new childcare facility are aware of and/or use the resource.


"Welcome. Which location?"
Rosehill
Lakeside
Downtown
"Was the store clean?"
"Did you fnd the items you were looking for?"
No
Yes
"What item did you have most difficulty finding?"
Produce
Meat and Seafood
Deli
Other
"Was the checkout line efficient?"
"Was the service friendly and courteous?"
FORMULA BUILDER: Recalls response to Location question
"Are you aware of new chiild-care center"?
Rosehill
Lakeside
Downtown
Yes
No
"Have you used the service"?
"Are you likely to return to Wholesome Grocery?"
Yes
No
"Would you use it again?"
End
End

Item #	Item Name	Item Type	Prompt to Record	Script (for Query) or Formula Builder Entry (for Retrieve and Calculate)	Data	Routing
1	location	Query	Intro	“Welcome to the Wholesome Groceries Customer Satisfaction Survey.”		
			Question	“Please consider which of our store locations you visit most often. For our Rose Hill location, press 1. For our Lakeside location, press 2. For our Downtown location, press 3.”	1 2 3	all responses routed to Next
2	clean	Query	Intro	“For the next few questions, consider all of your visits to Wholesome Groceries during the last 6 months. Please choose from the following responses: If your answer is: “Yes, Always,” press 1. “Yes, Often,” press 2. “Yes, Sometimes,” press 3. “No, never,” press 4. At any time you may press the following: To Go Back to the Previous Question, press *. To Repeat the Current Question, press 0. To Skip to the Next Question, press #.”		
			Question	“Was the store clean?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For always, press 1. For often, press 2. For sometimes, press 3. For never, press 4.”		

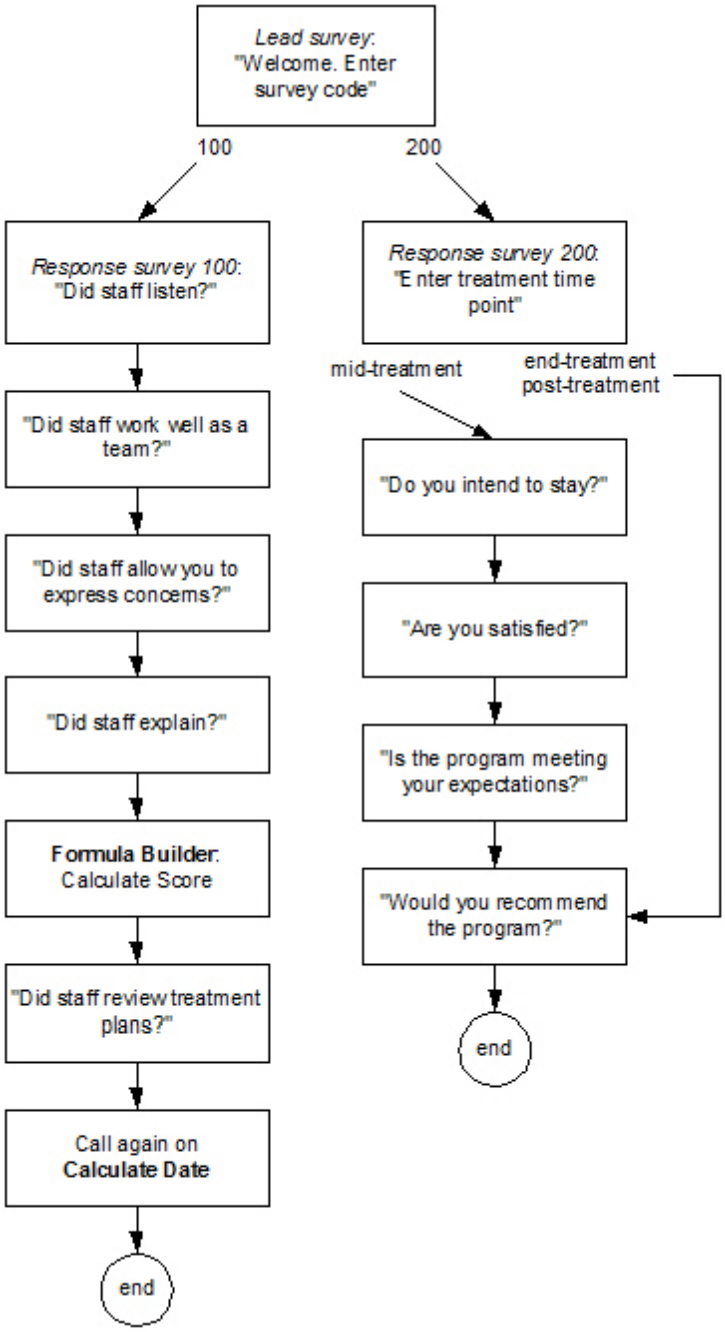
3	Find	Query	Question	“Did you find the items you were looking for?”	1 2 3 4	1 and 2, routed to item 5*:* checkout 3 and 4, routed to Next
			Repeat Instructions	“For always, press 1…”		
4	difficult	Query	Question	“Please indicate the category of item you had the most difficulty finding in our store. For Produce, press 1. For Meat and Seafood, press 2. For Bakery and Deli, press 3. For Other, press 4.”	1 2 3 4	all responses routed to Next
5	checkout	Query	Question	“Was the checkout line efficient?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For always, press 1…”		
6	service	Query	Question	“Was the service friendly and courteous?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For always, press 1…”		
7	rose_hill	Calculate		[Use **Basic Formula Builder** to recall a single item: location.]	1 2 3	1 routed to Next 2,3 routed to Item 11: return
8	childcare	Query	Intro	“We recently created a new supervised childcare center to assist you when you visit our Rose Hill store.”		

			Question	"Were you aware that this complementary service existed? For yes, press 1. For no, press 2."	1 2	1 routed to Next 2 routed to Item 11: return
9	used	Query	Question	"Have you used this service? For yes, press 1. For no, press 2."	1 2	1 routed to Next 2 routed to Item 11: return
10	future	Query	Question	"Do you plan to use this service in the future? For yes, press 1. For no, press 2."	1 2	all responses routed to Next
11	return	Query	Question	"How likely are you to return to Wholesome Groceries? For very likely, press 1. For somewhat likely, press 2. For not likely, press 3".	1 2 3	all responses routed to End

Sample Survey 2: Medical History

Background

SmartQ also includes a client information survey comprised of one lead and two response surveys for a total of three surveys. This is a medical history survey that will assist a doctor in finding out the quality of care clients are receiving and their level of satisfaction. Materials are mailed out beforehand in this survey, so that clients are pre-assigned which survey to take.


Lead survey:
"Welcome. Enter survey code"
100
200
Response survey 100:
"Did staff listen?"
"Did staff work well as a team?"
"Did staff allow you to express concerns?"
"Did staff explain?"
Formula Builder:
Calculate Score
"Did staff review treatment plans?"
Call again on
Calculate Date
end
Response survey 200:
"Enter treatment time point"
mid-treatment
end-treatment
post-treatment
"Do you intend to stay?"
"Are you satisfied?"
"Is the program meeting your expectations?"
"Would you recommend the program?"
end

Lead Survey

Item #	Item Name	Item Type	Prompt to Record	Script (for Query) or Formula Builder Entry (for Retrieve and Calculate)	Data	Routing
1	code	Query	Intro	"Welcome to the Medical Survey Line. We appreciate your taking the time to call us. Your responses will help us to improve our service to you and others."		
			Question	"You will find a three-digit survey code (either 100 or 200) printed in the upper left-hand corner of the materials you received. If you do not see a survey code, or the code you received does not work, please call 1-800-555-5555 and someone will assist you. Please enter the three-digit survey code now. "	100 200	100 routed to Survey 100. 200 routed to Survey 200.

Response Survey

Item #	Item Name	Item Type	Prompt to Record	Script (for Query) or Logic (for Retrieve and Calculate)	Data	Routing
1	listen	Query	Intro	"At any time during the survey you may press the following: Go Back to the Previous Question, press *. To Repeat the Current Question, press 0. To Skip to the Next Question, press #. To Pause the survey, press 9. The following questions relate to the treatment you received. Please choose from the following responses: If your answer is: "Yes, Always," press 1. "Yes, Usually," press 2. "Yes, Sometimes," press 3. "No, never," press 4."		

			Question	“Did the staff listen carefully to you?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For: Always, press 1. Usually, press 2. Sometimes, press 3. Never, press 4.”		
2	team	Query	Question	“Did the staff who treated you work well as a team?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For: Always, press 1…”		
3	concern	Query	Question	“Did the staff allow enough time for you to express all of your concerns?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For: Always, press 1…”		
4	explain	Query	Question	“Did the staff explain things in a way you could understand?”	1 2 3 4	all responses routed to Next
			Repeat Instructions	“For: Always, press 1…”		
5	score	Calc		$listen + $team + $concern + $explain [Use Basic Formula Builder to sum listen through explain.]	0-16	0-16 routed to Next
6	post_treatment	Query	Question	“Did the staff review with you the plans for your continued treatment after you leave this program? For Yes, press 1. For No, press 2. If you are unsure, press 3.”	1 2 3	all responses routed to Next
7	call_again	Query	Inform 1	“Thank you for taking the time to		None routed to

			Prompt	call us today. Please call again 4 weeks from today on:”		End
			Inform 1 Data	MONTH & "/" & DATE & "/" & YEAR +WEEKS 4 [Use Advanced Formula Builder to find current month, date, and year then add four weeks to it. The Inform prompt will report this date back to the caller.]		

Blank Script Sheet

Item #	Item Name	Item Type	Prompt to Record	Script (for Query) or Logic (for Retrieve and Calculate)	Data	Routing

Transferring SmartQ to Another Computer

Step 1: Prepare computer B

A: computer which has SmartQ on it already (source)

B: computer to which SmartQ will be moving (destination)

> ***NOTE:*** Broadband internet connection is highly recommended.

1. Install Microsoft Windows®.
2. Install latest Microsoft service packs and critical updates.
3. Install Microsoft Office® 2000 or newer (optional) and service packs (available at `office.update.microsoft.com`)
4. Install an antivirus program (optional, but recommended).
5. Install the Dialogic driver package version 6.0.
6. Install the Dialogic Service Pack 1.
7. If your Dialogic board is a "U" board (such as the D/4PCI-U), then install the PCIU patch.
8. Install TeleSage SmartQ. If you do not have it, you can download it from `www.telesage.com/latest`. Use UserID: telesage, password: customer.
9. Download the update for SmartQ as well (from the same web location as the full install), but do not run it yet.
10. Put this computer on the same network as computer A.
11. Call TeleSage at 919-942-8849 and acquire a key code for the unique Product ID and PCID of this computer.
    - **A.** To find the PCID, start SmartQ. In the dialog boxes, choose **Full Capacity** and **Purchased Software Package** successively.
    - **B.** The next window will display the PCID and request the ProductID and KeyCode.
    - **C.** [Very important] Write the ProductID down and put it in a safe place. THIS WILL BE OVERWRITTEN when files are copied from Computer A.

Step 2: Shut down computers and move the voice board

12. Stop SmartQ on both computers by clicking **Exit**. Wait for any calls on A to complete.
13. Shut down both computers and be sure they are powered off and unplugged.
14. Unplug the phone lines from the Dialogic board(s) on computer A and leave unplugged.

15. Move the Dialogic board(s) to computer B. Do not yet plug in the phone lines.

Step 3: Verify voice board installation on computer B

16. Plug in and start up both computers.
17. If SmartQ starts on computer A, ignore any errors and close the SmartQ program.

Computer B may invoke the **Found New Hardware** wizard. If this occurs:

A. Click **Next** on the **Welcome to the Found New Hardware** Wizard dialog box.
B. Select **Search for a suitable driver for my device (recommended)** and click **Next**.
C. Select **Specify a location** and click **Next**.
D. Click **Browse** and navigate to (or enter by typing): `c:\program_files\dialogic\drvr\dlgcsram_nt4.inf`. Click **OK**.
E. In the **Driver Files Search results** dialog box, verify that the file `dlgcsram_nt4.inf` was found by Windows as a driver for the new device.

18. The next dialog is labeled **Completing the Found New Hardware** Wizard. Click **Finish**.
19. Open Dialogic Configuration Manager by selecting **Start > Programs > Intel Dialogic System Software > Configuration Manager (DCM)**
20. It will detect the voice board.
21. Within DCM, select **Service > StartUp Mode > Automatic**.
22. Start the Dialogic service.
23. Plug in the phone lines. If you have a T-1, it will take 15 seconds before the light that was red on the board itself should turn green.

Step 4: Transfer files from A to B

24. Make sure that TeleSage SmartQ is not running on either computer.
25. Copy files from computer A to the corresponding locations on computer B:

(For Windows 7)

- `C:\WinNT\vvoice32.ini`
- `C:\Program Files\Telesage\*.*`
- `C:\ProgramData\Telesage\Ivr\*.*`
- `C:\ProgramData\Telesage\Ivr\Data\*.*`
- `C:\ProgramData\Telesage\Ivr\Msgs\*.*`

(For Windows XP)

- `C:\Windows\vvoice32.ini`
- `C:\Program Files\Telesage\*.*`
- `C:\Program Files\Telesage\Data\*.*`
- `C:\Program Files\Telesage\Msgs\*.*`

26. Copy any databases that you may have set up outside of the C:\ProgramData\Telesage\Ivr\ or C:\Program Files\Telesage directories on computer A to corresponding locations on computer B.
27. DSNs (advanced): If you have any custom calculations that make queries to external databases via a DSN, set up and test these

Step 5: Modify ivr.ini

28. On computer B, open `C:\ProgramData\Telesage\Ivr\ivr.ini` (`C:\Program`

`Files\Telesage\ivr.ini` in Windows XP) with Notepad by selecting **Start > Programs > Accessories> Notepad**

29. In the `ivr.ini` file, modify or add key *`26=xxxxxxxxxxxxx`*, where *`xxxxxxxxxxxxx`* is your 13-digit product ID.

30. Modify (or add, if necessary) 27=*XXXXXX*, where *XXXXXX* is your 6-character KeyCode.

31. Save `ivr.ini`

32. Run the SmartQ update that you downloaded in step 2. `Update.exe`

33. Start TeleSage SmartQ on computer B.

34. Verify that the lines come up as "Ready For Call".

35. Observe call activity on the lines, and call into the system to test.

Tips

If you want SmartQ to start automatically when your PC starts up, add a shortcut to `C:\ProgramData\TeleSage\Ivr\Start_IVR_Send.exe` (`C:\Program Files\Telesage\Start_IVR_Send.exe` in Windows XP) to your Startup folder.

If you had GoToMyPC or pcANYWHERE programs on computer A, install or transfer them to computer B.

For further help, consult the Technical Support section of the TeleSage website: `www.telesage.com`

T-1 Boards

The use of a T-1 board requires you to go through a fairly elaborate set-up process:

- Give line specifications to the service carrier
- Create cabling from the demarcation point to the board
- Install Dialogic drivers
- Configure Dialogic drivers
- Configure SmartQ
- Coordinate with TeleSage support staff when the T-1 circuit is operational

Please follow these instructions as carefully as possible and consult the TeleSage website (`www.telesage.com`) for further suggestions.

There should also be an application on your SmartQ installation CD which helps you diagnose problems relating to T-1 technology.

Line Specifications

Your local carrier will give you several options for setting up your T-1 line:

- Trunk type and framing (ISDN PRI with B8ZS ESF or AMI D4 with SF)
- Start Method (Wink, Ground, Loop or Immediate)
- ISDN Protocol (e.g., DMS 100, NI2, or none)

SmartQ supports both PRI (Primary Rate Interface) with ISDN and CAS (Channel Associated Signaling, also known as “Robbed-Bit” signaling) with AMI D4 signaling. You must specify the following configuration from your service provider, depending on which type you order:

For PRI, order:

- B8ZS ESF framing
- Immediate Start, both inbound and outbound
- ISDN Protocol either DMS100 or NI2

For CAS (“Robbed-Bit”), order:

- AMI D4 signaling
- SF framing

- Wink Start outbound, Immediate Start inbound
- No ISDN protocol

Notes

An ISDN T-1 uses channel 24 for signaling (ring, drop, pickup, hang-up), so only the first 23 channels will accept calls. An AMI D4 T-1 uses all 24 voice channels for calls, as it does not utilize a "D" channel for signaling.

An ISDN provides DNIS (dialed number) and ANI (Caller ID) digitally via the D-channel. You only need to tell the carrier how many DNIS digits you would like. Typically you would ask for the last 5 digits of the dialed number.

For AMI D4, ask your carrier to provide ANI and DNIS in the form "`star - ANI - star - DNIS - star`." This means that when SmartQ goes offhook, it will immediately receive touchtone digits from the T-1. For example, if the caller dials 1-800-555-1212 from their home at 919-555-1212, SmartQ will receive the digits as `*9195551212*8005551212*`. There is a checkbox on SmartQ's **Phone Line Setup** screen that tells SmartQ to expect this protocol and automatically interpret it.

Dialogic Board

The D/240JCT-T1 has jumpers and a rotary switch.

- If there is only one board in the system, the jumpers aren't needed: set the rotary switch to ID 0.
- The CT Bus cable is required if there are multiple T-1 boards in the same computer. There is a limit of 4 T-1 boards (96 lines) per computer.

There is an indicator light nearest the jack on the board.

- The light is red if there seems to be a problem with the signals.
- The light is green if the signals seem to be correct and consistent.

If the line is giving you trouble, make a "hard loopback" connector and plug it directly into the board. If this doesn't turn the light green when the Dialogic service is running, then the board is faulty. It may take 15 seconds after insertion for the board to detect and analyze the signals.

The pin out for the board is

- 1 Receive Tip
- 2 Receive Ring
- 4 Transmit Tip
- 5 Transmit Ring

Therefore, to make a hard loopback, take an RJ-45 plug and two short wires. Connect pin 1 to pin 4 and pin 2 to pin 5. Twist the wires.

Cable from the SmartJack to the Dialogic board

Use a straight-through LAN cable (ABAM or Cat 5e) to connect the SmartJack (the phone interface box) to the Dialogic board. The cabling should be less than 133 feet in length.

If you are making a cable, the wires are the same on each plug. Place the plug so that the tab is away from you and the wires would stream out to the left. Pin 1 will be on top. The wire order could be as follows:

- 1 Green white
- 2 Green
- 3 Orange white
- 4 Blue
- 5 Blue white
- 6 Orange
- 7 Brown white
- 8 Brown

OR

- 1 Orange white
- 2 Orange
- 3 Green white
- 4 Blue
- 5 Blue white
- 6 Green
- 7 Brown white
- 8 Brown

The first is called 568A and the second is 568B. Either will work as long as both plugs are the same. This cable works because the SmartJack has transmit and receive pins reversed to mate with the Dialogic board or other equipment.

Installing Dialogic Drivers

Use installation version 6.1.1. ISDN support is not included in the "Typical" or "Compact" installations.

Therefore, you must choose **Custom Install** and check the **ISDN** and **GlobalCall** checkboxes. When the installer asks what ISDN protocols to install, choose all of them. You will only need one protocol, but this keeps your options open.

Reboot and apply Service pack 1.

Configuring Dialogic Drivers

Run the Dialogic Configuration Manager. The Dialogic board should be auto-detected.

1. Double-click the board to get its properties.
2. Choose **ISDN** under the **Interface** tab.
3. Choose the appropriate protocol, such as DMS-100, to match the protocol on your T-1 line.
4. Under the **Misc** tab, there is a setting for **parameter file**. If you are using DMS, then enter "DMS.PRM". For another protocol, enter `protocolname.prm`. These files are in the folder `C:\ProgramData\Dialogic\data` in Windows 7, or `C:\Program Files\Dialogic\data` in Windows XP. They are highly-commented text files that contain settings such as enabling ISDN, B8ZS, ESF and so on. They may be redundant with the protocol choice, but this redundancy should not cause any problems.

SmartQ configuration

On the **Phone Line Setup** screen (see Chapter 1), you need to select the **T-1** setting and the number of DNIS (Dialed Number Identification Service) digits to capture (typically 10). These settings are saved in items 32 and 37, respectively, in the `ivr.ini` file.

Additional configuration

You may need to contact TeleSage so that can walk you through several more steps of the configuration and testing. Please call your account manager to arrange this at 866-942-8849.

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