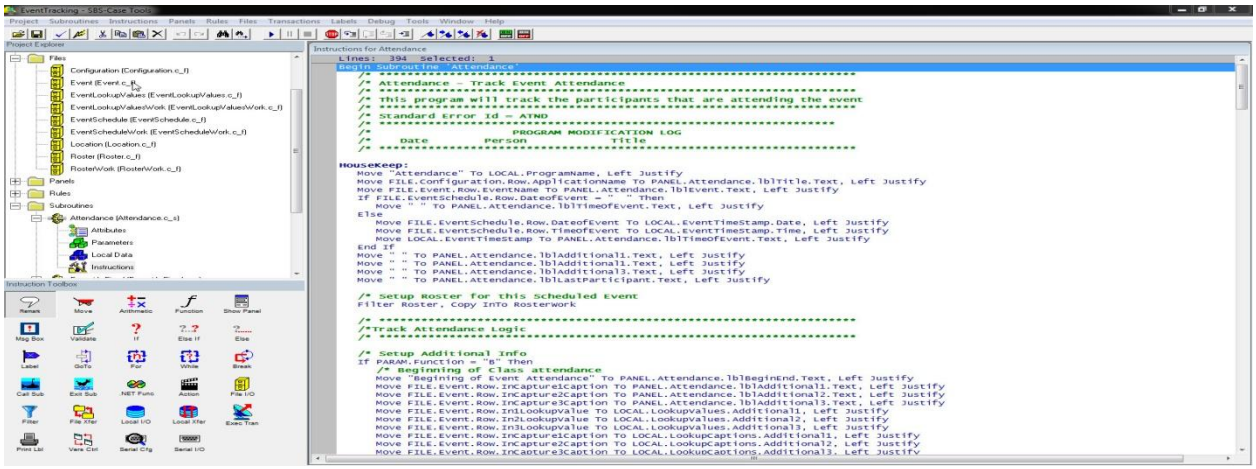
SBS-CASE Tools – **White Paper**

Case Tools is a true enterprise-grade, cross-vendor Rapid Application Development product that enables developers to quickly design, program, test and deploy batch, wired or wireless mobile device applications. SBS-CASE Tools greatly reduces the total cost of ownership and utilizes existing LAN and WAN infrastructure to collect, verify, and integrate transactional data into any enterprise system. When used with Pathfinder Enterprise Transaction Server for system integration, IT managers have full control of how each application program integrates into various in-house systems.



Case Tools Capabilities

Rapidly develop, debug and test mobile device applications

- Thick Client architecture
- Compile applications for multiple vendor's devices
- Manage screen layouts with entry validation
- Download/upload tables for validation, look-ups or updates
- Execute full label printing
- Version control with automatic application program distribution
- Collect data with automatic reconnects and queuing while out-of-range, during hardware failure, or downed resource. Data is sent up in FIFO order.
- Empower mobile devices to execute remote SQL or stored procedures
- Empower mobile devices to communicate with legacy or host systems utilizing XML conversations
- Empower mobile devices to communicate with any server-side user written COM DLL
- Integrate into most enterprise or legacy system
- Reuse file structures and subroutines
- Easily perform ongoing changes or enhancements
- RS-232 control from the device for scale or sign integration
- Extend CASE-Tools functionality by calling .NET functions residing on the device
- IDE allows developer to program and test in the same environment.

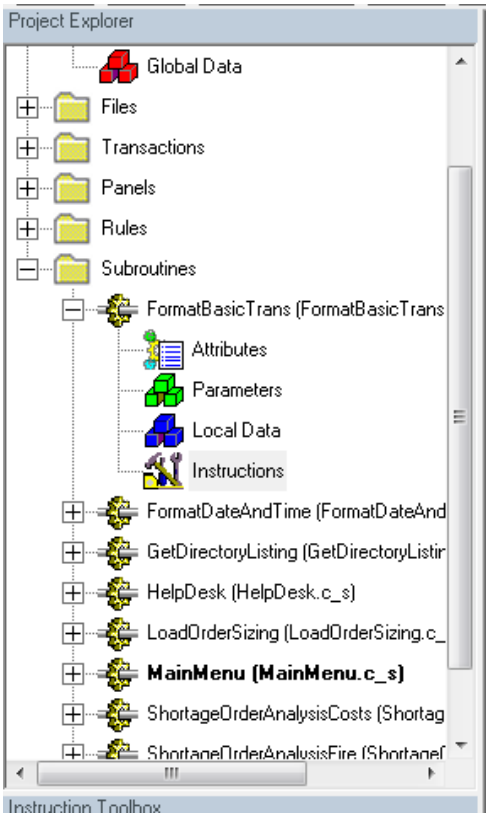
SBS-CASE Tools is a flexible yet powerful application builder where any application can be built and linked into any database or API application. Its structured object approach allows developers to create projects, maintain applications, debug, compile and test programs for deployment to remote devices. SBS-CASE Tools objects like Subroutines, Files, Panels and Transactions can be reused throughout the enterprise to build many different applications – again reducing the total cost of ownership.

The SBS-CASE Tools product has been used to create a full range of barcode data collection applications since the late 1980's. Sentinel has experience building CASE-Tools applications for many industries. The software tools are horizontal by definition, so any collection application can be built – the capabilities are endless.

When SBS-CASE Tools applications are combined with the SBS-Pathfinder Enterprise Transaction Server, the

development experience is maximized. Each deployed solution combines expert communication facilities and terminal services that have been developed over the past 30 years. This functionality is included in every SBS-CASE Tools application with no additional programming. This creates a major benefit by reducing the design and development work for the programmer. Most importantly, it guarantees successful communications dialogs with your host computer, manages system load balancing, record queuing, in-range and out-of-range recovery, auto-reconnect, terminal time-outs, time/date syncing and a list of other features that guarantee your project's success.

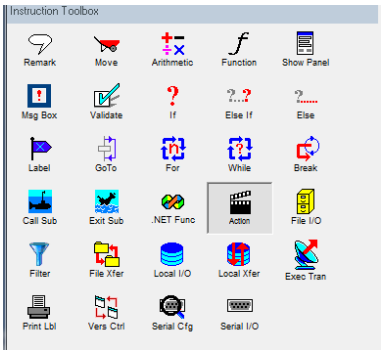
The SBS-CASE Tools environment provides a thick-client approach in building your enterprise data collection project. All aspects of the terminal user interface are created with this product along with defining which resources the mobile device will use to communicate. SBS-CASE Tools makes all three aspects of a project easier: Programming, Testing and Maintenance, Debugging and Testing, and Deployment.
Program Maintenance



The Project Explorer is where the programmer creates the SBS-CASE Tools project file, subroutines, panel definitions, file definitions, transaction definitions, label definitions, and global data. This section contains all the necessary information about your project and allows the developer to navigate through each section to enhance the development effort.

- Familiar project structure, with all parts of your project accessible from the Project Explorer.

- Subroutines contain Instructions that interact with Global, Local, and System data and various top-level objects. Instructions can be drag-dropped from the Toolbox into your Subroutine, and each is configured with a simple dialog. With a single Instruction you can transfer a file, execute a stored procedure, or download the newest version of your program! You can even invoke your own .NET code, for the ultimate in flexibility.



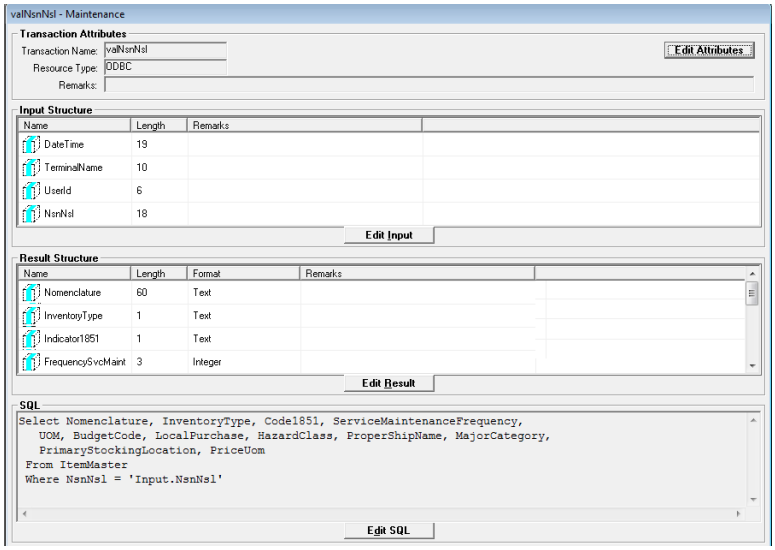
Included Instructions

- Move, Arithmetic, and Function
- If/Elself/Else, GoTo/Label, For/Next, While/Loop
- Call Subroutine, Exit Subroutine and Call .Net Functions
- File Transfer, Execute Transaction, Remote Label Print
- Show Panel and Message Box
- Structure db File I/O, Text File I/O
- Arithmatic
- Program Version Control
- RS232 controls
- File Filtering
- And many, many, more!

Features

- Panels are built with a WYSIWYG designer.
- Transactions are used to define your interactions with Pathfinder and your Enterprise.
- ODBC Transactions include an SQL builder for remote database manipulation.
- Files are used to create structured storage on your device. Indexes can be added for faster lookups.
- Rules allow common validations to be bundled together. They can be attached to Panel controls for automatic validation, or invoked separately.

Transactions



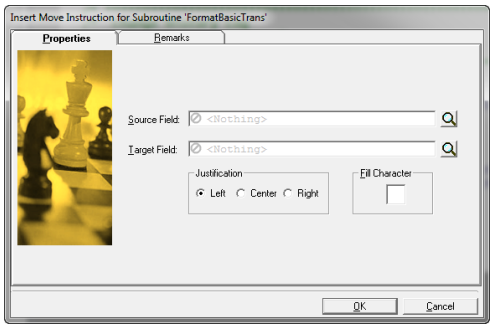
The Execute Transaction command allows developers to create advanced processing such as interaction with remote databases and other computers. This instruction will actually allow the developer to key in and test any SQL command with limitations only dependent on the ODBC driver. In fact, you can actually execute stored procedures.

- One-way transactions with no results
- One-way transactions with execution confirmation
- Bi-directional transactions with single return result
- Bi-directional transactions with multiple results

Note: Each transaction type can be setup for local queuing to handle out-of-range conditions, priorities, and FIFO control.

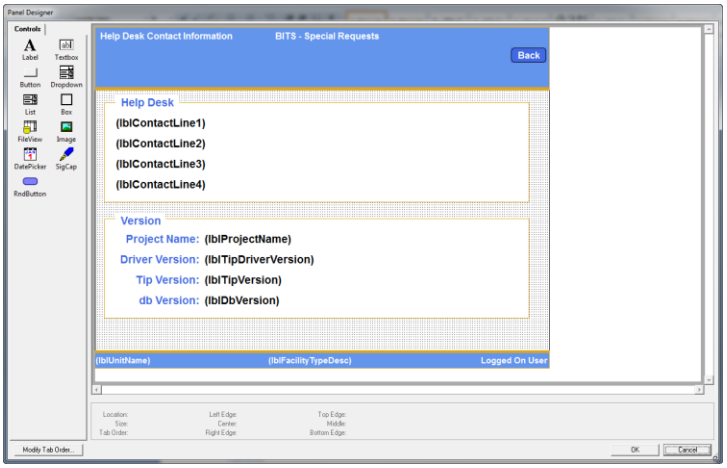
Instructions

There are over 25 instructions that are used to create your project. These instructions can be found in the Instruction Toolbox and are added to a program listing using simple drag-n-drop procedures. Instructions include showing panels and message box for screen manipulation; file I/O and file transfer instructions for file manipulation; move, function and arithmetic for data manipulation; label print; and classical 'if' blocks, for-while loops and subroutines for program control. Other instructions such as: version control for program distribution, DIDO for door access, serial CFG and serial I/O to communicate with RS232 devices are also included.



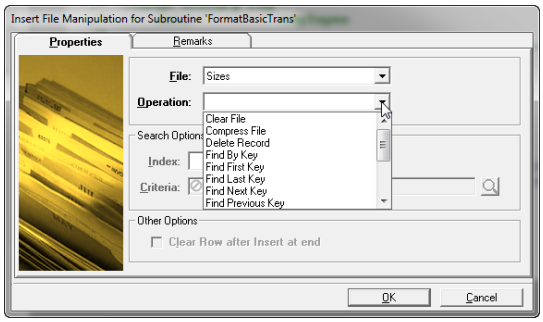
When the programmer selects an instruction, a simple wizard dialog pops up allowing them to define the parameters for that instruction. Once the parameters are selected, the code is inserted into the mainline window. A top-down flow is followed for the program and full branching logic is supported through classical Go-To's For-Next/While-Loops and If-Then-Else blocks. The Project Explorer will break out each subroutine for easy viewing. As you select each subroutine, only that source is displayed. This makes the program easy to modify and maintain in the future. If more capability or some special function is required, the External Function[2] instruction can be used to call an external user written DLL program. Developers can write their own .Net routines and then link to them.

Panels



Panels are used to define the graphical user interface. Panels support graphical objects such as labels, text boxes, command buttons, list boxes, drop-down boxes, lines, boxes, grids and frames. Utilizing panels allows you to present standard Windows behavior or data collection process control behavior to the data entry operation.

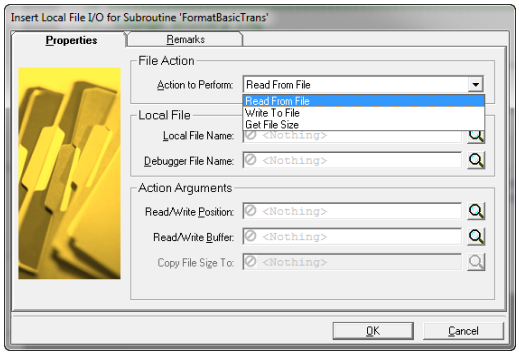
Local db Files



The File I/O, File Transfer and Execute Transaction instructions will allow the developer to handle any database function (internal or external) to the terminal. CASE-Tools supports 9999 local files, with up to 9 logical views each. These files conform to row and column, or table-like structures. Each row contains information from the fields created by the File

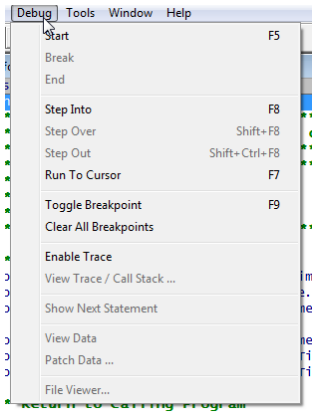
Definition function. Multiple views may be setup with one or more contiguous fields providing a way to gain different logical or physical views of a local file.

Local ASCII Files



The Local I/O and Local File Transfer instructions will allow the developer to transfer or process flat ASCII files in its native form.

Debugging & Testing

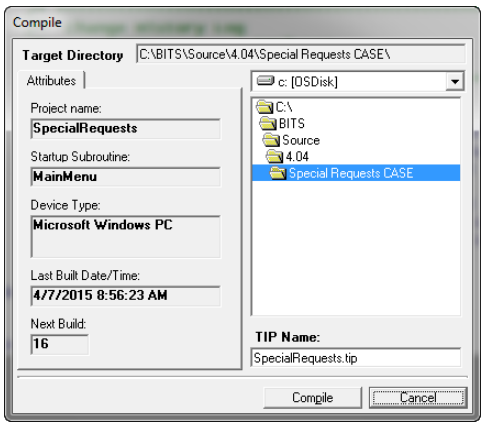


Once a program is written, all aspects of the program may be tested to ensure it works to your satisfaction. The menu and tool bar section will assist the developer to place bookmarks, run the program, single step, start/view traces and view the terminal screen as it executes your program. Variable information can be viewed or changed as the program is tested. The trace function can be turned on and all events can be captured to a trace file.

Features

- Integrated debugger allows you to step through your Instructions
- Breakpoints, Single stepping, Run To Cursor are all supported
- View & Modify variable data with the Data Tree while the program is running
- Device simulator lets you test your mobile application on your PC
- Browse into your structured files
- Detailed tracing show every instruction executed.

Deployment



Compiling your application generates everything you need to get your system running:

All of your screens and application logic are compiled into single compact program file called a TIP (Terminal Interpreted Program).

There is no need to manually deploy the TIP to each device. Simply import your program into Pathfinder to make it available for download by all of your mobile devices.

Each TIP has embedded version information that your program can use to update itself.

The Transactions you defined in SBS-CASE Tools are compiled as well and are also imported into Pathfinder. These transaction definitions act as a template, so that when a mobile device utilizes an Execute Transaction Instruction, only the data from the mobile device needs to be transmitted. Your SQL and/or other definition fields reside only on the server.

The Compiler

With SBS-CASE Tools there are no software development kits, no C licenses, or special libraries to load. The CASE-Tools compiler generates the application to run on the selected terminal with a supplied run-time module. All aspects of your program will execute once the compiled file is loaded on the terminal. These files are relatively small in size and execute very quickly.

SBS-Case TOOLS is a product of Sentinel Business Services, LLC