

SAW 6

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Introduction to SAW

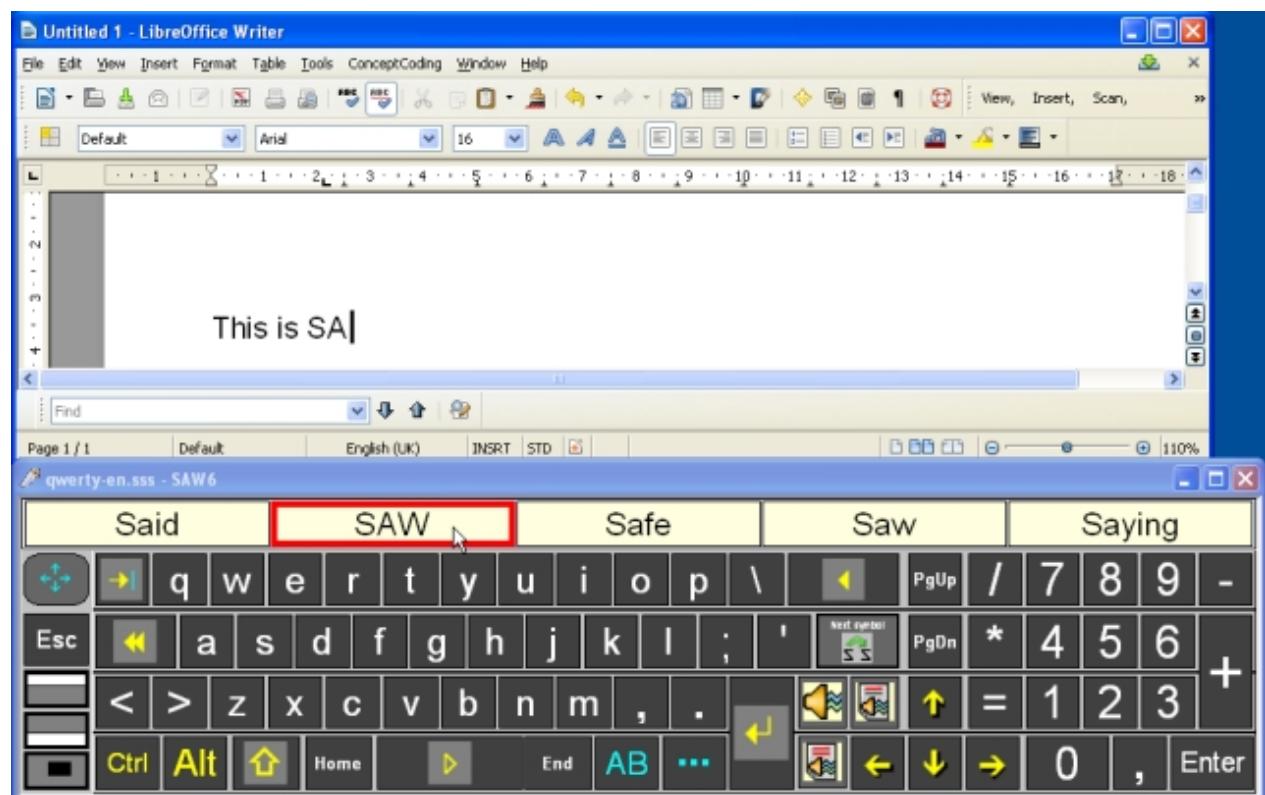
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SAW 6 - Special Access to Windows

What is SAW?

SAW (Special Access to Windows) - is software that enables Windows to be controlled via an on-screen-keyboard (OSK) by a pointing device (a mouse,joystick, trackerball, headpointer or eye-gaze system), or by one or two switches and scanning. SAW has many additions and features to make creating interfaces easy for those who use alternative inputs. The current version **SAW 6** runs under Windows XP, Vista, 7 or 8. SAW is free and open source software (provided under a GPL v.3 license).

SAW replaces the mouse and keyboard with a series of on-screen [Selection Sets](#) - arrangements of letters, words, symbols, numbers and shapes that can either be selected with a pointing device (by pointing and clicking or by "dwell select"), or be automatically or manually scanned, group by group and item by item, and selected using one or two switches. You can write, execute commands and macros, draw, move the cursor around the screen - SAW gives you the access power to all aspects of operation. The image below shows a selection set being used with a pointing device to enter text - supported by the built-in [Bladde word prediction](#) - into a word processor.



Modes of operation

SAW 6 comes in one complete installation package with full functionality. It can be run either in user **Run mode** or in designer **Edit mode**.

In **Run mode** SAW is started and run with ready-made on-screen keyboard selection sets (one or a suite of several inter-linked selection sets) and with a current set-up of input and

output settings options.

In **Edit mode** - when the Run mode is temporarily turned off - **SAW 6** provides a powerful graphical and scripting editing environment tool for creating on-screen interfaces (Selection Sets) for use by both switch and mouse pointer users (including users who operate head pointing and eye tracking systems). The philosophy behind SAW is to provide a free OSK tool which can create user interfaces for alternative control mechanism users that are as efficient and effective as possible.

It is also in Edit mode that the settings options can be inspected and changed. These settings can also be saved in settings files that can later be loaded before or during Runtime mode operation.

The special simplified SAW Lite distribution of earlier SAW versions has been discontinued in SAW 6 in order to avoid unnecessary maintenance and support problems.

Below is a display of a high contrast Swedish frequency based keyboard layout with word prediction, designed for switch input - typing into WordPad:



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Modes of SAW operation

SAW can run in one of two modes

User or Run mode This mode is intended for end-users who want to use ready-made selection sets to access Windows applications. Selection sets can be loaded directly by opening a SSS (SAW Selection Set) file by double clicking on the file. The user then has access to the full functionality of the items created by a designer in edit mode.

If SAW is started in Run Mode it may be switched to Edit mode with **Ctrl + R** or from the SAW window menu - Run

Edit Mode

In this mode all kinds of changes can be made to the selection set, including changes of the content of the items in the selection set, as well as the structure and actions (scripts) of the items. The menu bar appears in the top of the SAW window under the title bar in Edit mode. Right click menu options may also be used to edit specific properties of items or the entire selection set.

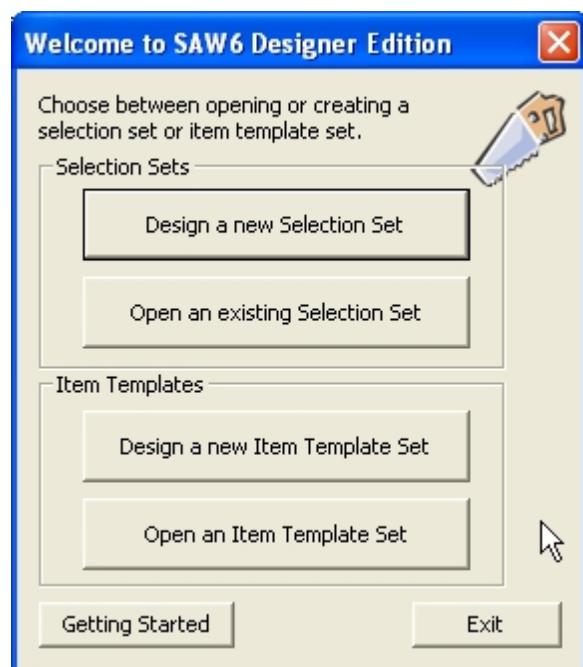
You can also make changes to the general user settings in this mode via the Settings - Options dialogue. The size, position and background colour and image of the selection set may be set in the Format dialogue.

Getting Started with SAW

Getting started

The easiest way to start SAW - if you have a ready-made set-up available - is to start directly in user Run mode from a Selection Set file (*.sss). Opening an sss file will launch that [selection set](#) with the current default user access settings. See [Setting Up and Starting SAW for the User](#).

Starting via the SAW start-up icon:



If you want to work on an existing selection set or template, choose Open and a standard file dialog will be displayed. Choose the file you want to work on and away you go.

If you want to start a new selection set or template set, choose New. You will be prompted to give the file a name and save it before you begin working. Once again a standard file dialog is displayed to do this.

It is recommended that selection sets are saved in **(\User\)\ My Documents\My Selection Sets** and, if this is part of a collection of sets for one user or for one application, that a new folder is created to store them in. In order to make transferring sets from one machine to another, this version of SAW will move any graphic or sound files used in the sets that don't come as standard with SAW 6 into this folder.

As with selection sets, it is recommended that a new folder is created for each application that templates are created for. The recommended location for these is **My Documents\My Selection Sets\My Templates**. Graphics used in the templates that don't come as standard with SAW 6 will be moved into this folder, making exporting the template sets easier.

The options in summary:

Design a new Selection Set

You will be asked to give your new [selection set](#) a name and you can browse to any folder to save it in.

Open an Existing Selection Set Open a selection set for editing.

Design a new Item Template Set Create a new [Item Template Set](#) for use in editing selection sets.

Open an Item Template Set Edit an existing Item Template Set.

Exit Close SAW.

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Setting Up and Starting SAW for the User

SAW can be started directly in user Run mode from a Selection Set file (*.sss), and opening an sss file will launch that [selection set](#) with the current user default access settings.

The User options are editable in the [Options](#) command on the [Settings menu](#).

The general areas that can be set up for users are:

Switch Scan/Pointer Modes Autoscan (one or two switch), User Scan (one or two switch), and Single Step (two switch) Scanning.
Direct input (mouse etc), dwell select (mouse etc), dwell select with averaging

Access devices One or two switches, pointer with click or dwell.

Switch filtering Acceptance and Post Acceptance (tremor) delays.

Repeat timings For automatically repeated items.

Speech and Sound feedback Sending speech text to a SAPI speech engine or to the Clipboard;
Playing Wav or mp3 sound files.

Communication with external devices This was used to send speech text to early external speech devices through the serial port. This has now been removed. Communication with external devices, e.g. for environment control (EC) has to be handled via dedicated other software. Special new functions for EC have been added in the latest versions of SAW 6, at the initiative and support from Peter Hamlin et al at North Thames Regional Environmental Control Equipment Service (NT RECES)

Switch Interface Joystick-gameport-USB or Keyboard.
(Older Serial Port option has been removed)

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Versions of SAW

Current version This help file is current up to version **SAW 6.02.360 April 2014**

SAW 6 is available in just one single installable version from the download sites at:
<http://sourceforge.net/projects/sawat/> (binaries and source), and via OATSoft (www.oatsoft.org) at:
www.oatsoft.org/Software/SpecialAccessToWindows.

SAW 6 is a combined runtime and designer package. **The designer functionality** allows designers to create on-screen controls which enable switch and pointing device users to

control all the functionality of Windows applications. These on-screen controls consist of a collection of items which can be selected by switch scanning or pointing. The collection of items is called a selection set. Each item can contain data and active scripts that enable any item to send a range of keyboard input, mouse controls, or other commands to an application running in Windows.

SAW 6 can be used with Windows XP, Vista, 7 and 8. Selection sets files created using earlier versions of SAW can usually be exported as text files and imported into version 6, but settings files are incompatible. Selection sets created using SAW 4.2, 4.5 or SAW 5 should also load into SAW 6 without needing to save them as text files first.

(The previous SAW 5 was provided also in a "Lite" version intended for use by end users and their facilitators. It had very limited editing features, just allowing for small changes in the content of any selection sets (symbols and text changes). Selection set structure and commands were locked, not to be accidentally damaged. This version has now been discontinued because of maintenance difficulties.)

Use the menu command [Help - About](#) to view SAW version information.

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What's New in SAW 6

Version 6 has been developed with the help of European Union funding via the AEGIS project.

- Works in Windows XP, Vista, 7 and 8 (in both 32 and 64 bits versions)
- Supports **Unicode** character encoding both internally and for output
- Has its own new integrated **word prediction** engine, **Blade** - including **abbreviation expansion** (see [Using Blade](#) and [View word prediction words](#))
- Adds a new selection method; **Dwell Select with Averaging** - for direct selection users with limited pointing accuracy (head pointer or eye gaze users etc.)
- Introduces a number of **new Script Commands**, including:
 - A new Application Script command: **param application** (as [open application](#) + runtime parameters); **Note** that in SAW 6 the open application command has been enhanced to allow launching other executable files than .exe, e.g. .bat and .jar files
 - Two new Keyboard Scripts commands: **slowkey** and **keydelay** to control the speed of key characters and commands input to target applications
 - New SAW - Selection Sets Script: [auto selection set](#) generates a selection set using WindowCatcher for the target window; **Note** that this is still an experimental feature not recommended for practical use.
 - New Window Script: **dock window** script commands to dock the SAW and target app window (above, below, left, right)
 - New Blade word prediction commands: **blade settings**, and [edit word prediction words](#) (while SAW is in runtime mode)
 - **New commands to run environmental controls** (pending)
- Integrated functionality of **WindowCatcher** for dynamic interaction with target applications supporting Microsoft Active Accessibility and UI Automation - see [Generate selection set](#) and [auto selection set](#) script command.
- Supports interaction with the **CCF-SymbolServer** ([Concept Coding Framework](#)) for graphical symbol support - for the creation and maintenance of symbol based selection sets for users of AAC (Augmentative and Alternative Communication) - see [CCF graphics support](#) and [Update using CCF](#).
- New and improved selection set **design options**:
 - to set background image and colour of the selection set ([Page background](#))
 - to make items transparent ([Item Properties - Colours + Styles](#))
 - extra thick border scanning highlight options ([Item Properties - Colours + Styles](#))

- to set the exact position and size of the selection set ([Resize Selection Set](#))
- the installed graphics library now includes a comprehensive Blissymbol vocabulary

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Previous versions

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What was new in SAW 5

Version 5 of SAW substantially improved and simplified the design interface to enable designers to more quickly and easily create new selection sets.

- To be able to setup your own default styles and also style templates
- Auto-alignment and distribution of items in a group or window.
- A switch set-up wizard to ease switch configuration.
- Improved re-sizing.
- A design toolbar
- An Item Wizard
- Item Style sheets
- Item templates
- user defined keys for keyboard switch input.
- New [Display](#) script commands
- Items can play MP3 files.

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What was new in SAW 4.1 - 4.5

- Able to access Penfriend [predicted Word lists](#) in addition to Prophet and WordAid
- [Improved graphic selection for items](#)
- [Right click menu on items](#)
- [Easier to get selection sets to open applications and other selection sets](#)
- Improved help
- A new '[previous set](#)' command to open the last used selection set.
- Support for joystick and keyboard interfaces for switches
- A [grid maker Wizard](#)
- Simpler configuration of items
- More stable switch scanning
- Set the default directories for graphics and sounds easier
- [Logging events](#) to a file for later analysis
- A new '[close saw](#)' command (March 2005)

- SAPI 5 text-to-speech support. (August 05)
- Send spoken text to the clipboard option
- Ability to display East Asian and other Unicode Characters (Sept 05 - version 4.05.005)

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Details of some other changes 4 to 5 and 5 to 6

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Event Logging

SAW has event logging (since v. 5). You can record an XML text format file to which certain events can be logged. Examples of log files have been included, one [logging all events](#) the other [a minimum log](#).

Any or all of the events shown in the window below can be logged. Check the box against the events you wish to be logged.



You can browse to find any file to record the log in but the default is:

C:\...\My Documents\My Selection Sets\Default Sets\sawlog.txt

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Log Example - Full log

The section of log below shows a two switch step scan user starting to type the word "switch" - we get as far as "sw". All events have been included the header information has been omitted - see the [Minimum log](#).

```
</switch_event>
    <item_info>
        Item ID = 18
        Display Text = s
        Output Text = s
    </item_info>
<switch_event>
```

```
    Switch 2 UP at 14:21:30:107
</switch_event>
<elapsed_time> 2.200 elapsed since switch 2 down event </elapsed_time>
<switch_event>
    Switch 1 DOWN at 14:21:35:529
</switch_event>
<switch_event>
    Switch 1 UP at 14:21:35:638
</switch_event>
<elapsed_time> 0.060 elapsed since switch 1 down event </elapsed_time>
<switch_event>
    Switch 2 DOWN at 14:21:36:76
</switch_event>
    <item_info>
        Item ID = 27
        Display Text =
        Output Text =
    </item_info>
<switch_event>
    Switch 2 UP at 14:21:36:185
</switch_event>
<elapsed_time> 0.060 elapsed since switch 2 down event </elapsed_time>
<switch_event>
    Switch 1 DOWN at 14:21:36:404
</switch_event>
<switch_event>
    Switch 1 UP at 14:21:36:623
</switch_event>
<elapsed_time> 0.130 elapsed since switch 1 down event </elapsed_time>
<switch_event>
    Switch 1 DOWN at 14:21:36:732
</switch_event>
<switch_event>
    Switch 1 UP at 14:21:36:951
</switch_event>
<elapsed_time> 0.130 elapsed since switch 1 down event </elapsed_time>
<switch_event>
    Switch 1 DOWN at 14:21:37:60
</switch_event>
<switch_event>
    Switch 1 UP at 14:21:37:170
</switch_event>
<elapsed_time> 0.060 elapsed since switch 1 down event </elapsed_time>
<switch_event>
    Switch 1 DOWN at 14:21:37:388
</switch_event>
<switch_event>
    Switch 1 UP at 14:21:37:498
</switch_event>
<elapsed_time> 0.060 elapsed since switch 1 down event </elapsed_time>
<switch_event>
    Switch 2 DOWN at 14:21:37:716
</switch_event>
    <item_info>
        Item ID = 32
        Display Text = w
        Output Text = w
```

Log Example - Minimum log

The following log is for a two switch step scan user typing the word switch. All events have been switched off. The header information is shown here as well.

```
<header>Session Started: Tue Feb 03 14:25:43 2004
  <interface>Interface = Gameport Interface </interface>
  <scan_info> Scan type = SINGLESTEP_2_SWITCH
    <scan_times>
      Scan time: 0.80
        Extra Scan time: 5.00
        Input Acceptance time: 0.00
        Post Acceptance delay: 0.00
        Repeat Delay: 0.80
        Repeat Time: 1.80
        Swap Switch OFF
    </scan_times>
  </scan_info>
</header>
<item_info>
  Item ID = 14
    Display Text =
    Output Text =
</item_info>
<item_info>
  Item ID = 18
    Display Text = s
    Output Text = s
</item_info>
<item_info>
  Item ID = 27
    Display Text =
    Output Text =
</item_info>
<item_info>
  Item ID = 32
    Display Text = w
    Output Text = w
</item_info>
<item_info>
```

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Location of SAW Files

A sample folder structure for SAW is:

Default location

C:\Program Files\ACE Centre\SAW 6 (XP)

C:\Program (x86)\ACE Centre\SAW 6 (Win 7)

....\SAW 6\graphics

....\SAW 6\sounds

...\My Documents\My Selection Sets\

Description

This folder is automatically created when SAW is installed, and contains the sub-directories below. It contains all SAW program files

Contains SAW shared graphics

Contains SAW shared sounds in WAV or MP3 files.

Contains selection sets, environments,

desktops, settings for given applications , local graphics and sound files. Each SAW environment is stored in an appropriately named sub-folder

The path to ... \ACE Centre\SAW 6 is set by the installation program and can be changed if required.

When a selection set is opened either from the File menu or through a SAW command, its folder becomes the current SAW User folder; all subsequent files (if the full path of the file is not given) such as selection sets desktops, and settings files are obtained from this folder. Graphics and sounds may also be placed in this folder, or in SAW's shared graphics and sounds directories. The location of the shared directories can be set for each user.

SAW also store copies of any graphic or sound file locally when graphics or sounds are browsed for (See [Item presentation](#)).

The current User folder is changed by specifying a different folder when opening a selection set by a command or from the file menu.

SAW's shared graphics and sounds directories are paths defined in [SAW32.INI file](#) - you can change or add new sub-directories for graphics and/or sounds by editing the SAW32.INI file using NOTEPAD or another text editor.

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Designing Selection Sets

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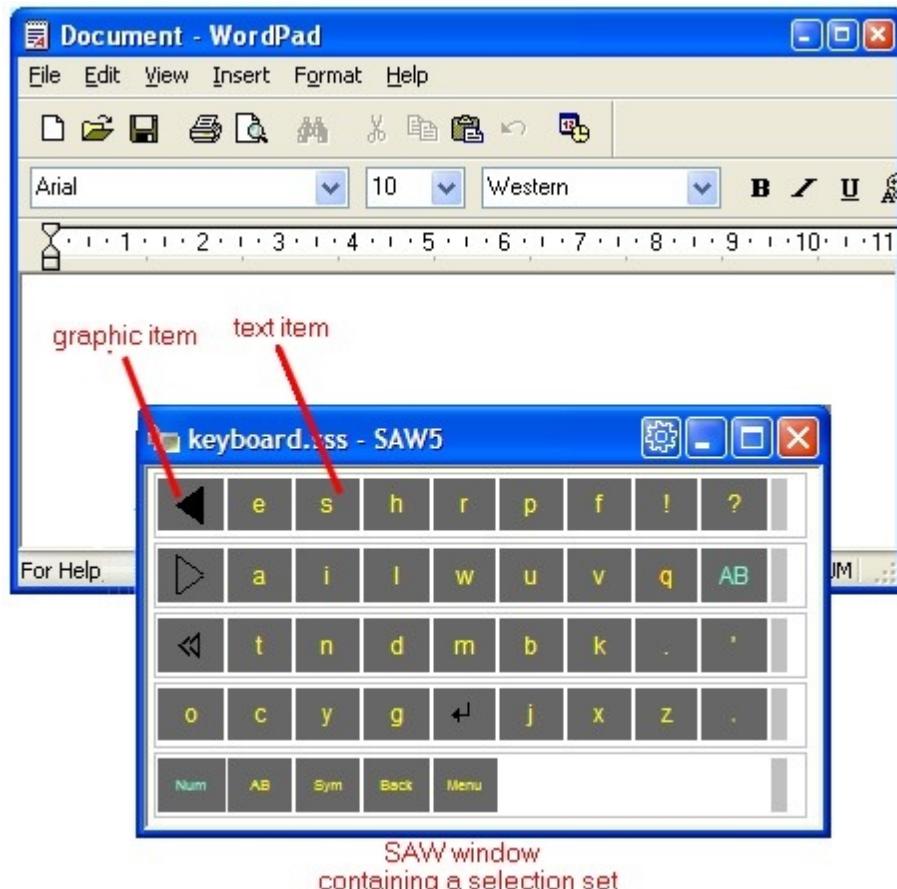
Selection Sets

SAW enables designers to define, edit, and test the various actions and appearance of a selection set: Selection sets are SAW files which are saved on disk with the extension .sss. They are:

- On-screen interfaces used by switch and mouse or other pointer users to access Windows Applications.
- Collections of active [items](#)
- Usually presented in a hierarchical structure for more rapid switch access.
- Grouped in different directories to form environments - environments which can be used by different users and/or for different applications.

SAW Designer enables you to run a selection set, to test its behaviour using a switch or other input device. Alterations and additions can be made to the selection set until it has the appearance and behaviour you require.

The SAW window below shows a selection set comprising [items](#) showing text and/or graphics from which the user selects. The SAW window can be positioned anywhere on the screen; SAW is shown on top of any other application windows it may overlap, when SAW is running or when SAW has focus in the edit mode.



Items, Group Items and the Top Item

Selection sets are made up of items which have a range of properties which can make them look and behave differently. There are items, group items and the top item.

Item Properties

Appearance or Presentation

- Size and position
- Colours (text, background and border both scanned and not scanned, 6 colours)
- Text Displayed - including font
- Symbol or Picture shown
- Text-to-Speech
- Sound played from a file
- Hidden or shown

Action

- Commands or keys sent to another application or Windows itself
- Help text - sent to a help or prompt item
- Mouse command sent
- Scanned or not scanned
- scanning action (where next...)
- Scripts (macros) to set an items action(s)

Items can also contain other items to form a hierarchy to as many levels as you wish to set. These items which contain other items are called '**Group items**'. The **top item** is the selection set window itself which contains all the items.

Depending on the parameters set in an item it can take up a set of colours from a [list of 7 possible styles](#).

The SAW toolbar

To aid your access to the common actions needed in SAW Designer we have added the design toolbar. The SAW design tool bar can be opened and closed from the View menu - Toolbars - Design or by clicking the toolbar button on the title bar .



The Toolbar button is the first item from the left on the right hand side of the title bar



You can re-size this floating toolbar to a number of different configurations.



The items are:

	New		Add item
	Open		Delete item
	Save		Item wizard
	Cut		Run
	Copy		Show grid on/off
	Paste		Snap to grid on/off
	Undo		Resize on/off
	Redo		Set the Help item

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Normal and Highlight States

The default colour styles for an item will not be appropriate for all users. It is vital that [suitable colours are chosen](#) so that the user can read the items text in both the normal and highlighted state. Normal is the usual state of the item which changes to highlight when the item is scanned.

Since SAW 5 [item styles](#) for 7 of the most common types of item are offered. You can of course use a custom style for any item should you wish. Also the use of styles can be switched off and the original design colours used. The styles are specific to the current computer user and so you can personalise ANY selection set that uses the 7 styles to individual needs.

Note: Custom style items will appear the same for all users.

When defining your styles you should consider the following points:

- There should be good contrast between the normal and highlight states, possibly keeping the same foreground colour.
- If the user prefers the normal and highlight colour combinations to be identical, then different border colours and thicknesses can be used to distinguish between the two states - this is also useful on monochrome screens.

- If an item contains a graphic, the normal and highlight colour settings do not alter the graphics colours, except the background of WMF and EMF format graphics. In this case you can use different border colours and thicknesses to distinguish between the normal and highlight state.

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The 7 Item Styles

Item styles apply a consistent colour style to an item depending on their functionality. There are 7 pre-set item styles and a custom style (no style applied).

The Settings menu command [Use Item Styles](#) allows you to use the selection sets in their original colours etc., or to use the styles. [The styles themselves can be edited.](#)

Each Windows user logging on to a computer has their own set of styles. These styles are applied to any selection set employing styles, giving each user colour combinations that they prefer.

Note: The styles are stored in `C:\Documents and Settings\user.domain\Application Data\SAW\Styles`. In Win98 and ME the styles are stored in `\Windows\User information`

Style name	Style taken by:
Escape items	Items that are only used to move out of a group item.
Group items	Items that contain other items.
Help items	The item that contains the prompts and other help texts from other items in the selection set.
Not scanned items	Items that are not automatically scanned. They are also not available for mouse pointer selection.
Open items	Items that open other applications or selection sets.
Output Items	Items that output keyboard, mouse or other commands to Windows.
Top Item	The SAW window itself.

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The Worked Example

In some sections of this help file there is a worked example taking you through the creation of a simple selection set to run the Microsoft standard calculator. A group of selection sets that mirrors the stages of the worked example is installed with SAW.

The worked example selection sets have been included with this install and can be found in:

`\Program files\ACE Centre\SAW 6\Selection Sets\Worked Example (Win XP)`
`\Program (x86)\ACE Centre\SAW 6\Selection Sets\Worked Example (Win 7 - 64 bit)`

The worked example stages cover:

1. [Adding items.](#)
2. [Resizing items.](#)
3. [Moving items.](#)
4. [Changing the content of items.](#)
5. [Re-ordering the scan order of items.](#)
6. [Running the simple selection set.](#)
7. [Grouping the items to make a row/column scan.](#)
8. [Making the set into a Row/Column scan structure.](#)
9. [Re-ordering the scan in rows.](#)
10. [Selecting a row and scanning the items in it.](#)
11. [Escaping from a row without selecting](#)
12. [Escaping from a row when selecting](#)

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Making Selection sets

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Starting to Make Selection Sets - Adding Items

Simple selection sets contain an number of single items can be readily designed on-screen. However, for selection sets with a more complex structure (e.g. involving [groups](#) and [Popups](#) - items that are invisible until called up) it is probably better to begin with pencil and paper to get a good feel for the overall appearance and behaviour of the selection set.

You create a selection set by adding items using the [Add](#) Item command on the Item menu or the Add tool from the toolbar. You can also [create items from a template](#). Alternatively, you can copy and paste items within a selection set or from other selection sets.

Note: You may have more than one SAW window open at the same time and copy and paste between them, although *it is not a good idea to have them both running in user mode at the same time!*

SAW automatically assigns a unique identity (ID) number to each new item; these ID numbers cannot be altered. They are used within script and menu commands to refer to items.

To start making a selection set we must first add some items to the blank selection set.

Worked Example (WE1.sss and WE2.sss)

We are going to create a selection set to run the Microsoft calculator. First let us add the numbers.

Open SAW in designer mode - and with a new selection set (e.g. by selecting the "Design a new Selection Set" option in the SAW startup dialogue).

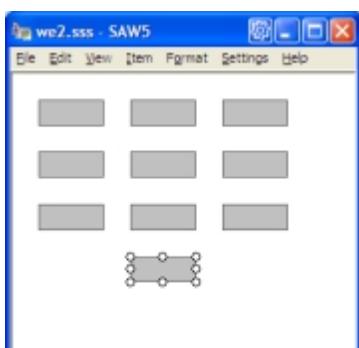


Select 'Add item' from the Item menu or on the toolbar.

The Mouse cursor changes to a cross. Move the cross to the position where you want the top left hand corner of your new item to be, and click. You should see the new item appear as in the picture below.



Add another 9 items for the calculator so that your selection set now looks like the one below. Next we are going to re-size and move these items to give a better look to the selection set.



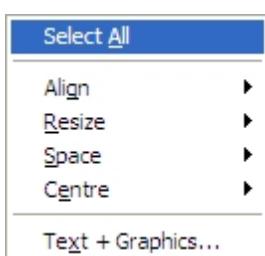
[Next Worked example](#)

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The Top Item right-click Context Menu

The Top item is the SAW window itself. It has its own style so that you can change the background colour, and in SAW 6 you can also set a background image for the window. This is done via the **Format - Page background** menu command.

If you right click on the window background you get a context menu of six items.



Align

Align will automatically select the items contained in the window and align them, left/right, top/bottom.

Resize	Resize will automatically select the items contained in the window and size them, widest/narrowest, tallest/shortest.
Space	Space will select the items contained in the window and space them evenly, vertically or horizontally.
Centre	Centre selects the items contained in the window and aligns their centres, vertically or horizontally.
Text + Graphics	This will change ALL items in the selection set to hide their graphic or text or show both. Items that do NOT contain text will STAY as graphics only and items which do NOT have graphics will STAY as text only. No items will remain blank unless both the graphic and text are blank.

Note: The behaviour of these right-click menu options - i.e. to automatically select all items in the selection set - is seldom very useful - possibly apart from the sizing and Text + Graphics options. If you want to space and align selected items in the selection set window, then see [Aligning and Spacing Items](#).

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Changing the Position of the Selection Set on the Screen

When a selection set is saved, its position on the screen is saved at the same time. When it is re-opened it will be restored to the same position.

To save the selection set in a new position

1. Either

Open the selection set (File menu - Open $\text{Alt} + \text{F}$, O or $\text{Ctrl} + \text{O}$)

Or:

Stop SAW running when the selection set is opened ($\text{Ctrl} + \text{R}$)

2. Move it to a new location - drag the title bar or use Control menu - Move (or

$\text{Alt} + \text{M}$, M) and then the arrow keys ($\uparrow \downarrow \leftarrow \rightarrow$) - followed by Enter
(

3. Save the file ($\text{Ctrl} + \text{S}$)

4. Run the selection set ($\text{Ctrl} + \text{R}$)

Note: You can also use the updated **Format - Rezise Selection Set** menu command to exactly rezise and position the selection set by window coordinates.

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Making Items the Same Size

To make items the same size as each other you first have to select more than one item.

- Click on the first of the items you wish to resize.
- Hold the shift key down and click on another, two items will be selected.
- Continue holding the shift key down and click on all the items you wish to resize.
- Select the format menu and choose Resize.

Note: You can resize items that are in different groups and also make single items and group items the same size

Tallest	Ctrl+Shift+L
Shortest	Ctrl+Shift+H
Widest	Ctrl+Shift+W
Narrowest	Ctrl+Shift+N

To make items identical in size choose tallest/shortest followed by widest/narrowest.

Note: All the items within a group can be also made the same size with the [group item right-click context menu](#). The top item right-click context menu will resize all the items at the top level in the selection set, that is all items not contained in other group items.

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Re-sizing Items

Shortcut +

The size of an item in the selection set can be changed with the mouse as follows:

1. Select the required item.
2. Move the mouse cursor to the required handle (a corner or edge); the cursor changes to a double arrow-head. Alternatively hold down the Control key and use the arrow keys to size the item.
3. Hold down the mouse button and move the corner or edge to change the size of the item. If the Snap To Grid feature is active, the items corner or edge is automatically aligned to the grid.
4. Release the mouse button to fix the new size.

Or use the keyboard

1. Select the item (see [Keyboard Interface](#))
2. Hold down the and use the keys to resize the item. The keys will move the bottom right corner of the item.

Items can be made the same size as each other with the [Format menu - resize tools](#)

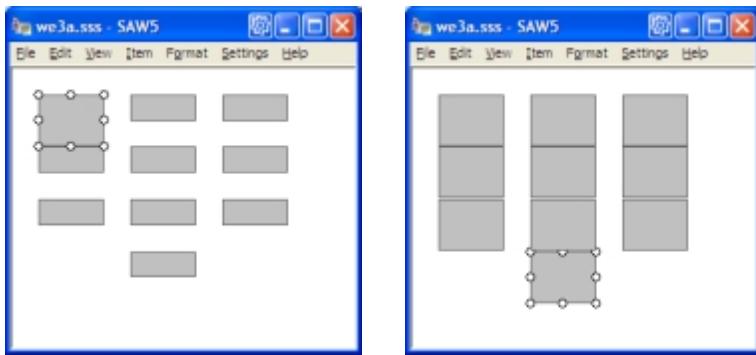
Note: The original size can be restored by immediately choosing the Undo command.

Worked Example (WE3a)

Select the top left item and drag the bottom right corner out so that it becomes a square as in the example below.

Using the context menu

Right click the window background to open the context menu and choose resize tallest and then repeat with resize widest.



The classic method

First make sure that [snap to grid](#) is on (ticked) and that the grid spacing is set to 8 in both directions.

Use the Edit menu and select [Copy Presentation](#) - $\text{Shift} + \text{Ctrl} + \text{P}$. Click on each of the other items and use $\text{Ctrl} + \text{V}$ to copy the same change to each of them (as in the second picture above)

The items are now overlapping so need to be moved.

[Next Worked Example](#)

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Moving Items

Shortcut

Use the mouse to move an item.

1. Move the cursor within the item's border
2. Click the left mouse button to select the item and release. Now hold down the mouse button and move the items outline to the required position. If the Snap To Grid feature is active, the top left corner of the item is automatically aligned to the nearest grid point.
3. Release the mouse button to place the item at the new position.

Or use the keyboard

1. Select the item (see [Keyboard Interface](#))
2. Use the

You can use the Snap to Grid command on the Settings menu to facilitate the alignment of items and consistent sizing

Note: The effect of the move can be reversed by immediately choosing the Undo command.

Worked Example (WE4.sss)

With the 'snap to grid' setting on drag or otherwise move the items so that they no longer overlap; so that they look like the picture below.



It may be awkward to get the spacing quite right. To enable easier layouts there is an [align/space tool](#) provided in SAW - we shall use this later in this example.

We are now going to change each item so that it will send a digit to the calculator. The easiest way to change items is use the right click menu. we will need to change the text displayed and the output text of each item to be the digits 0 to 9.

[Next Worked Example](#)

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Aligning and Spacing Items

To align or space number of items with each other you first have to select more than one item.

- Click on the first of the items you wish to align.
- Hold the shift key down and click on another, two items will be selected.
- Continue holding the shift key down and click on all the items you wish to align or space.
- Choose the format menu and choose Align, Centre, or Space.

Note: You can align items that are in different groups but you cannot space them. You can also align and space a mixture of group and single items.

Format menu - Align

Leftmost	Ctrl+Shift+Left Arrow
Rightmost	Ctrl+Shift+Right Arrow
Topmost	Ctrl+Shift+Top Arrow
Bottommost	Ctrl+Shift+Down Arrow

This gives you four options, choose which alignment you want to apply. You can choose leftmost and follow that with topmost for example to get a complete alignment of the items on top of each other for a flip chart or popup type of display.

Format menu - Centre

To align the centres as opposed to the edges of the items choose Centre from the Format menu. This gives you the two options:

Horizontal	Ctrl+F9
Vertical	Ctrl+Shift+F9

unlike the align format, this centres to the centre of the window or group item they are contained in.

Format Menu -Space

This option allows you to space the items evenly within a window or group item. The

command makes the space between items as equal as it can rather than distributing the items evenly. You have two options:

Across ALT+Left Arrow

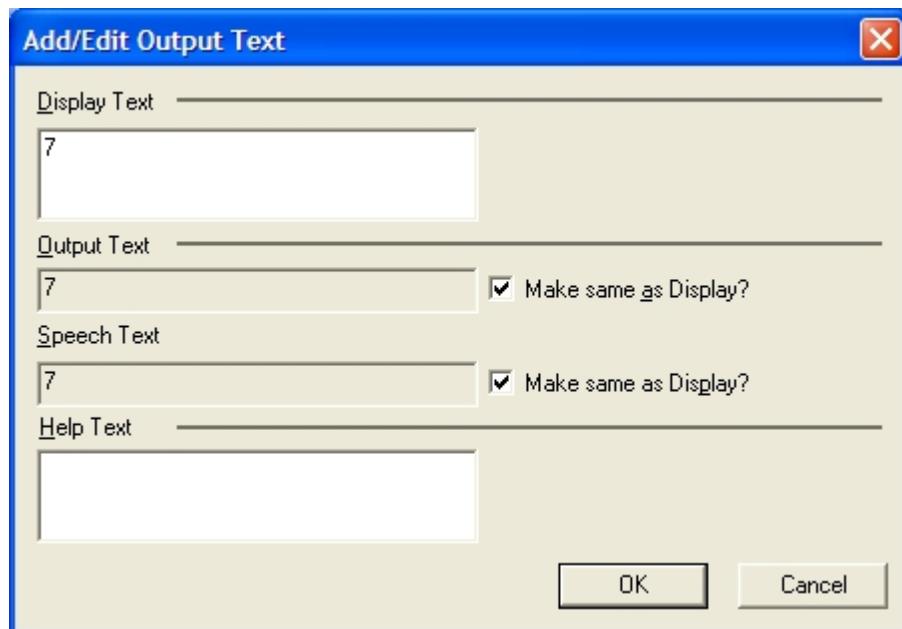
Down ALT+Down Arrow

Note: All the items within a group can be aligned and spaced with the [group item right-click context menu](#). The top item right-click context menu will align and space all the items at the top level in the selection set, that is all items not contained in other group items.

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Adding Display and Output Texts

To add the numbers (i.e. displayed text) to the calculator we now use the item right click context menu. Right click on the top right item and choose 'Edit Text' from the menu. Make sure the two 'Make same as Display' boxes are ticked and enter the digit '7' to the display text. (see also [Edit Text](#))



Click OK and add digits to the other items the same way using the standard calculator layout.

Your selection set should now look similar to the one below.



We are now going to check the scanning order of the items.

[Next Worked Example](#)

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Auto Resize

Select the command to enable the Auto Resize feature. If this option in the Settings menu is checked all items in a selection set will scale in proportion to the window size if the window size is changed. In addition if a group item's size is changed the child items contained within the group will also change size in proportion. The Graphics will scale to fit the areas allocated to them within an item. The Text font size will scale to the height available to it.



The toolbar button will switch Auto Re-sizing on/off.

Note: It is not a good idea to make windows very small and then re-size them. Errors will creep into the sizes (rounding errors) and the set may not scale up to a larger size properly. Always keep a copy of the sets in a large size just in case.

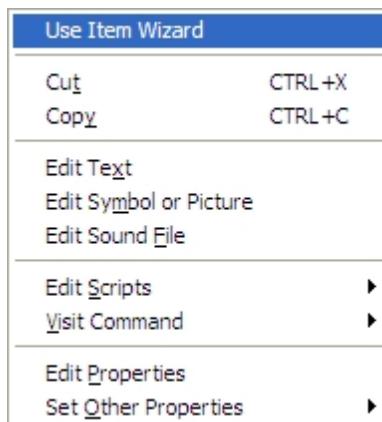
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The Single Item Right-Click Context Menu

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The Single Item Right-Click Context Menu

A right click menu enables easier configuration of the item and allows non-designers to add links to other selection sets and to open applications without having to be able to create scripts. See also [Item wizard](#)



[Use Item Wizard](#)

The item wizard helps you construct most of the common sort of items without having to resort to script editing.

Cut and Copy

Cuts or Copies the item to the clip board so that it can be pasted into the same or another selection set.

[Edit Text](#)

Text entry boxes to enter the text displayed, sent to the

	application, used for text to speech and that used for the help item .
Edit Symbol or Picture	Add a picture in a range of formats to the item
Edit Sound File	Browse to find a sound file to use with this item.
Edit Scripts	Opens the standard script editing page.
Visit Command	Gives a preset option list of places an item will send the scan if a selection is made at this item.
Edit Properties	Open the main item properties dialogue.
Set Other Properties	<p>Marks the item with one or more specific property attributes so that:</p> <ul style="list-style-type: none"> • The scan will not automatically be passed to it • It is an escape item • It is the help display item • It is a pop-up (hidden) item. <p>You can also choose whether to display text and/or symbol or picture.</p>

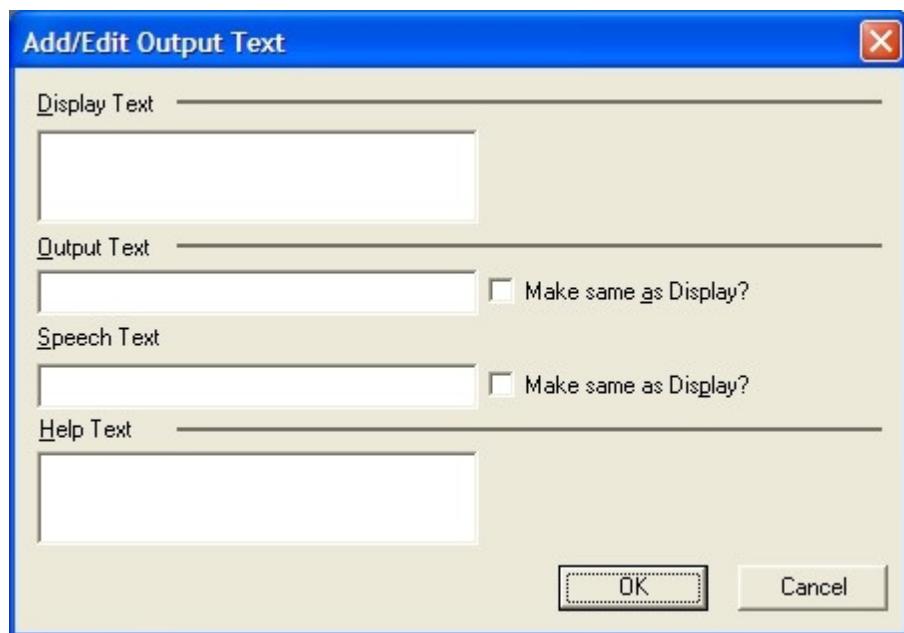
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[**Edit Text**](#)

This menu item pops up a text entry box to edit texts that are displayed, sent or output to the application, used for speech or sent to the item.

The display text can be automatically copied to other output and Speech areas by ticking the boxes. Alternatively you can enter other texts for output, speech and help texts.

After you have entered the text click 'OK' () to accept or 'Cancel' ()



Display text	The text displayed by the item.
Output Text	The text sent or output to the application. This can be made to copy the display by checking the box.
Speech Text	The text used for text-to-speech. This can be made to copy the display by checking the box.
Help Text	The text that is sent to the help item during a scan or when pointed to.

Note: Any of the texts can be used for output, speech or help through specialised script commands. For example you could '`say display text`' rather than the default '`say speech text`'.

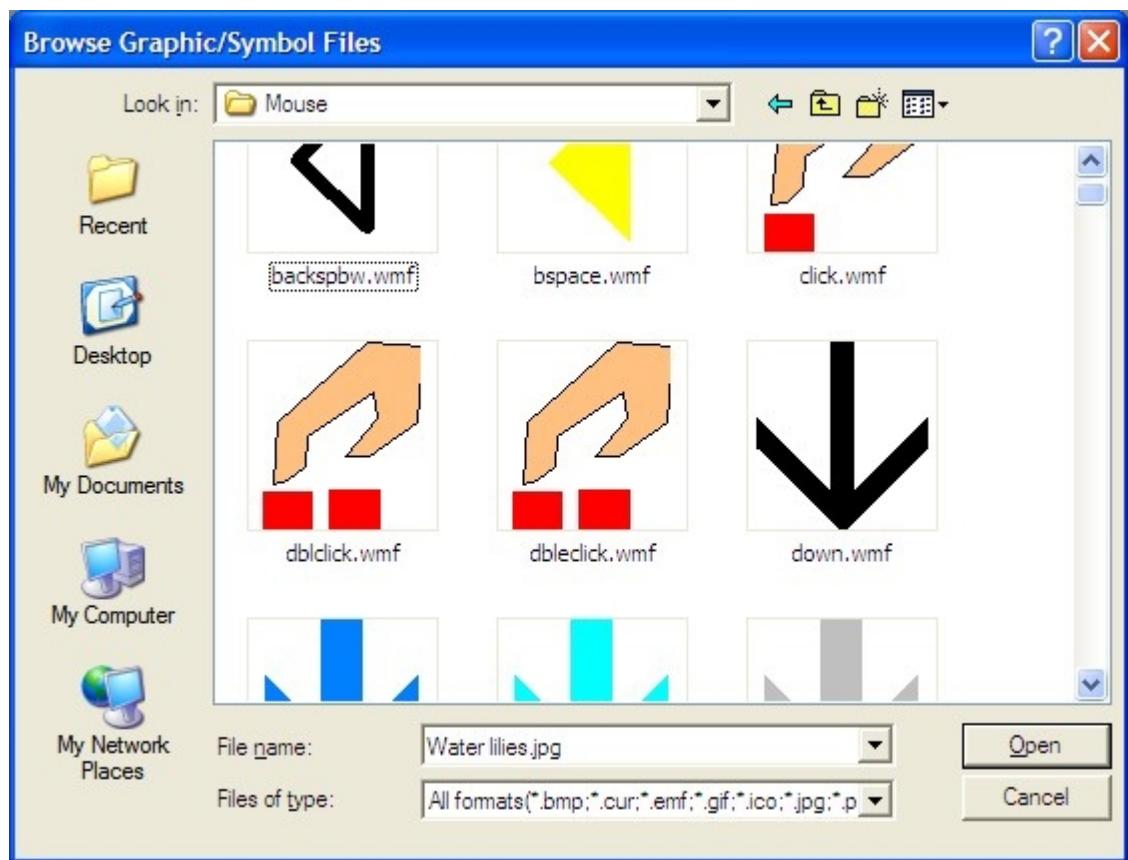
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Edit Symbol or Picture

This opens a browser that helps you find and select the graphic for the item. SAW can display Bit Map (bmp and png), TIFF (tif), Meta file (wmf and emf), jpeg (jpg), gif and Icon (cur and ico) formats. In Windows XP you can view the graphics as thumbnail images as shown below by selecting thumbnails from the pull down list on the rightmost icon on the top line..

Note: Any graphics (or sounds) added to items from other than the default or local folder (the folder the selection set is saved in) will be copied to the local folder.

Note: SAW will now look in the sub-folders or directories of the [defined default graphics folders](#) for files - useful in libraries where symbols are held in topic or alphabetic sub-folders.



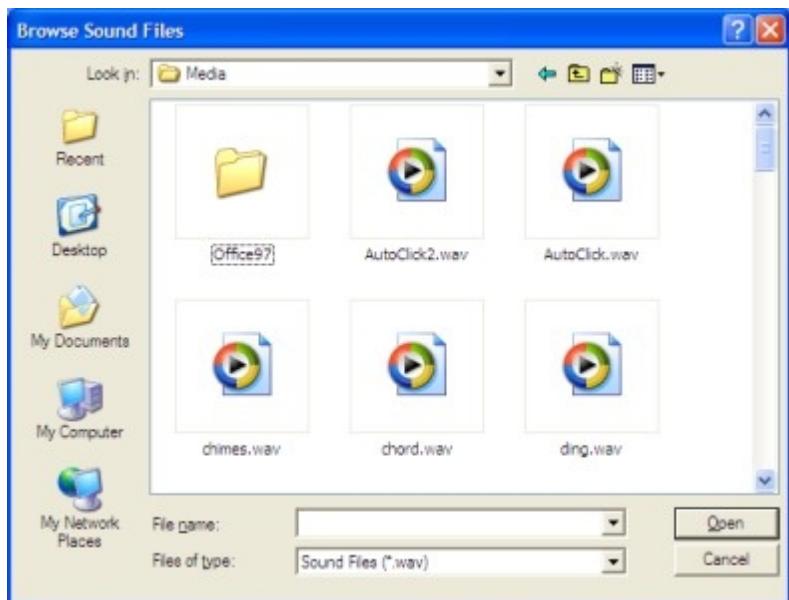
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Edit Sound File

SAW can play sound files (WAV or MP3) on scanning or select. These sounds can be used as prompts, confirmations or as part of a stand alone application such as a talking book constructed in SAW. By default the sound will be played when the scan enters an item and when an item is selected.

'Set sound file' Opens up a browser window looking for WAV or MP3 format sound files. These will normally be stored in the current folder or [sound default directory or folder](#) of SAW.

Note: Any sounds (or graphics) added to items from other than the default on local (the folder the selection set is saved in) will be copied to the local folder.



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Edit Scripts - making an item work for you

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Edit Scripts

Edit Scripts allows you to choose two 'script' options for [opening other selection sets](#) and [opening an application](#).



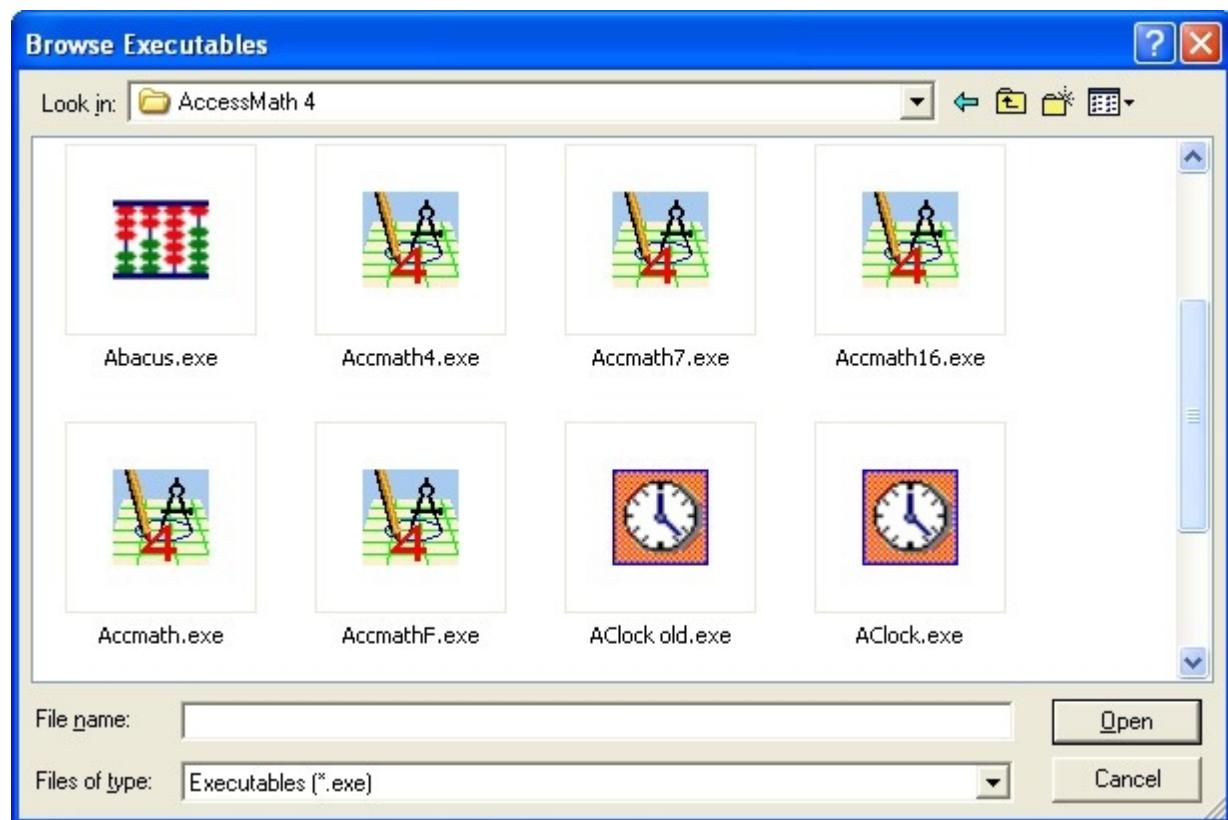
Note: a single item can carry out both operations, the application is opened first and then the new selection set is opened.

To see more details of what scripts can do for you

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Edit Application to Open

If you wish an item to open an application when it is selected you can choose the application by using this command. A browser window opens (see below) and you can explore your files to find the application you wish to open. Select the EXE file for the application then click 'OK' () or 'Cancel' ()



Note: SAW will automatically insert the line:

Open application <file path>\<file name>

At the end of the select script for that item or, if an 'open selection set' command is already at the end of the script, immediately before that line.

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Edit Selection Set to Open

In order to cut down the number of items seen at any one time you can have one selection set open another. For example, a writing set may open an editing set through one of the items in the writing set.



Note: Another way of hiding and changing to other sets of items is to [use a pop-up](#)

This menu item opens a browse window (see below) looking for selection set files (*.sss) to open. Select a file and then 'Open'. The script line

`Open selection set <file path>\<file name.sss>`

will be added to the end of the 'select' script of the object.

Note: If just the file name is given then the current selection set folder will be used.

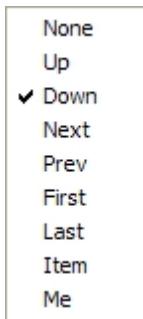
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Visit Command

Visit means 'send the scan to another item in the selection set' (whether it is set to be scanned or not). Since SAW 5 this has been extracted to a separate area of the script dialogue and the particular visit command can be selected from a list, although the command can be entered in the script as before if you wish, but this is not recommended. If you put a visit command in the visit box the visit command in the script will be removed.

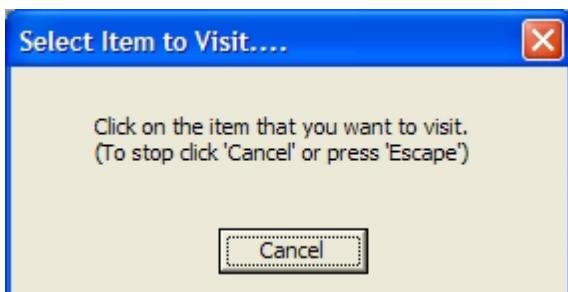
Note: The visit script will then not be run on switch up. (see [Writing Your Own Scripts](#))

The Visit Command gives a preset number of places an item will send the scan if a selection is made at this item.



- | | |
|--------------|---|
| None | Do not carry out a visit command. |
| <u>Up</u> | Take the scan out of the group and back to the parent (container or group) item that this item is in. |
| <u>Down</u> | Take the scan inside this group item and visit the first item in the scan order inside this parent (container or group) item. |
| <u>Next</u> | Send the scan to the next item in the scan order within the group or window. |
| <u>Prev</u> | Send the scan to the previous item in the scan order within the group or window. |
| <u>First</u> | Send the scan to the first item in the scan order within the group or window. |
| <u>Last</u> | Send the scan to the last item in the scan order within the group or window. |
| <u>Item</u> | Visit any item in the selection set (see below) |
| <u>Me</u> | Send the scan back to this item so that another selection can be made. This is particularly useful for items such as tab or arrow keys and also for mouse movement items. |

Item allows you choose any item of the set at any level of the hierarchy to be scanned to.

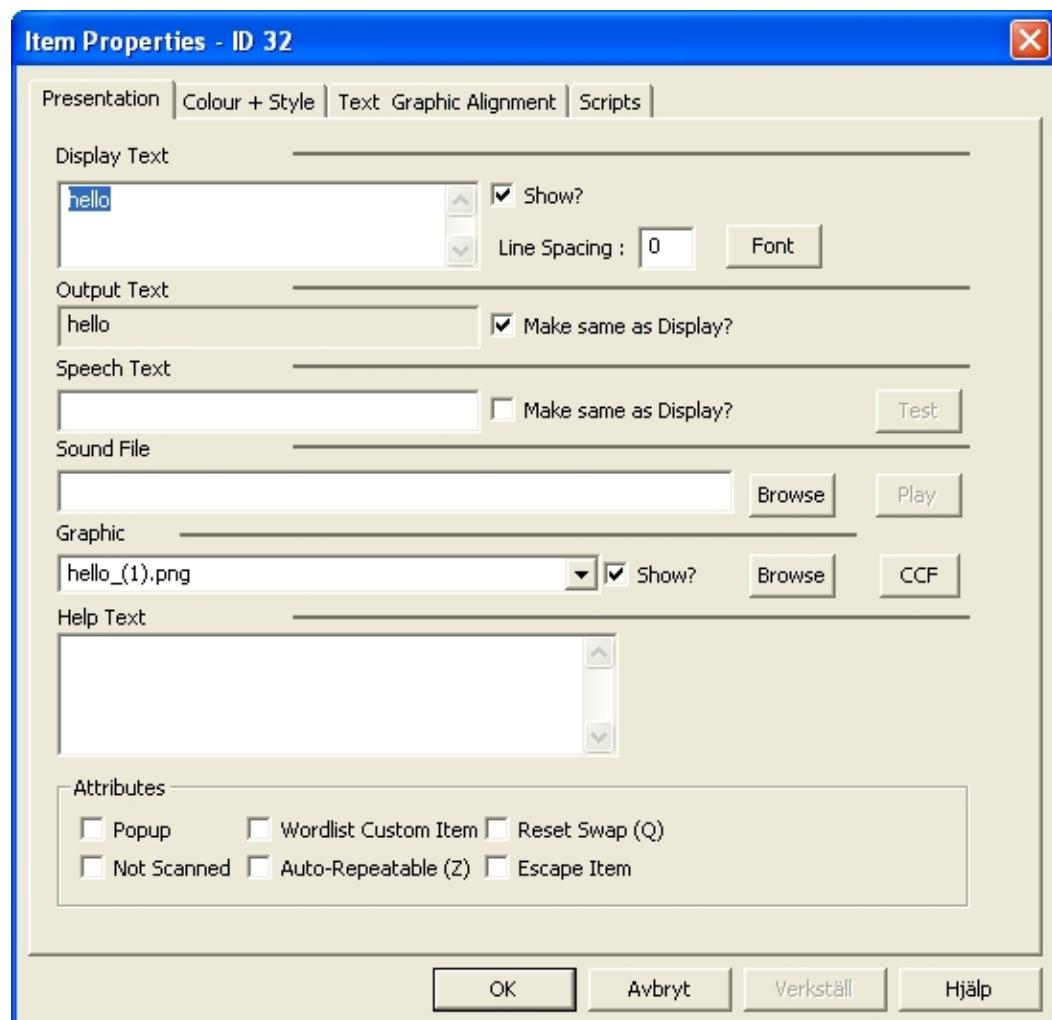


Just click inside the item you want the scan to go to. Be careful with group items that you select the group and not one of the contained items.

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Edit properties

Edit properties opens up the full properties dialogue for the chosen item. This item will be used by designers wanting to use the full power of the SAW options and scripts.



This dialogue is covered in:

[Editing an item's properties](#)

[SAW Scripts](#)

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Set Other Properties

The selections available on the Set Other Properties sub-menu mark that item as:

- Popup Item
- Not Scanned
- Help Item
- Escape Item
- Show Text
- Show Graphic

Pop-up The item will be hidden from view unless a command makes it visible

Not Scanned The item will not be placed in the normal scan sequence.

Help item	The item will receive help texts from other items.
Escape Item	An item that sends the scanning sequence 1 level up in the hierarchy.
Show Text	Set the display text to be shown/hidden.
Show Graphic	Set the graphic to be shown/hidden.

Note: Invisible popup items may be scanned. This can be useful to give 'pauses' in a scan but an invisible popup group item with its child items being scanned may be the cause of the scan seeming to be not working, SAW is scanning, but you can't see it!

Note: It is possible to show/hide all the graphics/text of a selection set from the right-click context menu for the set.

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Checking the Simple Scanning Order

Shortcut + +

The order in which items will be scanned for switch users can be changed. The easiest way is to use the 'Group order'. Using this command on the Format Menu will show small numbers on each item showing their place in the scan. This can also be used in grouped or hierarchical selection sets to define the scanning order in sub-groups.

Worked example (we5a)

We now have to make the items scan in the order we require. Make sure that no item is selected and then select 'Group order', on the Format menu. You should see all the items numbered in the order they were created.



Now click each one in turn, from display text 0 then 1 to 8: Leave out the last number 9 (10th item). The numbers will change and when you reach the 9th (display text 8) it should look like the example below.



[Next Worked Example](#)

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Running a selection set

shortcut +

To use a selection set, that is to it scanning, just select 'Run' from the Settings or the Control menu or by using the Run icon on the Toolbar

Worked Example (WE6a.sss and WE6b)

We will now try the example with the calculator. First save your selection set using 'Save' or 'Save As' in the File menu.

Make sure you have set up the user switch interface correctly and that you have the correct switch plugged into the correct socket.

Open the Windows Calculator (usually on Start - Programs - Accessories menu)

Put the SAW window over the keypad area of the calculator window by dragging its title bar.

Go to the Settings menu and select 'Run' - the selection set will now be in [User mode](#). Notice that the SAW menu bar is now hidden.



The items should now be scanning in the mode chosen in [Edit I/O settings](#)

Click back in the Calculator window to give it the focus i.e. to make it the current active window (notice how the title of the SAW Window is faded and the calculator is in a deeper blue - if you have the default windows appearance settings.)

Selecting items from the Selection set with your switch should now enter numbers into the calculator. To stop the scan and re-enter SAW edit mode press **Ctrl + R**.

To use the calculator properly as a switch user will need more buttons for +, - and = etc. As we add more items the scan becomes longer and more inefficient. We need to group the items to create a row/column scan.

[Next Worked Example](#)

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Group Items

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Group Items

To give more rapid access to individual items they are usually grouped so that the groups are scanned first. These groups are themselves items - group items. Items placed inside larger items are not scanned until a selection (usually of the parent item) causes the scan to enter the first item contained in the parent. This arrangement of items within other items [forms a hierarchy](#) of items from the bottom-most child item through its parent to grandparent etc. items.

The simplest way to make a row/column hierarchical grid is to use [the Grid Maker Wizard](#). [The Item Wizard](#) can also help in creating group items by adding 'visit down' to the action of the group item.

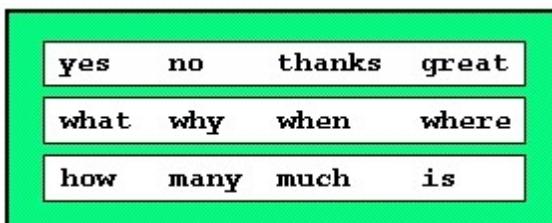
Items are automatically assigned the group style when items are added to them to create groups.

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Item Hierarchy

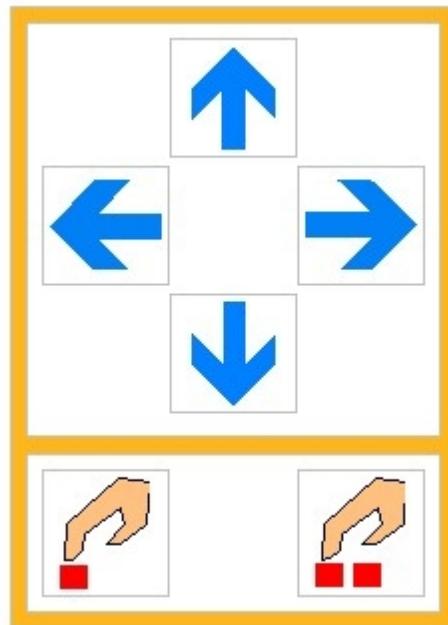
SAW supports a hierarchical design of selection set. For example, items can be grouped (which may be arranged as rows or columns); the groups are scanned and when the user selects a group, the items in that group are then scanned. The top item (selection set window) contains items and group items. The group items themselves can contain items and other group items.

Thus you can create selection sets with a hierarchical structure of parent and child items. In SAW, a parent item is also referred to as a group item. A group is created by adding new items inside an existing item, creating a parent-child relationship between items. Such a hierarchy could be used to implement row-column scanning, for example. The diagram below shows three groups, each a parent with four items displaying words as child items. The groups are themselves children of the shaded item in the background - the top item. The switch user would scan the groups; when a group is selected, the words in that group would be scanned.



Moving, copying, or deleting a parent item automatically includes all its children. In the above example if a group is moved, then its words move with it.

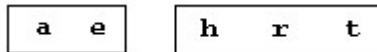
Groups of items do not have to be arranged in a grid or linearly. In the example below of mouse commands, the upper group contains mouse movement commands which are arranged in the style of a compass, and scanned in a clockwise direction. The lower group contains mouse click and double click commands:



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Using Group Items

A selection set may contain group (parent) items each containing related items such as the vowel and consonant group items below:



A selection set is usually designed so that when a group item is selected, its children are automatically scanned. To achieve this, the Select Item script of each group item must end with the command '[visit down](#)' to direct the scanning sequence down one level of hierarchy (i.e. to its children).

Note: Having more than one visit down command in the same script does not move down a further level of hierarchy - you can only move down one level at a time in the same script.

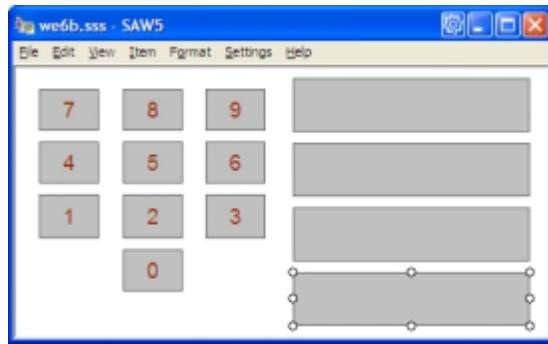
You can change the order in which the child items are scanned using the [Group Order](#) command on the Format menu. If this command is not used, the children will be scanned in the order they were added to the parent item.

Worked Example

To create group items just add items as for ordinary items. In our example we need 4 rows.

Make your SAW window larger by dragging the edges or corner to give work space (Make sure [Auto-resize](#) is off)

Create the four new items and re-size them to take the numbers - make them wider and taller to give room for a boundary. You should have something that looks like the picture below.



Now we have to move the items into the rows - this is not an ordinary move!

[Next Worked Example](#)

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Insert and Remove the child item

Shortcut $\text{Shift} + \text{Left Mouse Button Drag}$ or $\text{Shift} + \uparrow, \downarrow, \leftarrow, \rightarrow$

A child item can be removed from its parent by following the steps:

- 1 Drag the selected child item from its parent with the $\text{Shift} + \text{Left mouse button drag}$. Alternatively use $\text{Shift} + \uparrow, \downarrow, \leftarrow, \rightarrow$
- 2 Move the selected child item outside its parent before releasing Shift . With arrow keys the transition is automatic

New items can be created within other existing items.

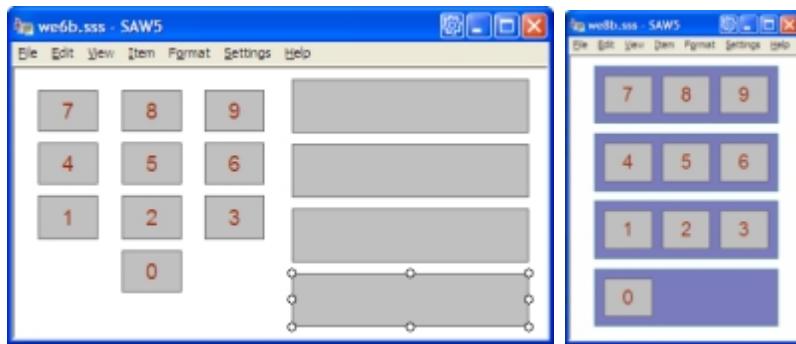
To move a selected item into another item, and make it a sub item or child of that item:

- 1 Drag the selected item inside the required item with the $\text{Shift} + \text{Left mouse button drag}$. Alternatively use $\text{Shift} + \uparrow, \downarrow, \leftarrow, \rightarrow$
- 2 Release the mouse button BEFORE the Shift otherwise the link will not be completed. With arrow keys the transition is automatic

Worked example

In turns take each item and drag it into a row while holding down Shift . Your selection set should now look like the one below. Now drag the group items to tidy up the selection set (without Shift) and reduce the size of the SAW window again.

Note: If you have 'Use item styles' switch on then the appearance of the group (row) items will change as soon as items are added to the group.

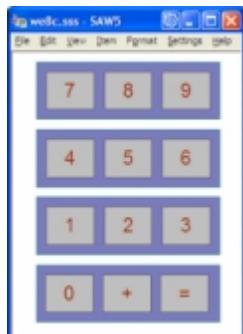


Let us also now add two more items into the bottom row, + and = so we now have a proper switch controlled adding machine. To add an item you can click the add cross on the

Toolbar  and click again inside the parent.

You can also copy an item **Ctrl + C** and paste it into the group **Ctrl + V**, then change its output and display text after the paste.

Note: In the pasted items the display text will have already been set so you need to make sure to tick the 'Make same as Display Text' box when updating the items to + and =.



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The Right-Click Group Item Context Menu

If you right click on a group item you will get a different context menu from the single item.

As group items do not generally send commands or display text or symbols, the menu has been limited.



Cut and Copy

Cuts or Copies the item to the clip board so that it can be subsequently pasted.

Align	Aligns all the items and/or group items contained in the group.
Resize	Resizes all the items and/or group items contained in the group.
Space	Spaces all the items and/or group items contained in the group through the group.
Centre	Centre all the items and/or group items contained in the group to the group.
Visit Command	Gives a preset list of places an item will send the scan if a selection is made at this item. For a group item this would usually be 'down'
Edit Properties	Open the main item properties dialogue.

Worked Example

The easiest way to arrange the items neatly is to use the group and top item right-click context menu.

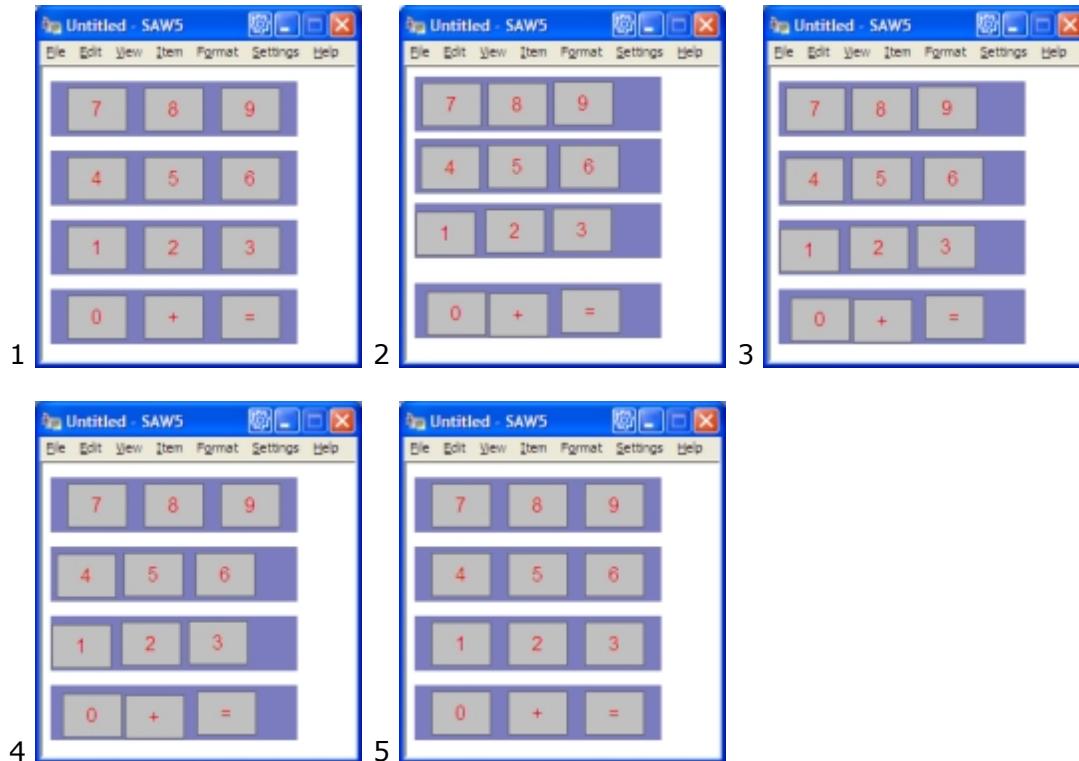
Right-click the top (window) and choose align left (or centre vertical)

Right-click the top (window) and choose space vertical

Right-click the first row group item and choose centre horizontal

Right-click the first row group item and choose space across

Repeat the last two instructions for all rows.



We now have to make the rows scan in the correct order and get the child items scanned when it's parent row is selected.

[Next Worked Example](#)

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Scanning Order of Child Items

To change the scanning order of a child items:

Select the parent.

Select 'Group order' from the Item menu $\text{Ctrl} + \text{Shift} + \text{G}$.

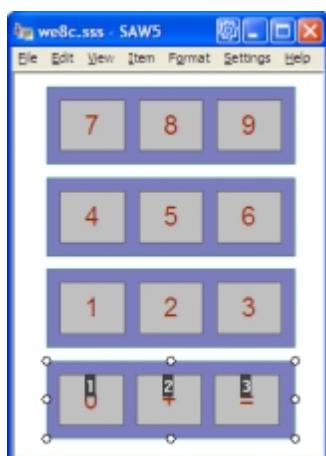
Click the items (except the last one) in the order you want them scanned (or until the numbers are in the correct order).

Select 'Group order' from the Item menu $\text{Ctrl} + \text{Shift} + \text{G}$ again.

Worked example (WE8c.sss)

Select each row group item and check that the scanning order is correct, then select the window by clicking out side all the groups (ie nothing is selected) and check that the groups are scanned in the correct order.

First check items in each group are scanning in the correct order



The that the groups are scanning in the right order



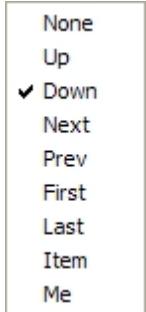
[Next Worked Example](#)

Scanning Child Items

In order for the scan to pass into the child items we need to ensure that there is a 'visit down' in the container or group item.

To do this select the parent:

- Right-click on the group item
- Select the 'Visit Command' item
- Choose 'Down' from the list



Worked Example (WE9.sss)

While the item you have just edited is highlighted choose 'Copy script - + + from the Edit Menu. Click on each of the other group items in turn and 'Paste scripts - + ' into them. Save the selection set and try running it again.

[Next Worked Example](#)

More on Scanning Child Items

In order to scan child items we need to look briefly at the [scripting capabilities of SAW](#). When we select one of the group items that are in top item of the hierarchy SAW will carry out a number of pre-set commands which will cause the item to:

Change its colours to the normal (not highlighted set of colours).

Sound a Click (If this is set to 'on' in the settings).

Say any speech text (If this is set to on in the settings).

Send the output text to the application with the current focus - the last application selected.

Visit the first item inside it

These commands are:

```
normal item  
sound click  
say speech text  
send output text
```

Visit script area

`visit down`

Escaping from a Row Without Sending Commands or Text

We have to add some items at the end of the rows to allow the user to leave that row and go back to scanning each of the rows. To get SAW to do this we need to change the script of an escape item so that when it is selected the scan reverts to the parent (group) item.

Worked example (WE10a.sss WE10d.sss)

First make some space in the SAW window to work in, then lengthen the rows to be able to add a small item at the end of the row. Right-click to open the Context Menu for the item and select 'Escape Item' under Set Other Properties.

Note: You can also create an escape item by editing the visit command, right-click on the item, choosing [Visit Command](#) from the menu and choosing 'Up' from the list. You can also edit the script of the item to include '[visit up](#)' or '[visit item](#)' to restart the scan.



Note: You can change the script so that the scan always goes to the first row by choosing 'item' instead of 'Up' and then clicking on the first row group item.

Copy this new item and paste 3 more times into the three bottom rows. Finally move the original escape item into the first row (hold the shift down when dragging) and re-size the window to make your final calculator.



Note: You can use the right-click menus on the group items again to space and align them again with the extra item included. Right click on each group item (row) in turn and select Space - Across and., if necessary, centre horizontally.

Note: It may be a good idea to check the scan order of each row before trying to run the

calculator.

[Next Worked Example](#)

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More on Escaping from a Row Without Sending Commands or Text

We have to add some items at the end of the rows to allow the user to leave a row and go back to scanning each row. To get SAW to do this we need to change the script of an escape item from the default:

```
highlight item  
sound click  
say speech text  
Send output text
```

To:

```
highlight item  
sound click  
say speech text
```

Visit script area

```
visit up
```

The visit command sends the scan to the parent item.

You can change the script so that the scan always goes to the first row by noting the ID of the first item (in this case 10) and changing the script to:

```
highlight item  
sound click  
say speech text
```

Visit script area

```
visit item 10
```

Note: There is a way of making a number of items obey the script of a single item by replacing the script of the item with one line:

```
exec item <ID>
```

where <ID> is the ID number of the item whose script is to be obeyed. You then only have to edit that one script in future.

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Escaping from a Row after Sending Commands or Text

In the calculator example, it may be a good idea to have the scan re-set each time a number is selected. To do this the [Visit command](#) of each of the numbers and functions can be [set as the escape item](#) to 'Up' (or choose 'Item...' and click on the first row group item).

Worked example (WE11.sss)

Select one of the items and change the Visit command as above. Copy this script using the Edit menu - Copy scripts and then select each of the other items one at a time and paste the script into each one ( + 

Now when you run the selection set each time you select a number or function the scan will

return to the first row.

Note: You may by now have noticed that it is easier to create an item with the desired properties that you can copy, and then just change the text or graphic. This is where [item templates](#) are useful

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More on Escaping from a Row after Sending

To escape from an item and send scan to the parent (group) item the script of each of the numbers and functions can be edited from:

```
normal item  
sound click  
say speech text  
send output text
```

To:

```
normal item  
sound click  
say speech text  
send output text
```

Visit script area

```
visit item 10 (or visit up)
```

By adding the extra line.

Note: There is a way of making a number of items obey the script of a single item by replacing the script of the item with one line:

```
exec item <ID>
```

where <ID> is the ID number of the item whose script is to be obeyed. You then only have to edit that one script in future.

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How to Make Popup Items and Groups

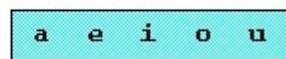
A selection set can contain a number of hidden Popup items. When editing, use the Show command on the Item menu to reveal a particular Popup item by specifying its ID number; use the Show all Popups menu command to reveal all the Popups in the selection set. An item can pop up a previously hidden Popup item using the [popup item <id>](#) script command. This command also executes the Select Item script of the popped up item; this script should display the Popup and direct the scan to the child items.

Example

selecting the item 'vowels':



makes this group item appear:



The Select Item script of vowels must end with the line:

```
popup item <id>
```

where <id> is the ID number of the group containing a, e, i, etc. This group item should be set as Popup and **Not Visited**; its Select Item script should be:

```
popup show
```

Visit script area

```
visit down
```

so that the children a, e, i, etc. are shown and scanned.

If you want the Popup to be hidden once a letter has been selected, then the Select Item script of each letter should end with:

```
popup hide ;hide the Popup after letter is selected
```

Visit script area

```
visit item <id>
```

where <id> is the ID number of the next item to be scanned after a letter has been selected.

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Wizards

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Wizards

We have tried to make it easier to design new selection sets by including '[wizards](#)' and templates. Wizards will take you through the stages of editing items by asking you a series of simple questions.

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The Grid Maker Wizard

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The Grid Maker Wizard

The Grid Wizard is available on the Item menu. It takes you through 3 stages to construct a grid of items. The grid created will fill the SAW window it is created in.

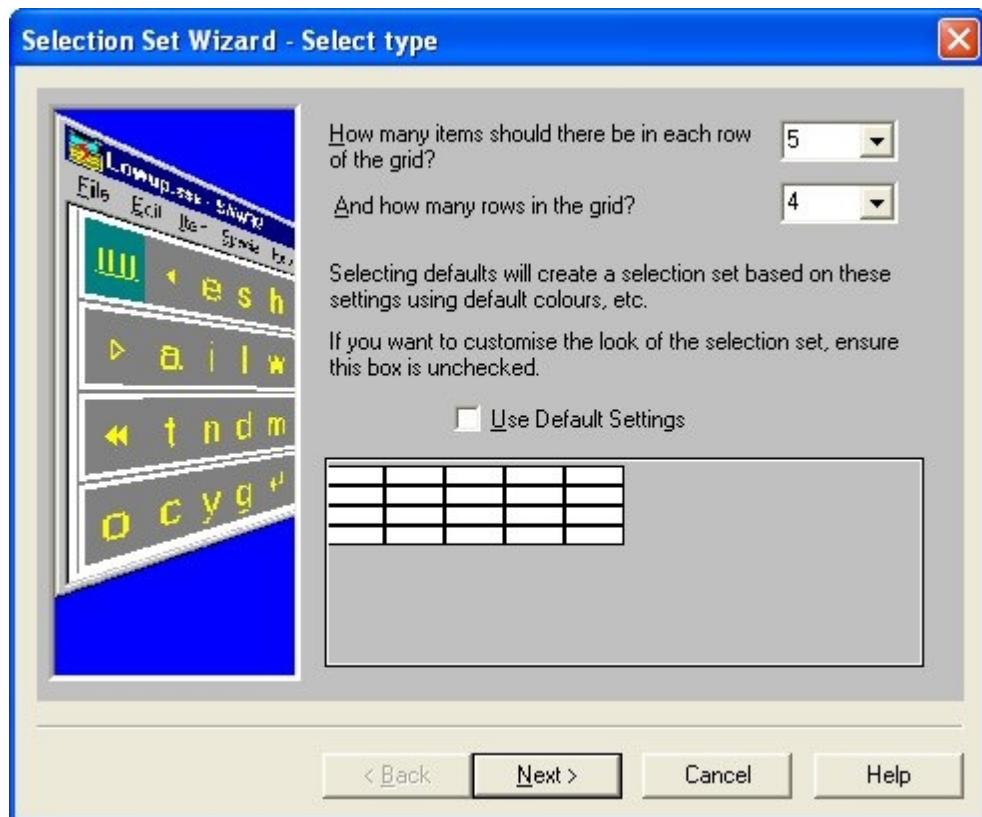
The SAW wizard can be used to add a grid within an item - this can construct block-scan followed by row-column scan hierarchies. First select the item and then select the Grid wizard from the Item menu.

1. [Set the grid size - rows and columns](#)
2. [Choose Simple, Row/column or Column/row scanning](#)
3. [Set up the escape Row or Column item size](#) (or no escape item)and position and the gap between items

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Set the Grid sSze - Rows and Columns

The first page of the wizard asks you to set the number of rows and columns in your grid. The maximum size is 10 rows by 10 columns.



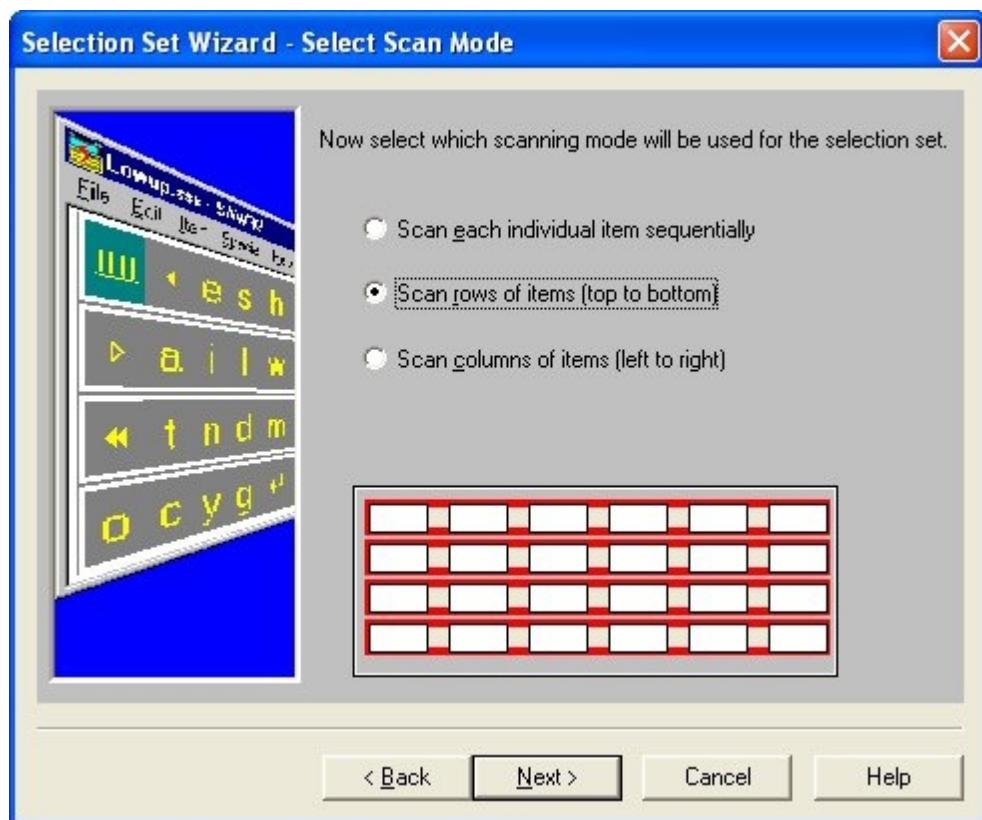
Note: Selecting 'Use Default Settings' will shortcut the remaining stages of the wizard by assuming all other settings are the default ones and [create a row/column default grid of that size](#).

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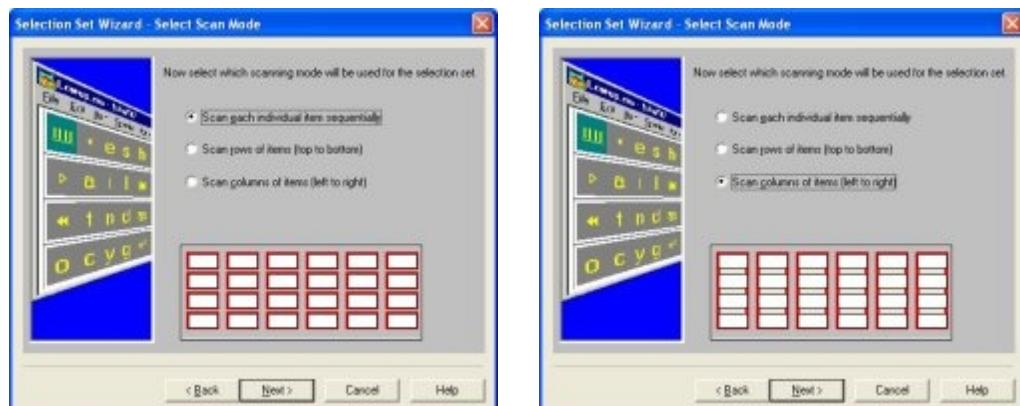
Choosing Simple, Row/column or Column/row Scanning

You can choose one of three ways of organising the way the grid scans

The SAW default scan is by rows and then along the row. The scripts of the items are automatically set to arrange navigation of the items in the way chosen. The image shows the top level group items highlighting as they would appear to the user.



Alternatives are to scan items in a simple sequence (no group items are created) or to scan columns first



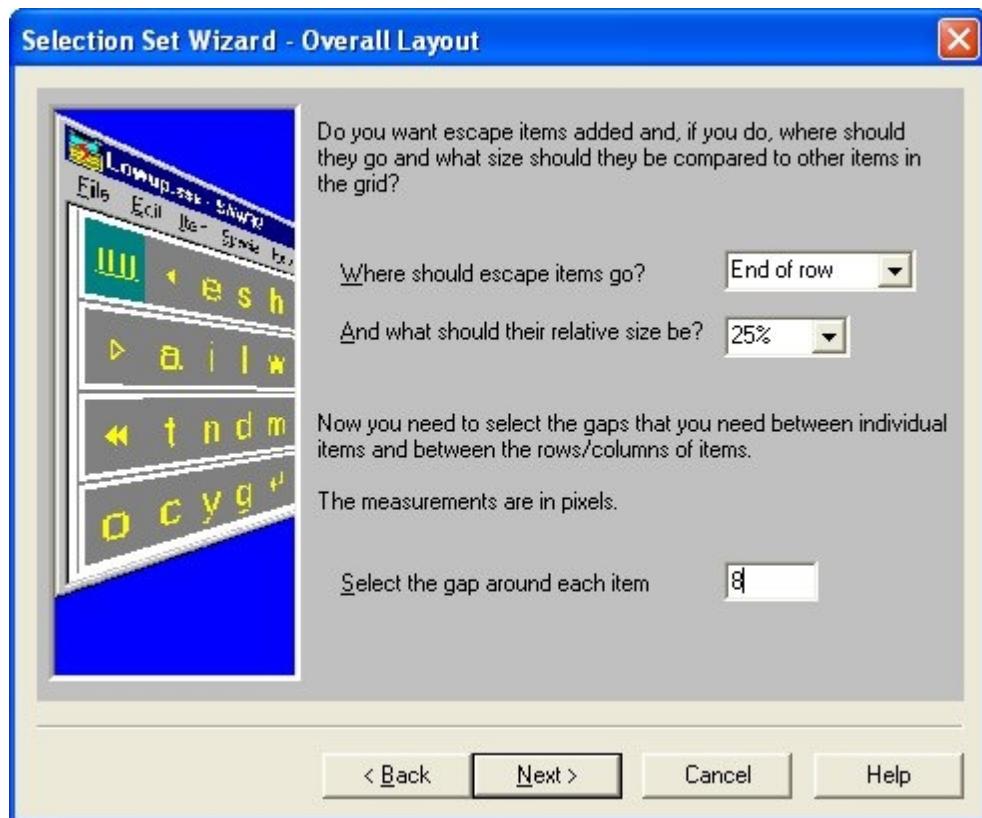
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Setting up the Escape Item and Item Spacing

Escape items allow users to leave a row without making a selection.

The wizard can omit escape items (row/column or column/row grids only), put them in at the start, at the end or put them in at the beginning **and** the end (useful for grids where internal items in a row -or column - are repeatedly selected such as numbers). The size is set in proportion to the normal items created in the range 100% to 10%.

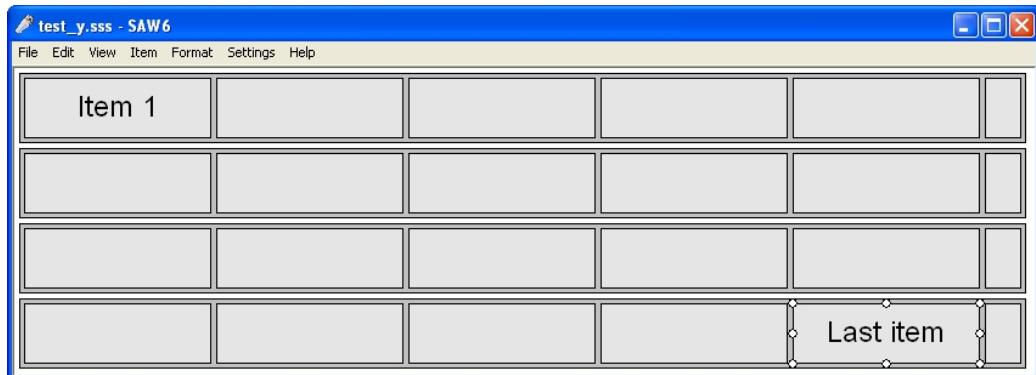
A gap is inserted between each item and between the items and the containing items. This measurement is in screen pixels. A size of 8 will be 1/100th of a 600 x 800 screen width.



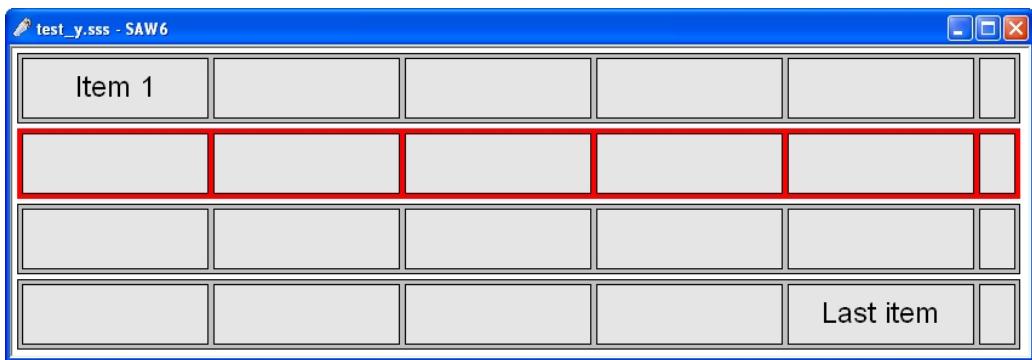
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The Completed Grid of Items

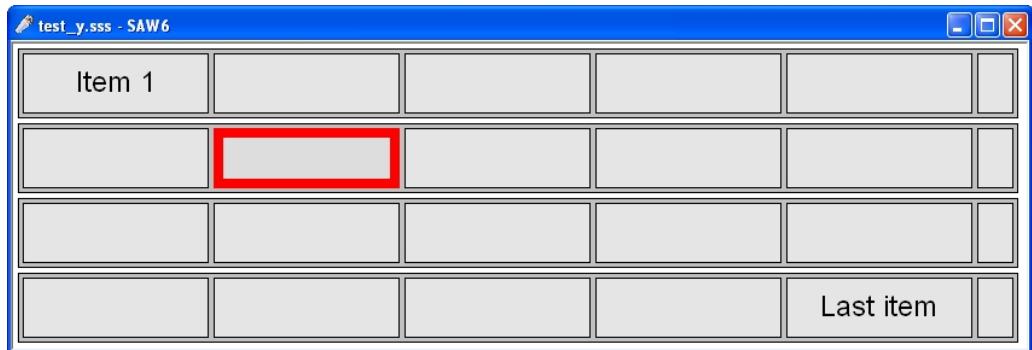
The picture below shows the SAW window with the finished grid opened in Edit mode. The actual appearance will depend on the colours etc. chosen for output, escape, group and top item styles.



Once the grid starts scanning the rows will be highlighted in turn changing the colours to those chosen in the wizard.



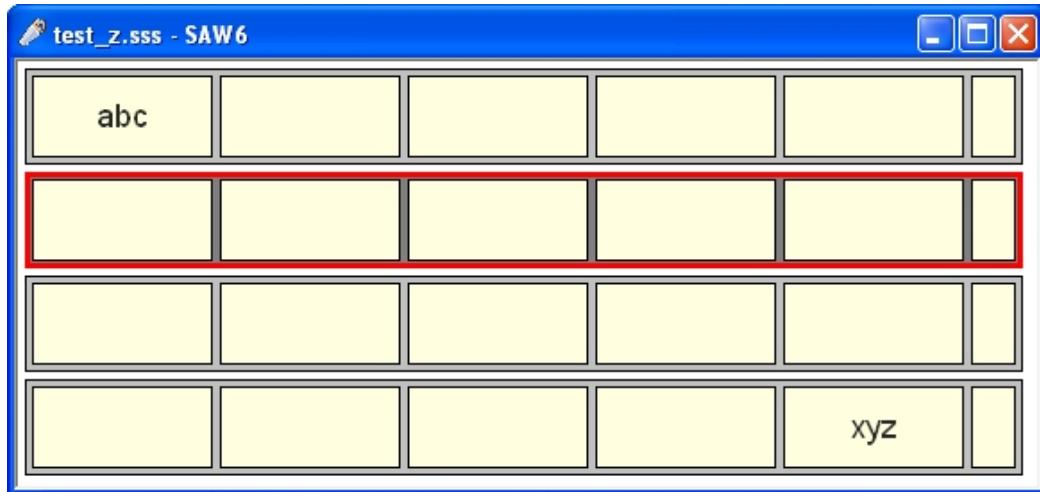
Once a row has been selected then the items contained within the row will be scanned



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The Default Grid Wizard Result

If the default settings (and "Use Item Styles" is activated) are chosen, then the resulting grid will look like the example below.



Note: The actual appearance will depend on the colours etc. chosen for output, escape, group and top styles.

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Item Wizard

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Item Wizard

The Item Wizard can only be used on an existing item.

If you want to work on a new item, create a new item from the Item menu - Add item or use **Shift + Ctrl + A** and then click where you want to place the item.

This is an easy way for inexperienced (and experienced) users to set up some of the more common actions that SAW items are required to do. It can be started using the  on the toolbar, from the Item Menu, or from the item context menu.

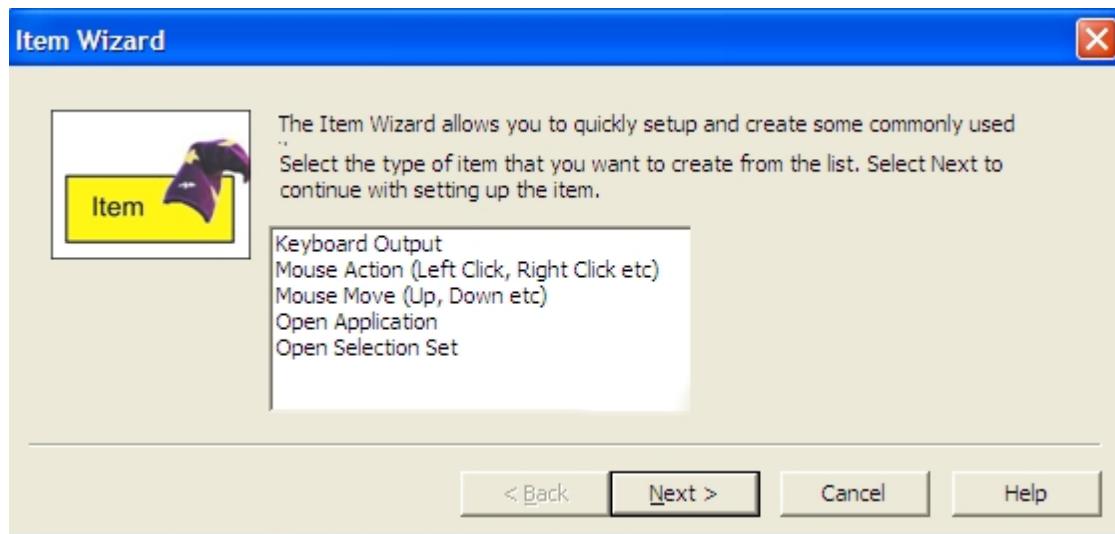
The first two pages are the same regardless of which type of item is being setup. The first page lets user select what they want the item to do. The second collects the words, images or sounds that will be used by the item, etc.

Designers should always put something in the Help text, particularly if the item will do something like opening an application or if there is just a graphic being displayed. One should also put some display text in, in case users want to use it with no graphics or a graphics file goes missing. If you do not want the text to be shown, just set it to not display.

The first page allows you to create 5 different types of item. The list is in alphabetic order rather than in order of importance.

Note: You use the Item Wizard a number of times for the same item. The actions will be added sequentially after each other.

Note: Any actions after an 'Open selection set' action will be ignored.



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Keyboard Output

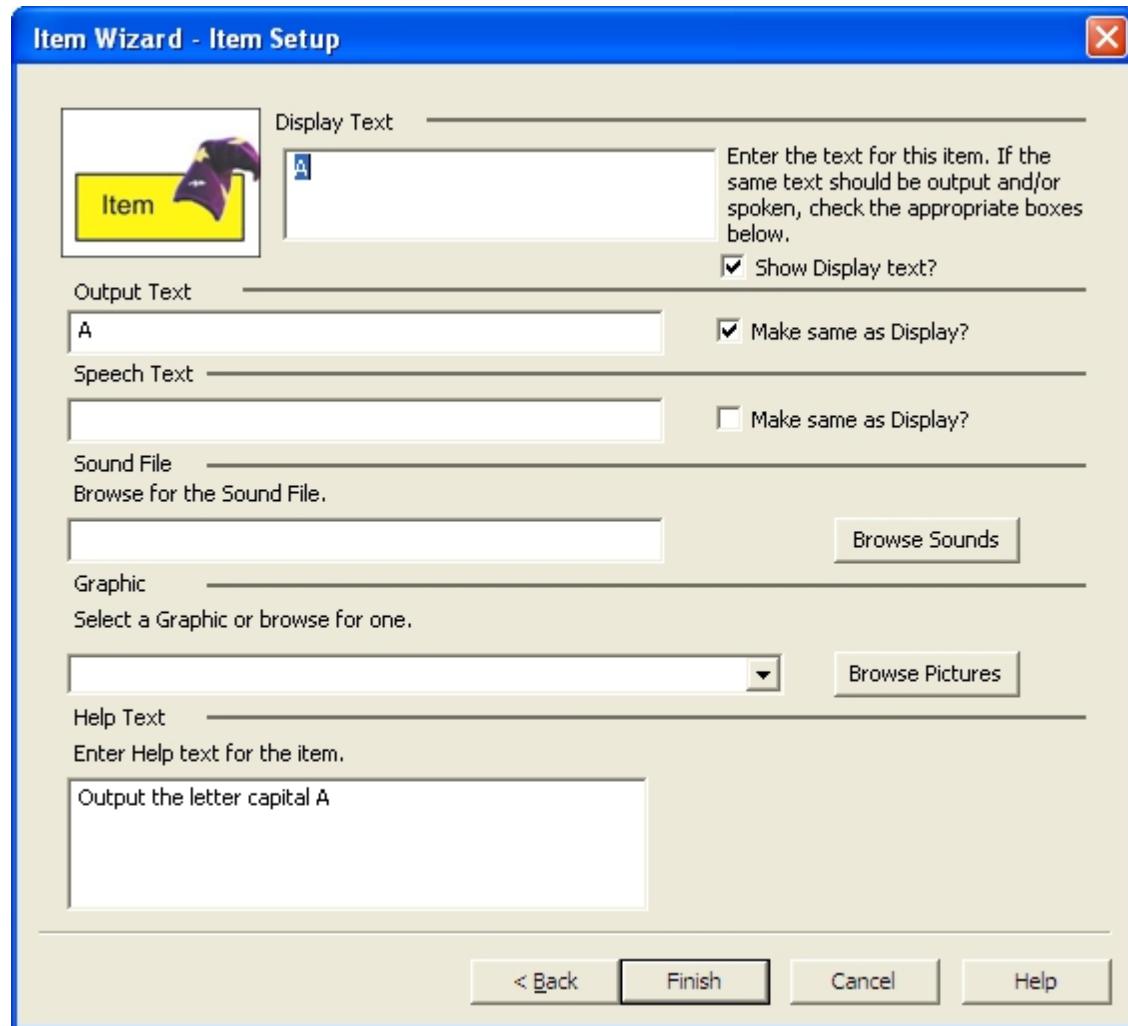
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Keyboard Output

Keyboard output will send any string of keypresses or combination of keypresses to the current application.

This wizard first presents you with the presentation properties dialogue allowing you to enter

any of the texts from the keyboard and to add sounds and images.



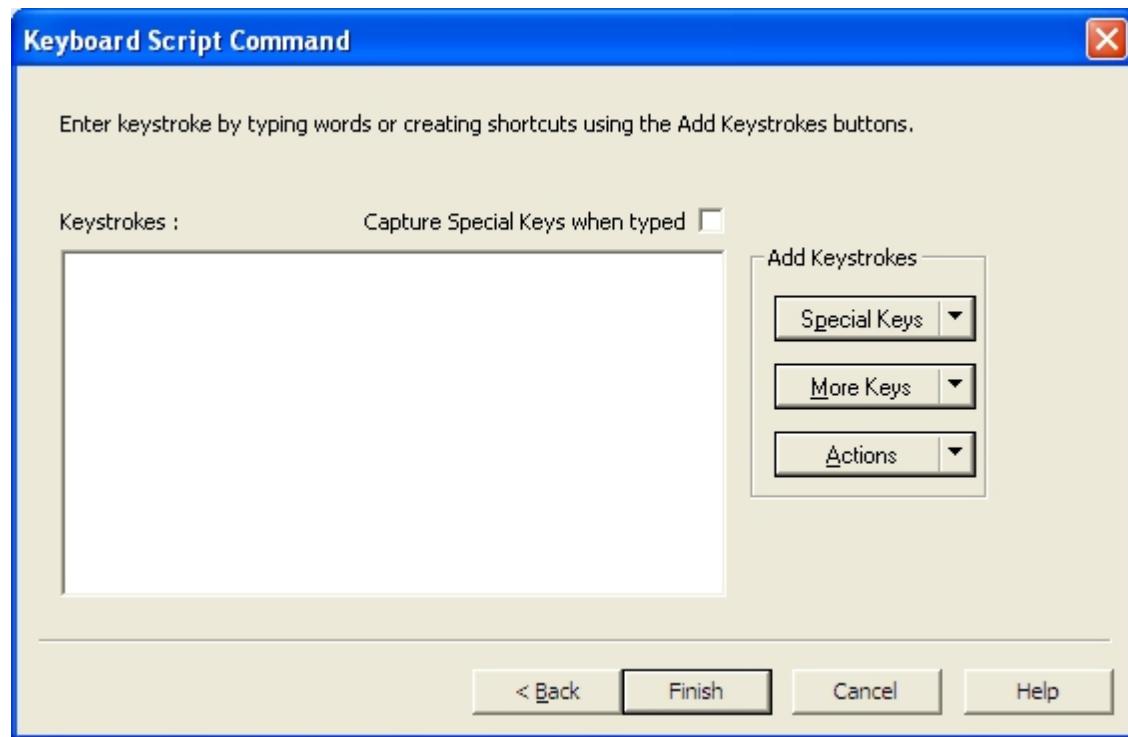
Using keyboard combinations and special keys has in the past been difficult but the next stage helps to simplify the process. Press Next to enter [special key output](#)

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Special Keys

There are three ways you can enter keys and keycombinations into the output text of an item with this wizard.

1. Editing the text as in previous versions of SAW
2. Choosing keys from the drop down lists on the right
3. By capturing the keystrokes as they are typed



Normal keys can be typed into the ouput text as in a normal edit box.
You can Set Keystrokes as editable (tick box at the bottom) and type in the [Gidei codes](#) as in earlier verions of SAW.

You can choose to capture special keys as they are typed, as you would in many macro creators. If this box is ticked you can enter simple combinations as $\text{Ctrl} + \text{P}$ for print, by typing those keys as you would, say, in Word (say). To capture key presses when typed first tick the box, then left click in Keystrokes text box and then type the keys you want to capture.

You can also choose special keys from the drop down lists:

Special Keys More Keys Actions

Ctrl	Caps Lock	Ctrl Lock
Alt	Num Lock	Ctrl Unlock
Shift	Scroll Lock	Alt Lock
Ctrl+Alt		Alt Unlock
Ctrl+Shift		Shift Lock
Alt+Shift		Shift Unlock
Ctrl+Alt+Shift		
Enter		Caps Lock On
Esc		Caps Lock Off
Tab		Num Lock On
Backspace		Num Lock Off
Insert		Scroll Lock On
Delete		Scroll Lock Off
Home		Repeat Character
End		Delay
F1	Number Pad 0	
F2	Number Pad 1	
F3	Number Pad 2	
F4	Number Pad 3	
F5	Number Pad 4	
F6	Number Pad 5	
F7	Number Pad 6	
F8	Number Pad 7	
F9	Number Pad 8	
F10	Number Pad 9	
F11		
F12		

There are two special actions Repeat Character and Delay

Repeat Character	<p>This sets in a repeat loop:</p> <pre><REPEAT 2><END_REPEAT></pre> <p>The character(s) between the two actions will be repeated twice. If you require more repeats edit the 2 to another number 6 (say) to repeat six times. It saves entering in a large number of duplicate key strokes into the output text.</p>
Delay	<pre><DELAY 500></pre> <p>This will put in a 500ms (1/2 sec) delay before sending the next character in the sequence. This is for circumstances when you need to give an application time to act on the previous keys before sending any more. You can edit this time to be any duration as needed.</p>

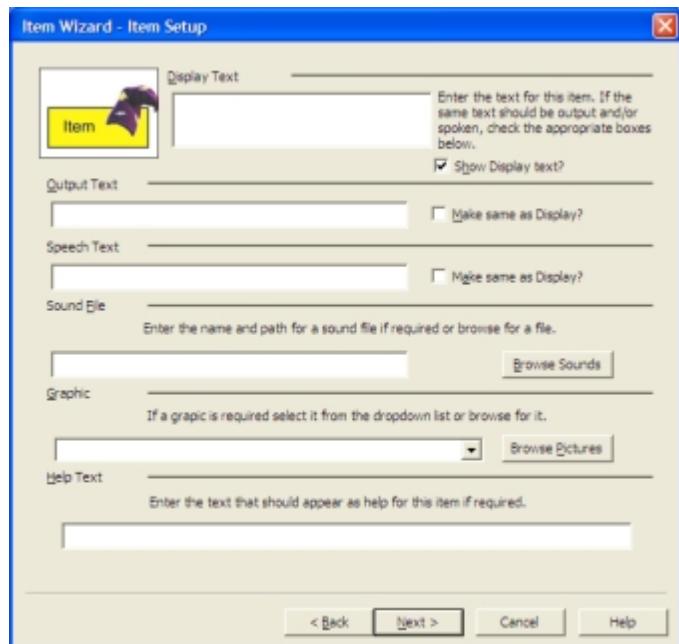
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Mouse

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Mouse

Both the Mouse Action and Mouse Move wizards first present you with the presentation properties dialogue allowing you to enter any of the texts from the keyboard and to add sounds and images.



[Mouse action](#)

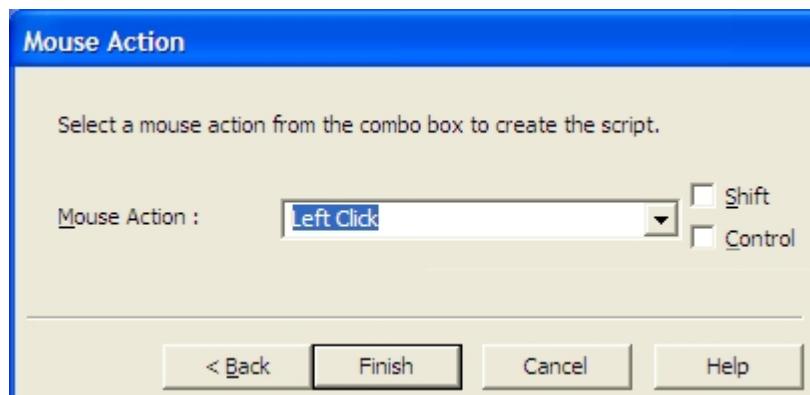
[Mouse move](#)

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Mouse Action

Mouse action will send any string of mouse clicks or combination of mouse clicks and modifier keys (shift and/or control) to the current application or desktop.

The compressed view of the 'Mouse Action' dialogue shows how you set up mouse clicks of various sorts.



The complete list of mouse actions with shift and/or control keys held is:

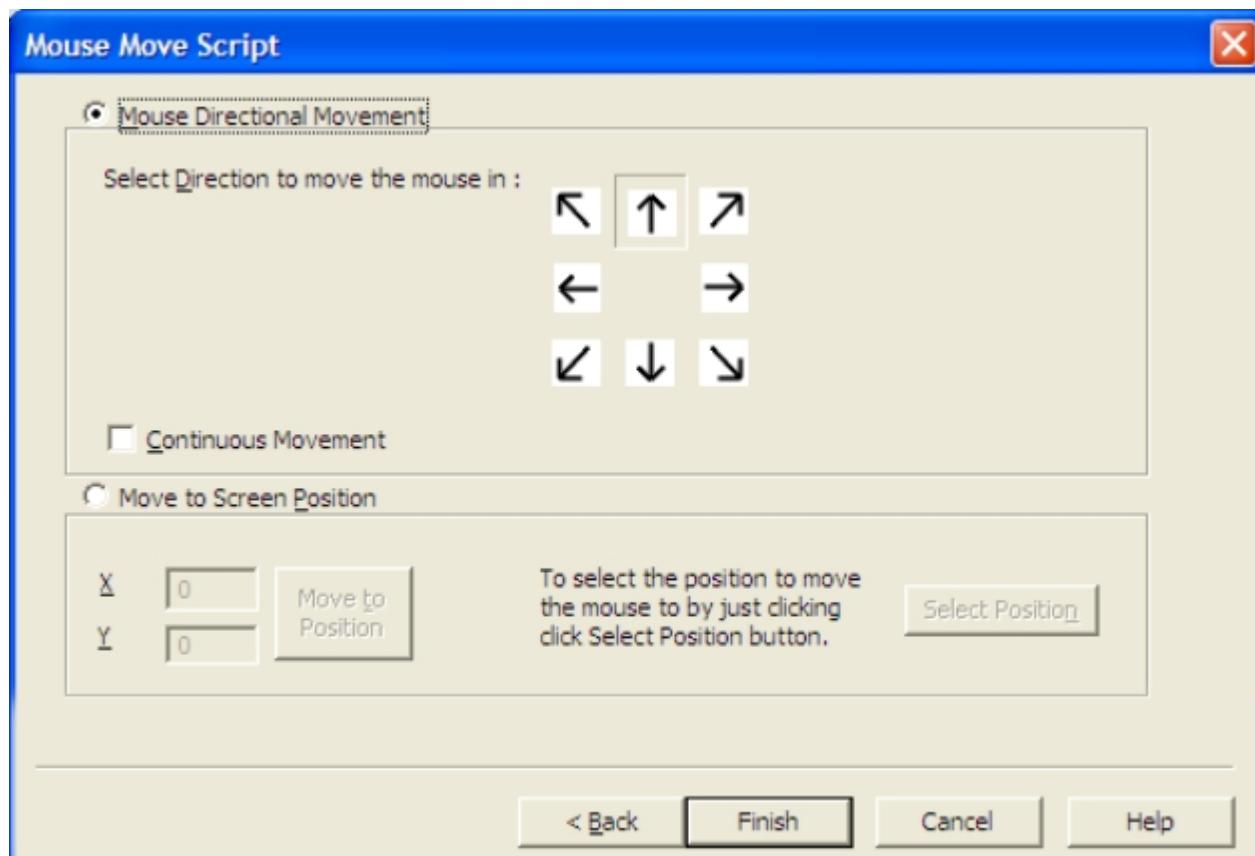
Drag Off (Left Up)
Drag On (Left Down)
Left Click
Left Double Click
Right Click
Right Double Click

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Mouse Move

There are two groups of move available from the mouse move wizard:

1. Directional movement (North, South, West, etc.). The mouse pointer will move in the direction indicated in small , medium or large steps either continuously or one step at a time depending on the current user settings.
2. Move to screen posion (move to a fixed spot on the screen)



Directional Movement

You can choose between the 8 directions as shown.

Move to screen Position

'Move...' records the x y position of the mouse pointer on the screen when you next click the mouse. This is the position the pointer will be sent to every time this item is selected. It is useful in situations where buttons appear at fixed positions on the screen or when you know the position of the window where you want the focus to be sent.

When 'Move ...' is selected and you press 'Select position', a dialogue will appear:



Click the position where you want the pointer to go. When you have done this clicking 'Move to Position' will check your recording. The pixel x y position is recorded in the boxes next to the 'Move...' button. You can change the numbers from the keyboard if you wish.

Note: You can move this box without causing a position to be recorded.

Note: Remember to have both the recording design machine and the user's machine running in the same resolution as the pixel coordinates for the two machines may well be different even when running the same program.

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Open Application

This opens a similar dialogue to the item right-click menu [Edit script - Edit Application to open](#).

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Open Selection Set

This should be the last action in an item's script. Any actions placed after this will be ignored (unless the selection set is not found).

This opens a similar dialogue to the item right-click menu [Edit script - Edit Selection set to open](#).

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Templates

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Adding an Item from the Template Toolbox

Item templates are a way of using libraries of pre-created items with ready made functionality. It is a way of easily copying and pasting standard items.

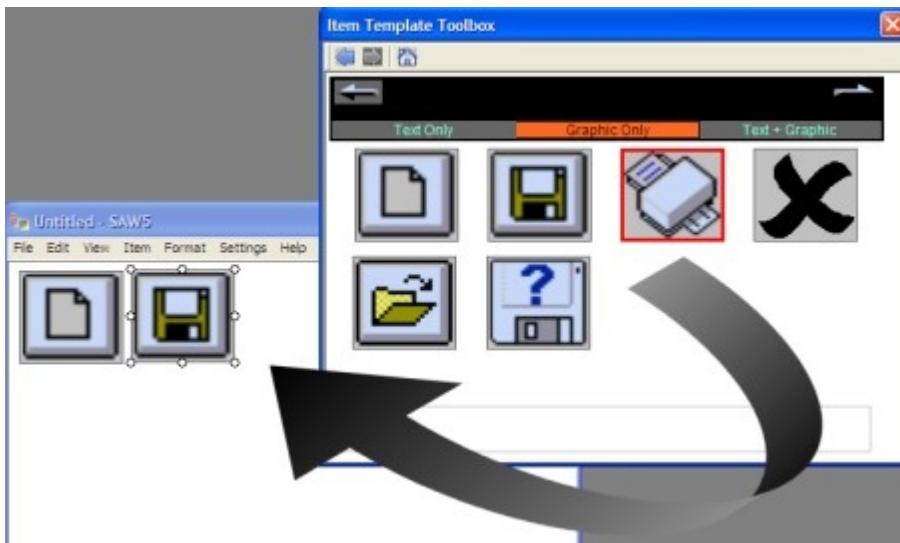
Templates are really just modified selection sets stored under a name with the file extension SST. The templates can be linked as a hierarchical menu in the same way as selection sets.

To use the toolbox choose Item menu - Item Template Toolbox or use the shortcut **[Ctrl] + [T]**.

The template index page

\program files\ACE Centre\SAW 6\Item Tempaltes\index.sst

will appear (assuming that SAW was installed at its default location).



To copy a template item click on it and then click on the selection set at the position of the top left hand corner of the item position in the selection set just as you would add a normal item. Group items as well a single items may be copied in this way.

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Navigating the Templates

There are two ways of navigating item templates:

1. Using the button bar
2. Using the items set up as links to other template sets

Button bar

There are three buttons on the menu bar.



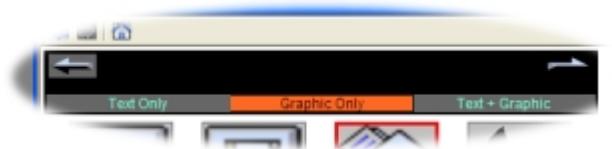
They act in the same way as the buttons in a web browser

	Back	Go back to a previous page of templates in the order it was viewed.
	Forward	Go on to the next page of templates in the order it was viewed.
	Home	Go to the home page (main menu) template set.

Item template links

These are set up by the template set designer to give a logical or hierarchical way of navigating the template sets. Items which link to other item template sets cannot be copied into a selection set, they just move you to a new item template set.

In the example below the designer has set up items to link to different versions of the same items with and without text and graphics. Clicking on these will take you to a new page of items.



The arrow items take to the next set of item templates in a logical sequence, or to the home (index.sst) page etc depending on the design.

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Editing Templates

In order to edit a template one must first open the template file. To do this go to the File menu and select 'Item Template Set' -'Open Item Template Set'.

You can now edit the template set exactly as if it were a selection set, with the addition that the command 'Open Item Template Set' can be used to form template when you wish the user to be able to open another set of templates from the one you are editing.

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Creating Item Templates

Item templates can be made in much the same way as selection sets or they can be created from existing selection sets.

Creating from existing selection sets

From the File menu select Item templates set and then New Item Template set. You can now go on to create the item templates set in exactly the same way as you would create a selection set, including the use of item templates.

Converting a selection set

Open the selection set you wish to use as a template. From the File menu select 'Item Templates Set' and then 'Convert to Item templates Set'. When you convert a selection set the [Auto Resize](#) setting has an effect on the result. If autoresize is on then the resultant template will scale the selection set window to fit its fixed size window. If you require the template items to remain the same size then make sure that Auto Resize is off.

Linking templates set

To link an item to another templates set we use the scripting dialogue and [item script wizard](#). Open the item to be linked to another templates set by double-clicking on it or selecting it and pressing enter. Go to the Scripts tabbed page, select the 'Add Script' button and browse through the commands 'SAW Scripts'- 'Selection Sets'- 'Open Item Template Set'.

You will then be asked to locate the template set to be linked to this item. Once you have located this template set, select 'Open' and the item will be linked.

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Changing an Item's Appearance and Data

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Editing an Item's Properties

An item's text, colour, and other Presentation details can be edited by double-clicking on the item to open the [Presentation dialogue](#). Alternatively, click once on the item to make it the selected item, then choose the 'Edit properties' option on the Item menu or press  on the keyboard.

A dialogue box will appear with 4 tabbed pages.



[Presentation](#)

What data - texts, fonts, sounds and images - are attached to the item.

[Colour + Style](#)

What style or colour set is applied to the item.

[Text Graphic Alignment](#)

How does the item arrange the graphics and display text.

[Scripts](#)

What script commands are executed by the item when scanned and/or selected.

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Making Two Items Look the Same

You can copy the Presentation (the appearance, arrangement and colour of an item including its size) and paste it into another item, making them identical in appearance. This can be done by

using the [Copy Presentation](#) option on the Edit menu.

Selecting another item and choosing 'Paste Presentation' or use  + .

Changes made to particular Presentation details of an item can be applied to another item without altering its other Presentation details. This is done using the [Apply](#) option on the Item menu. For example, if the font size is changed on one item (with no other changes being made) then selecting another item and using Apply ( + ) will change the font size of that item to match but its colour etc. will not change.

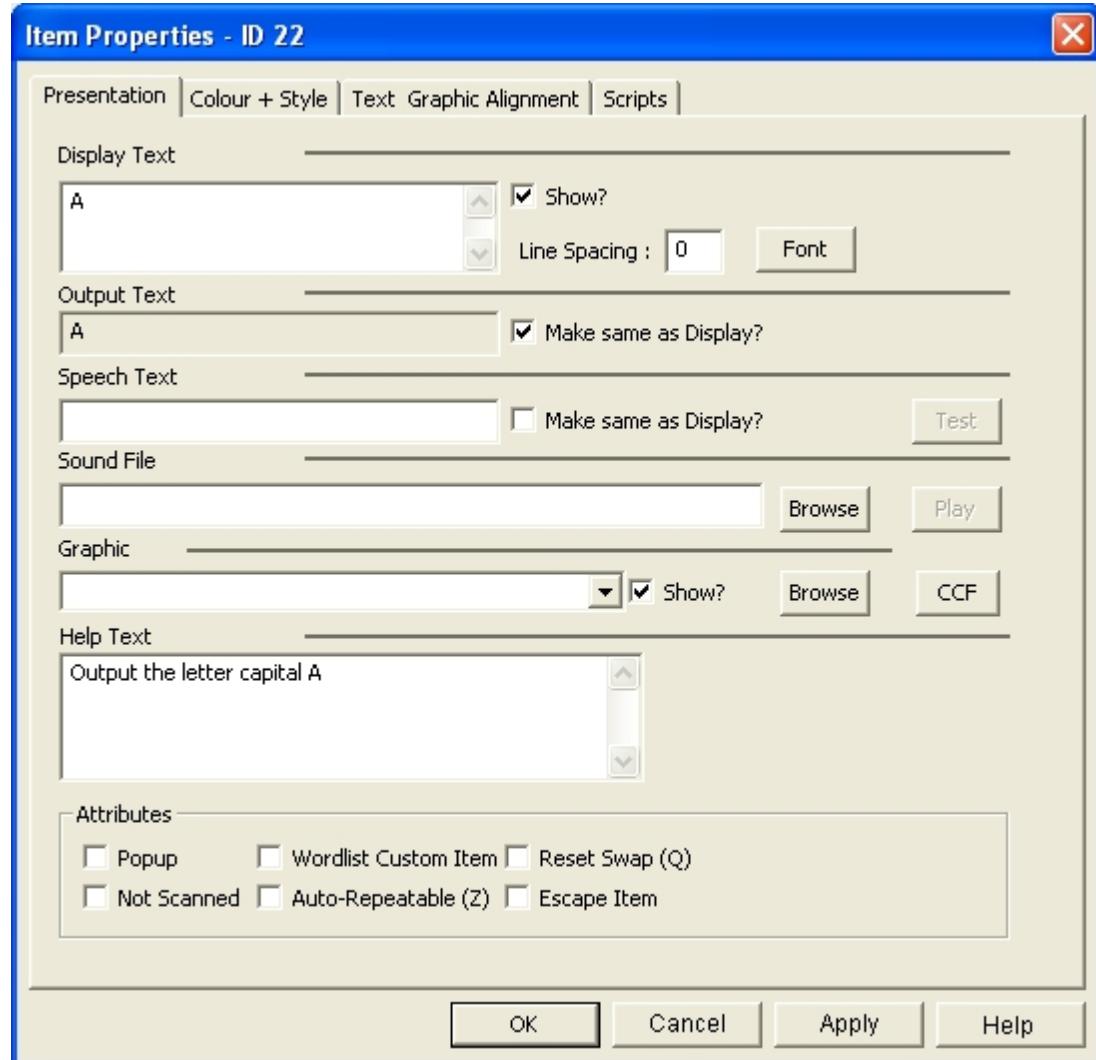
Note: you can only copy and paste presentations if '[Use Item styles](#)' is off

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Item Presentation

shortcut Double click on an item or select one and use **Shift + Ctrl + I**

You can [define the Presentation of an item](#) - the text and/or graphic which it displays the font typeface, text size, text colour and the arrangement of text and graphic within the item. Other Presentation attributes can also be defined:



The Presentation tab of the Item setup dialogue enables the parameters of the selected item to be specified:

- Display text** Type one or more lines of text to be displayed. Select Show to display or hide the text. If required go to the Arrange to specify the relative position of the Display text and Graphic.
- Line Spacing** Specify the extra line spacing between the text lines (in points).
- Font** The font size, typeface and colour can be selected from a standard WIndows dialogue.
- Output text** Check the "Make same as Display?" checkbox to send the Display text, or type one or more lines of text, or command keys to be sent to the application (when the script command '`send output text`' is executed).
- Refer to the item keyboard or script wizards for details. Also advanced users

may want to use the Script Commands Guide for details of the GIDEI commands.

Alternatively, a file name can be entered here (when one of the the script commands `load settings :output`; `open application :output`; `open desktop :output`; `open selection set :output`; or `switch to :output` is executed).

Show: Text and Graphic

Text and/or graphics can be used to represent the item. If text is used, you can specify the font, size, alignment, line spacing, and style. If both text and graphic are used, you can define their relative position.

Note: that both text and graphic can be displayed at the same time, and their relative positions within the item can be defined through the arrangement dialogue.



text only graphic only text and graphic

Speech Text

Check the "Make same as Display?" checkbox to have the Display text spoken. If auditory scanning is required, you can specify speech text to send to a speech synthesiser. Type one or more lines of text to be sent to the speech synthesiser (spoken when the script command say speech text is executed)

If required, select 'Test' to hear the text spoken. The lexicon button will open the speech pronunciation dialogue for the speech engine being used.??

Sound File

A WAV or MP3 file name can be entered here. Alternatively, click on the 'Browse' button to display and select from a list of all WAV and MP3 files in the current folder and the shared sound folder. It required, select 'Play' to hear the text or sound file. A sound file will only play if play sound is selected, rather than speech.

Graphic

Type the filename of the image to be displayed. Alternatively, click on the 'Browse' button to display and select from a list of all image files. The drop down list shows a list of all image files in the default graphics library held in the current folder and the shared graphics folder.

In SAW 6 the option to maintain graphic representations via the CCF-SymbolServer (if installed and running on the system) via the "**CCF**" button has been added. See [CCF graphics support](#) and www.conceptcoding.org.

Note: Select Show to display or hide the graphic. If required, select Arrange to specify the relative position of the Display text and Graphic.

Help Text

This provides prompts to the user when SAW is running. You can enter text which can then be displayed whenever the item is highlighted; this may be useful for helping to learn or identify command symbols.

Note: that a Help Item must be specified using the Help Item menu command.

Popup

Popup (item is not displayed until required). Check this box to make the item a Popup. When the selection set is run, Popup items are initially hidden; to make a Popup item appear and disappear, use the '`popup show`' and '`popup hide`' script commands.

Not Scanned

Check this box to make the item Not Visited. When the selection set is run, SAW does not automatically scan a Not Visited item; the only way to visit

such an item is to use the script command `visit item <id>`.

Wordlist Item	Check this box to make the item Not Filled. When the selection set is running and sending text to an application, SAW may receive a list of predicted words from a prediction program. A parent item can be specified for its children's Display and Output texts to be filled with words from the list. Set child items of this group to be 'Wordlist Items' if you do not wish it to be filled with a word (e.g. If you want to add list scrolling and escape items or delete last word commands).
Reset Swap	This is used on items which restart scanning the set when the swap switch scanning method is employed.
Auto-Repeatable	Items so marked will repeat their contents for mouse and arrow key output under switch control - autoscan and single step scans only.
Escape item	An 'Escape' item is one that resets the scan taking it outside the group item containing this escape item. This tick box provides a quick and easy way of defining an item as an escape item.

To change the various presentation characteristics of the selected item, either select the Item setup command on the Item menu or double click on the item, and then choose the presentation tab:

[Setting the Item's Presentation](#)

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Setting the Presentation Parameters

Many of these tasks can also be completed individually with the [right click menu](#)

Display Text

You can specify what text is displayed in the item and its font, size, line spacing, style, colour (normal and highlight), and where it is displayed within the item.

Note: In the presentation dialogue box the display text is shown in a fixed font size, regardless of the font size set for the display text.

Graphic

SAW can display Bitmap (bmp dib png), Metafile (wmf or emf, vector graphic), Icon file (ico, cur), gif, TIFF (tif) and JPEG (jpg) formats. You can specify a graphic file and where it is displayed within the item. The file is best saved either in the same folder as the selection set, or in the shared SAW graphics folder although any file can be browsed for. Graphics not in the local graphics or default folders will be copied into the local one and that copy used in the selection set. Graphics can be created and edited using any appropriate graphics editor program.

In SAW 6 the option to maintain graphic representations via the CCF-SymbolServer (if installed and running on the system) via the "CCF" button has been added. See [CCF graphics support](#) and [www.conceptcoding.org](#).

Speech text

You can specify the text which SAW sends to a speech synthesiser when a say speech text script command is executed. If a Windows sound file (WAV or MP3 format) is specified in the

speech text area then this sound will be played when a 'say speech text' command is executed.

Help text

You can specify the text which is displayed in the Help Item when a 'display help text' script command is executed. The Help Item is defined by the Set Help Item command on the Item menu.

Note: that the Help Text Setting must be active, and the Help item must be set up to be [the Help Item](#).

Output text

You can specify the text which is output by SAW to the current application (the application with the focus) when a send output text script command is executed.

Output text may also be used as a filename by a script. Examples are:

```
load settings :output  
open application :output  
open desktop :output  
open selection set :output  
switch to :output
```

Not Visited attribute

Some items may be used for headings or labels in a selection set and so are not intended to be scanned by the user. Such items should be set as Not Visited so that they are never scanned.

Other items may only be required to be scanned when commanded to do so by a script.

Popup attribute

To reduce the number of items visible to the user at any one time, you can set an item as a Popup. This means that it is initially hidden from the user and is only made visible when a popup show script command is executed.

If a group item is made a Popup then all its children are hidden or shown too. Typically, group items are popped up to present alternative sets of items for selection, e.g. the user selects a special item to pop up a group of punctuation marks for selection.

Wordlist Item attribute (see [Working with Wordlists](#))

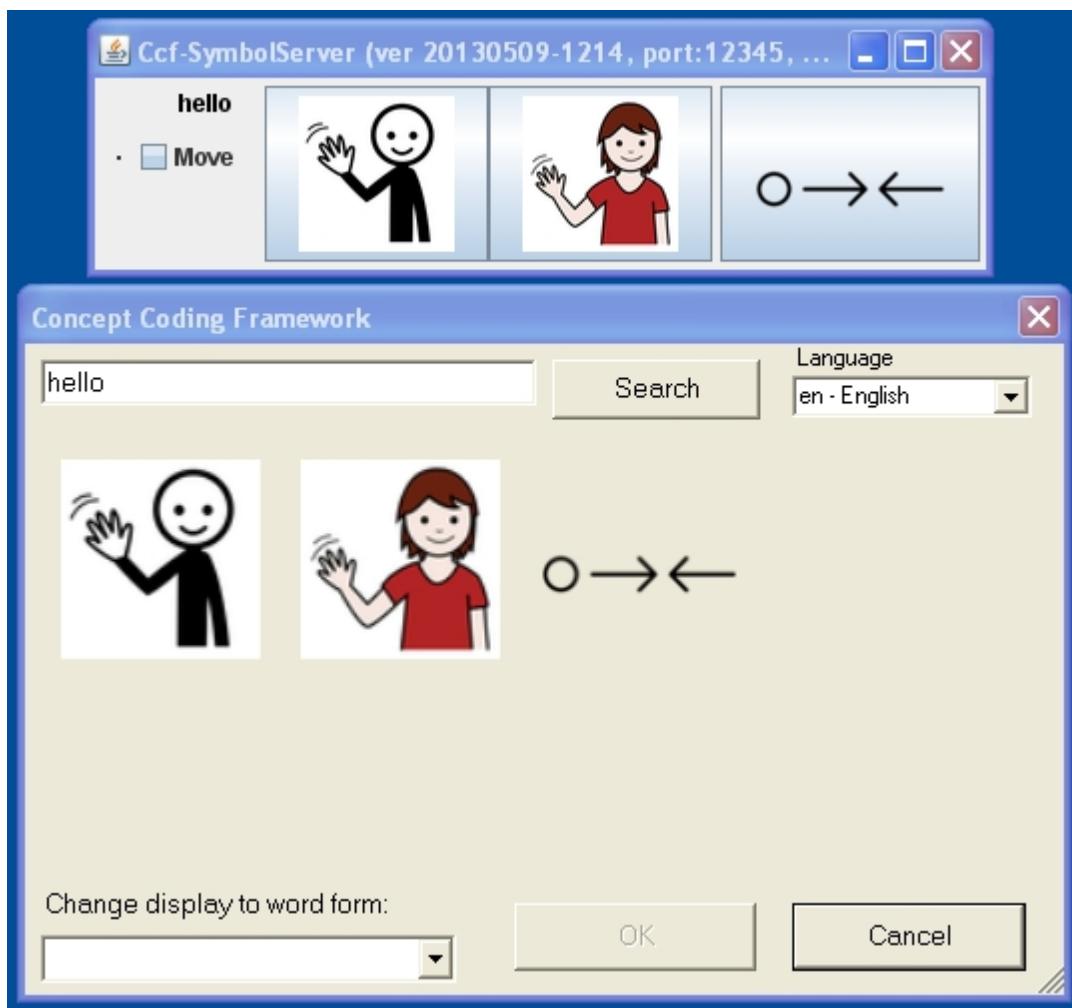
This is used in items within a group item containing other items which receive words from word prediction programs (not supplied with SAW). Any items in the selection set group item which receive the words that are **NOT** to be filled with words must be set as 'Wordlist Item'. An example would be an item to scan out of the word listing item.

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CCF graphics support



When the CCF button (above) in the Graphics section of the Presentation dialog tab is selected, and the CCF-SymbolServer is installed and running on the system, the following SAW dialogue will be displayed (along with the CCF-SymbolServer display - somewhere on the screen):



The display word of the current item - if entered - is picked up and sent to the CCF-SymbolServer, which is displaying found symbol representations (currently ARASAAC and Bliss) in its own display window, and sending them back to the SAW dialogue (as shown in the above screen-dump). The preferred symbol can be selected. Alternative available synonyms or word forms may also be inspected and selected for the display word.

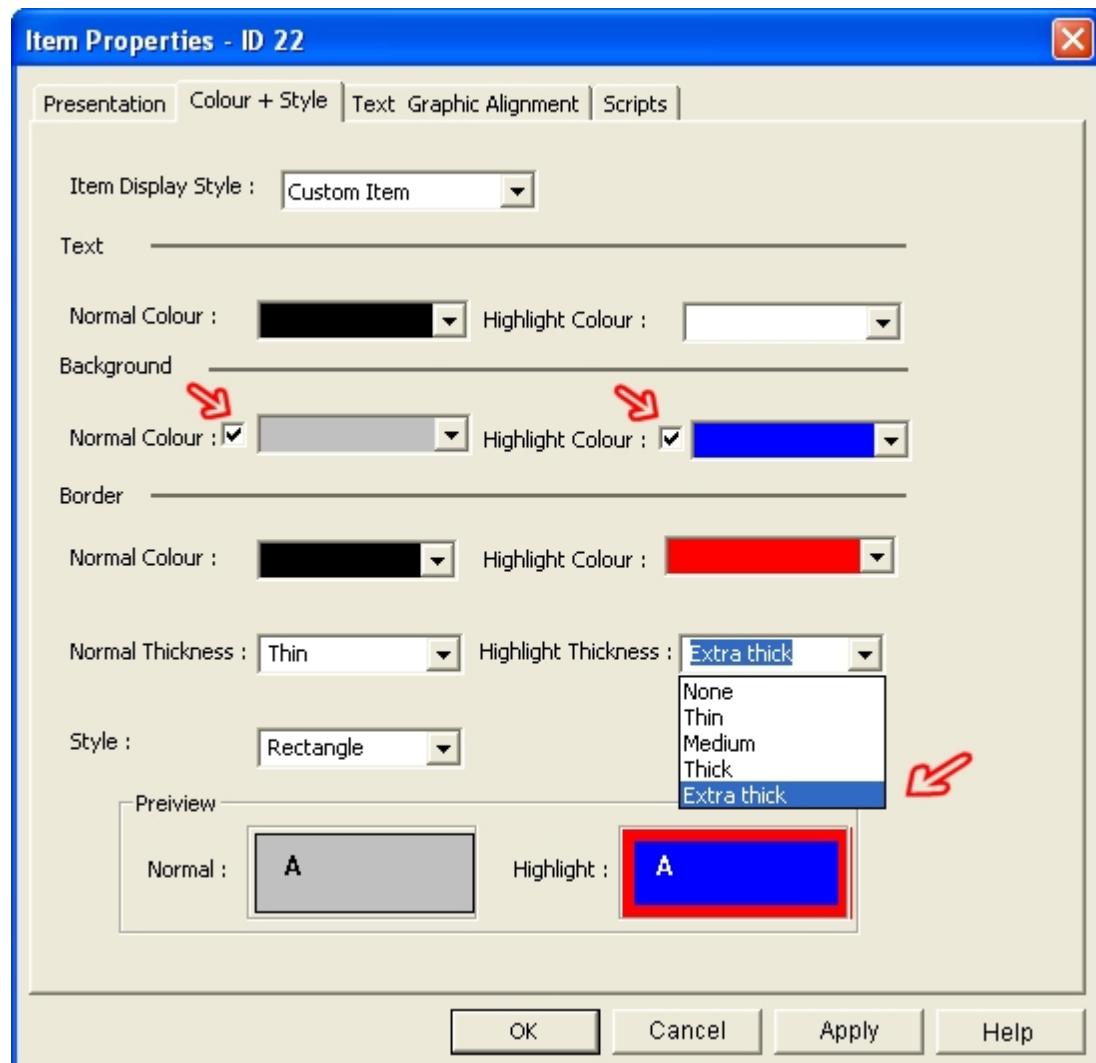
See also the Edit menu command [Update using CCF](#).

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Item Properties - Colours + Styles

The item can have a border and you can define the border shape and thickness. You can specify the **colour** of an item's foreground, background, and border. In addition to the items **normal** colour and border, its **highlight** colour and border can be specified (**Note** the added **Extra thick** border option that has been added in SAW 6 - as indicated by the bottom right red arrow in the image below). The highlight is used to indicate the current scanned item or pointed-to item.

Note: Items can now be set to be transparent; Two checkboxes have been added in SAW 6 beside the Background colour Normal and Highlight colour selectors (indicated by two red arrows in the illustration below). If these are unchecked, the item's background Normal and/or Highlight colours become(s) transparent and thus invisible. **Note also** that the border can be set to "None" to make the item totally invisible. Together with the new [Page background](#) image option, these features can be used to create exploratory scene set-ups in SAW.



Item Display Style This is set by SAW when an item is edited or created. It gives an item that colour set that depends upon its functionality. Each of the [seven styles](#) can be set from the Settings menu.

Element Colours You can choose the colour of the background (including transparent - see above), foreground, and border when displayed in the normal or highlight state.

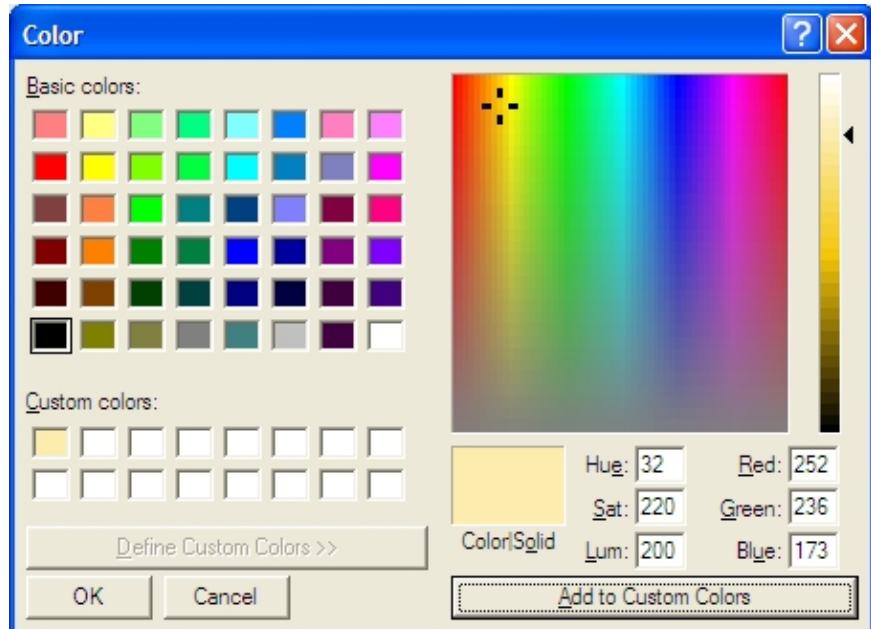
- Normal :Text, Background and Border.
- Highlight :Text, Background and Border.

Colour chart Select the colour for the chosen element by selecting the drop-down colour pallet of 40 set colours and 8 custom colours.



The two sample items at the bottom of the dialogue box show the Normal and Highlight colour combinations.

You can define custom colours or use any of your computer's up to 16 million colours by selecting 'More colours'. This opens a full colour dialogue.



Border

You can choose whether the item is displayed with a border. The shape of the border and its width in the normal or highlight states can also be specified.

Normal Thickness

Select the border thickness to be displayed when the item is not highlighted (normal).

Highlight Thickness

Select the border thickness to be displayed when the item is highlighted. (pointed to or scanned)

Border Styles

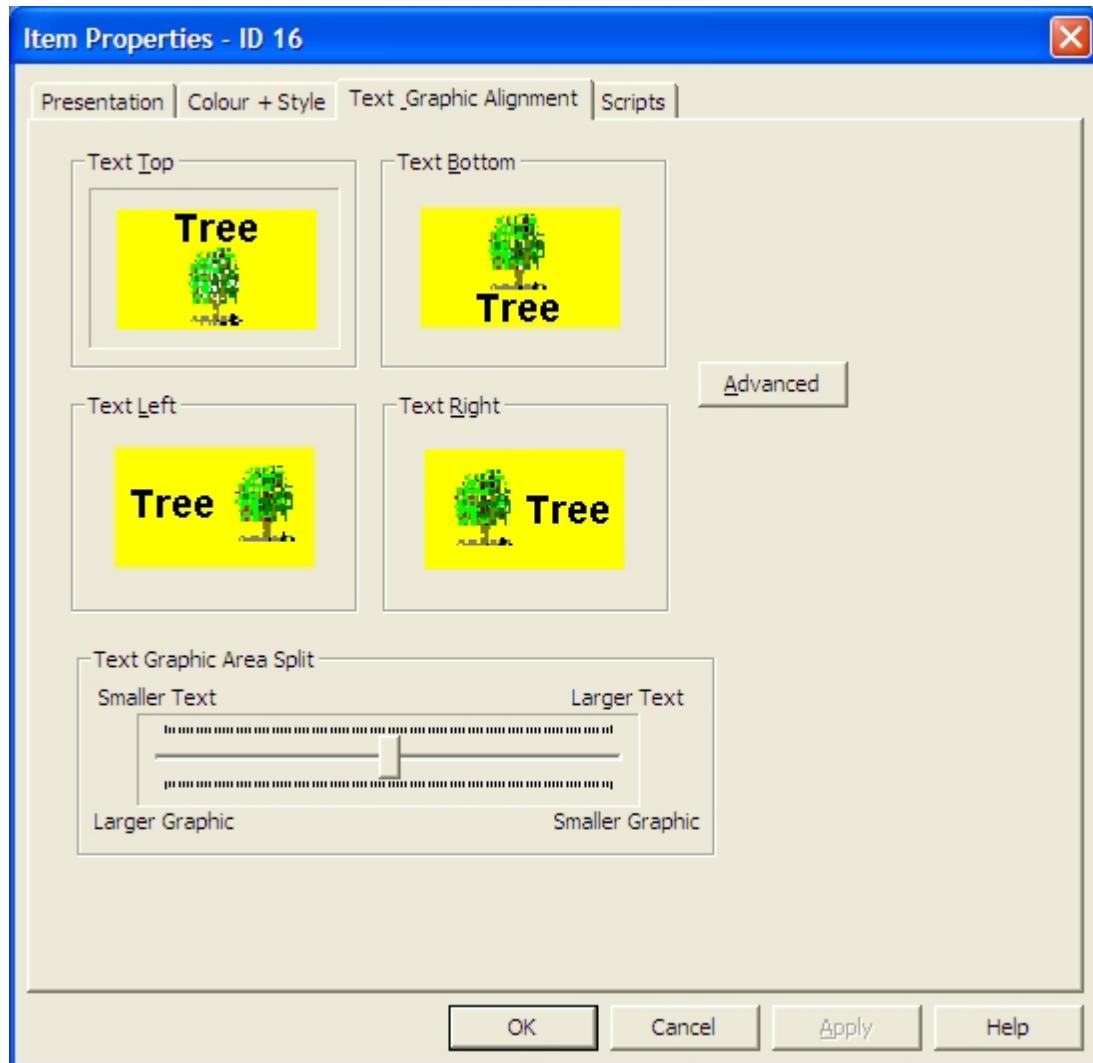


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Text/Graphic Arrangement

This tabbed page enables the relative position of the Display Text and Display Graphic of the item to be specified.

Note: You can make Text/Graphic Arrangement changes to multiple items by control clicking on all the items you wish to change.



**Alignment
Shortcuts**

[Alt] + [T]

[Alt] + [B]

[Alt] + [L]

[Alt] + [R]

Select one of the four types of arrangements by clicking on its picture. The selected type is indicated by a thick border and is shown in the sample picture. Note that item is divided into two halves vertically or horizontally, depending on the type of arrangement; one half shows the Display text, the other shows the Graphic.

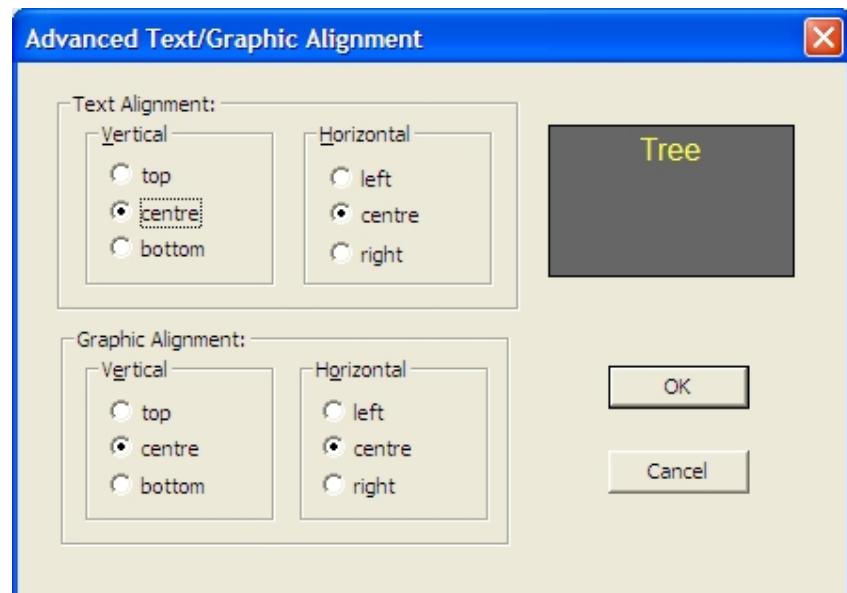
**Text/Graphic Area Split
Shortcuts**

Set the proportion of the item you want to be occupied by the text. Text will resize to fit the area assigned to it.

[Alt] + [R]

[↑] [↓] [→] [←]

Advanced



Text Alignment

Select the Vertical and Horizontal alignment of the Display text within its designated part of the item.

Graphic

Select the Vertical and Horizontal alignment of the Graphic within its part of the item.

Examples



Text: top, centre
Graphic: bottom, centre



Text: top, left
Graphic: bottom, right

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Hiding and Showing Item Text and/or Graphics

All text or graphics for a selection set can be hidden or shown from the Format menu, Text + Graphics **Alt + O, X**

Where an item has display text and graphic the either one or both can be shown. For items that have only display text or a graphic these will remain unchanged. This is also available on the [top item context menu](#).

There are three script commands that have the same effect.

[DisplayGraphicOnly](#)
[DisplayTextGraphic](#)
[DisplayTextOnly](#)

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Making a Help Item

The Help Item is one in which text can appear as items are scanned. The Help text of each item is by default sent to the Help Item whenever that item is highlighted (visited). There

can only be one help item in a selection set.

If an item is to be used as a Help item, leave its Display Text empty (this gets replaced by the Help Text of the item being scanned) and set it to Show Display Text but not to show a graphic. An identifying name such as prompt can be entered as the Graphic but don't set it to Show. This graphic name will then appear in the Status window and in the items list of certain dialogue boxes.

There are two ways of defining an item as the help item.

Right-click on the item and select Set Other Properties from the context menu. On the 'Set Other Properties' sub-menu select 'Help Item' so that it becomes ticked. If another item is already set to be the help item a warning box will appear asking you if you want to change the help item to be this new item.

Use the [Set Help Item](#) command on the Item menu to specify the <ID> of the Help item (this information is saved as part of the selection set).

It is often a good idea to make the Help item as tall or wide as the SAW window, with text centred horizontally and vertically - the Help Text can be on more than one line.

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Changing What an Item Does - Scripts - item and script wizard

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What are SAW Scripts

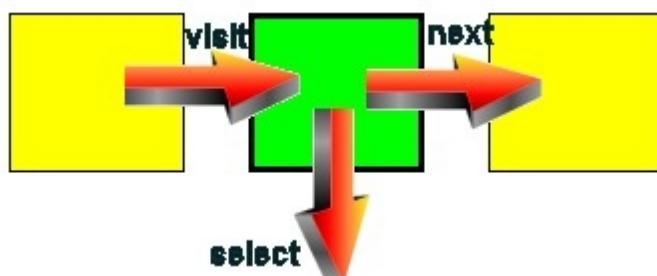
SAW scripts are sequences of commands (rather like Word macros) that are carried out when events happen within SAW, such as items being scanned or selected. The scripts are the real power behind SAW; for example they allow complex actions to take place with a single selection. You can use SAW's scripting language to write sequences of commands to define the behaviour of items in a selection set.

These script commands enable you to specify:

- The sequence in which items are scanned (for switch users).
- The action performed when an item is visited, selected (e.g. send text to the current application, speak a message) or exited.

A full list of all the commands are listed by [functionality](#) and alphabetically in this help file.

The behaviour of every item in a selection set is defined by three scripts which are executed in response to three events. When an item is added to a selection set, its behaviour is defined by a set of Default scripts for the three events. These Default scripts are used if you do not write your own scripts for the item.



SAW Script Events

Visit Item script	executed when the user has scanned or moved to the item (as a mouse user).
Select Item script	executed when the user has selected the item.
Next Item script	executed when the scan passes from the item and when user moves from the item (as a mouse user).

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The Three Item Scripts

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Visit

This script is activated when the scan or pointer enters an item. The normal [default script](#) for this event is:

```
highlight item
sound click
say speech text
display prompt text
```

That is:

Show the set highlight colours
Sound a click (if that is set on)
Say the Speech Text using text-to-speech or play the sound file
Send the Prompt text to the set prompt item

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Select

If the user selects this item with their switch or mouse then this script is activated. The normal [default script](#) for this event is:

```
normal item
sound click
say speech text
send output text
```

That is:

Put the colours back to the normal set
Sound a click (if that is set on)
Say the Speech Text using text-to-speech or play the sound file
Send any text (including special keys) in the output text area to the current application

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Next

When the scan leaves the item (unless the scan is re-directed by a selection) this script is activated. The normal [default script](#) for this event is:

```
normal item
visit next
```

That is:

Put the colours back to the normal set

visit the next item in the scan order in the same group item as this item is in.

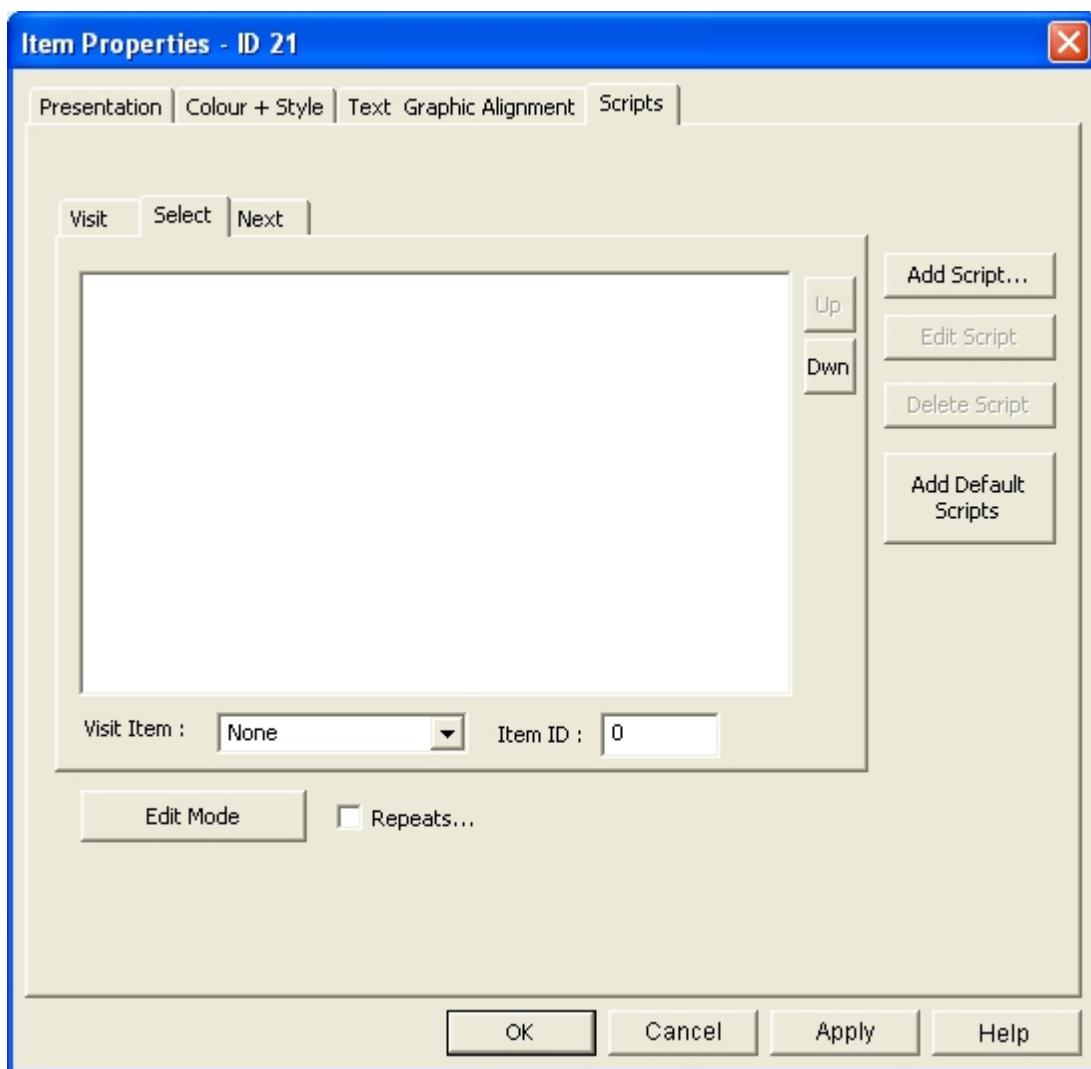
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Writing your own Scripts

You can define an items scripts by editing the properties of an item and selecting the scripts tabbed page. Click once on the item to make it the selected item, then choose the 'Edit properties' command on the right click item context menu. (You can also double click an item).

Choose the Script page.

Note: The Select script is executed in two halves, one on switch down - the script in the edit box - and the other on switch up - the visit command. This is to enable [auto-repeat](#) items to use the [exec item](#) command.



If you have not defined a script for an event, the [Default script](#) is used. To define your own script, just enter the sequence of script commands required (refer to the [Script Commands](#) section for details of all valid commands).

Here is a sample select **Item** script:

```
normal item      ;display the normal colour  
sound click     ;if the Click setting is on
```

```
send output text ;to current application  
visit item 172 ;scan to another item
```

Note: Comments can be added after a semi-colon as above. When editing scripts, the usual copy, cut, and paste commands can be used.

Note: You can make two items have the same scripts by using the Copy Scripts commands on the Edit menu. This will copy all three scripts of one item and you can then paste them into another item.

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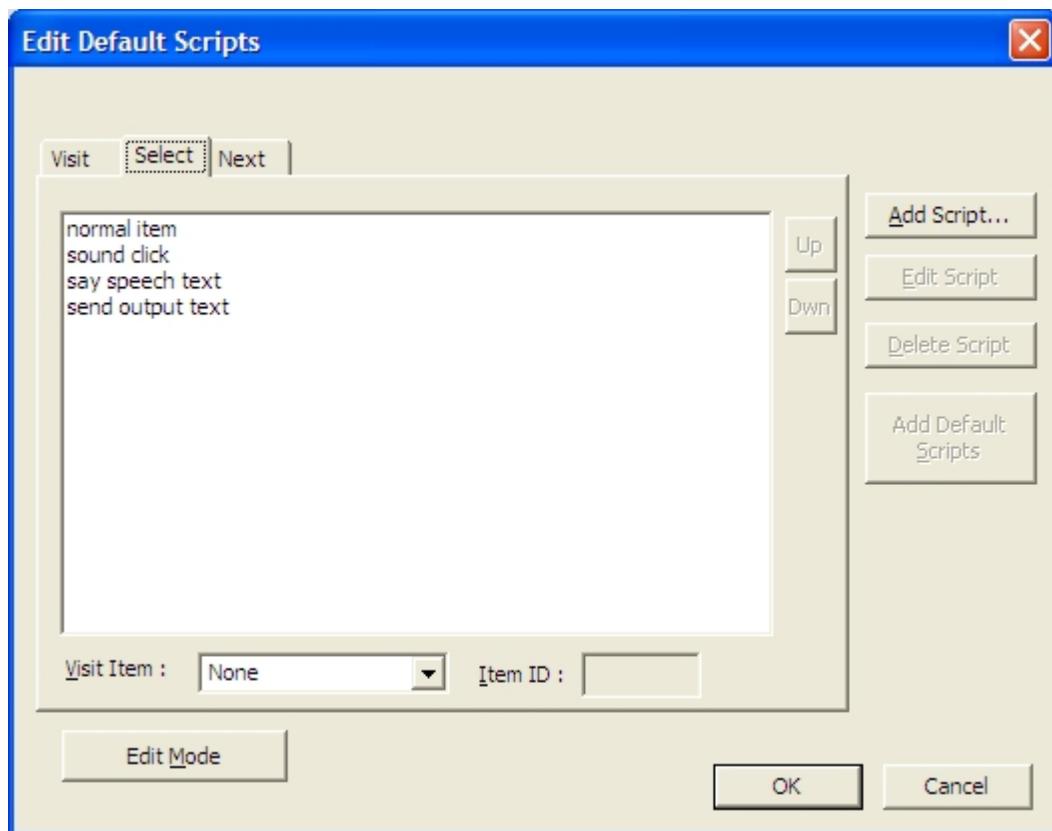
Changing Default Scripts

When editing any of the three scripts of an item, you can click on the Default button to put a copy of the Default script for that event into the item for editing. You may wish to change these defaults for different users for example. Mouse pointer users may require a different default to two switch users or those requiring spoken support or scanning.

You can write your own User Default scripts. If you do this, then these scripts are used instead of the built-in SAW Default scripts listed above for that selection set.

To define User Default scripts, use the Default Scripts item on the Settings Menu. Then select the script you wish to change. These are [Visit](#), [Select](#) and [Next](#) scripts for:

- Normal item scripts
- Escape item scripts
- Group Items

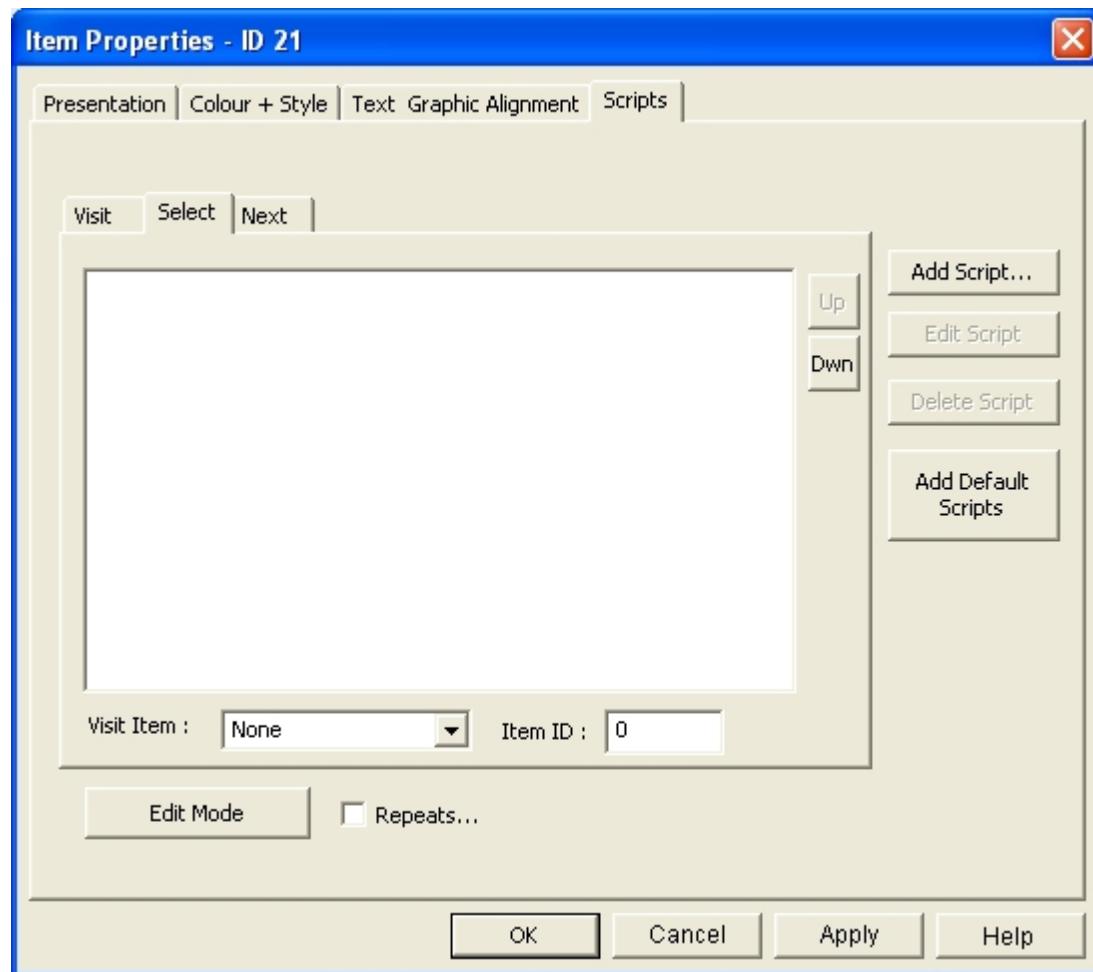


[Edit the script](#) as you would for an item and select OK. These default script will be saved with the selection set.

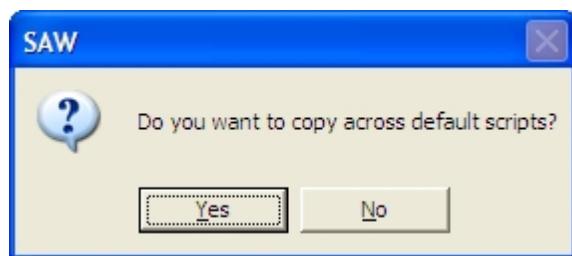
Item Script Wizard

SAW 6 has a wizard to make it easier to add script commands.

First open the Script page of the Item Properties dialogue. To add a script command select the 'Add Script' button.

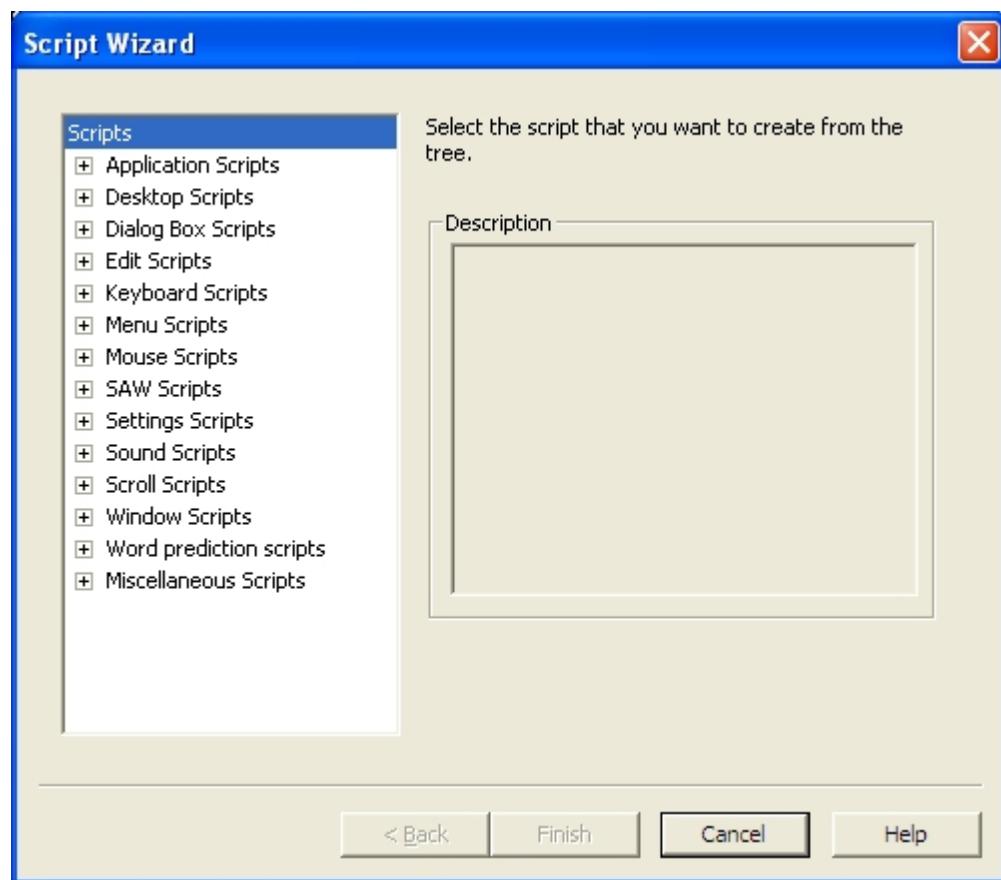


Before you can select a script line, you will be asked if you want to keep the existing (default) script so that the new command can be added to the bottom of the list of [default script commands](#).



A script command can be added from a hierarchical drop-down list. To view the list of commands open a section by using the mouse to click the '+' or use to expand the selection of scripts in that section. When you get to an individual command a description or that command will appear in that box.

Note: Each new script command will be added at the bottom of the script.



to open any section click on the '+', double click on the section name, or use .

Note: Commands can appear in more than one section and the descriptions and command list can be edited (see [Changing the Script XML file](#))

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What Scripts can be Added by the Wizard?

[Application Scripts](#)

Opening, closing and switching applications.

[Desktop Scripts](#)

Opening multiple applications.

[Dialogue Box Scripts](#)

Handling standard windows dialogue boxes.

[Edit Scripts](#)

Commands needed when editing text in a word processor.

[Keyboard Scripts](#)

Send keys to an application

[Menu Scripts](#)

Manipulate window menus in other applications.

[Mouse Scripts](#)

Move and control the mouse pointer

[SAW Scripts](#)

Control the position of the SAW window.

[Settings Scripts](#)

Change the user's settings.

[Sound Scripts](#)

Play sounds and text-to-speech messages.

Scroll Scripts	Scroll the current application.
Window Scripts	Change the size and position of the current application's window.
Word Prediction Scripts	Change Blade word prediction settings, view and edit word prediction words, and other word list content manipulation while selection set is running; Set word list container item in the Starup Script.
Miscellaneous scripts	Other scripts not otherwise covered above.

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Script Wizard Options

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Application Scripts

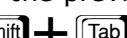
Note: You can use the right click context menu to set an item to open an application.

open application <file>	Allows you to select an executable file (program), or a document associated with a program that will be opened, when the item is selected. Note that in SAW 6 the 'open application' command has been enhanced to allow launching other executable files than .exe, e.g. .bat and .jar files.
switch to <file>	This gives the choice of applications currently running on the computer to switch to (give current focus to) when this item is selected. Alternatively, you can enter the name of the executable (e.g. winword.exe) if you know it.
close application	Closes the application with current focus.
param application	Functions as open application , but allows the amending of runtime parameters when the application is launched. Note: There is no complete script wizard available when adding this command; It is entered into the script directly as; param application "application.exe" "parameters" - and has to be edited manually in "Edit mode" in the Scripts tab dialogue (to specify application and parameters).
alternate application	Works like param application and triggers an application with alternating parameters. It takes 4 parameters: alternate application "application.exe" "Switch" "parametersA" "parametersB" It runs the application with the parameters provided in one of the last two sets of quotes. The "Switch" controls the alternation. This is recorded in the registry so that the next time the command is issued with the same switch key it will give the other option. This script is especially requested for Environmental Control (EC) functionalities. The following is entered into the script for manual editing (as described above); alternate application "application.exe" "Switch" "parametersA" "parametersB"

Desktop Scripts

<u>open desktop <file></u>	Allows you to select a desktop file that will be opened when the item is selected.
<u>save desktop <file></u>	This will save the current desktop to the named file. If no name is given then the last loaded file will be used.

Dialogue Box Scripts

<u>OK</u>	Sends an OK to the dialogue.
<u>Cancel</u>	Cancels the current dialogue. This is the same as hitting  .
<u>next area</u>	Moves the current focus to the next box/control in the tab order, equivalent of using  .
<u>previous area</u>	Moves the current focus to the previous box/control in the tab order equivalent of using  .
<u>select</u>	Check/un-check a control box.
<u>end of line</u>	go to the end of the current line.
<u>beginning of line</u>	go to the beginning of the current line.

Edit Scripts

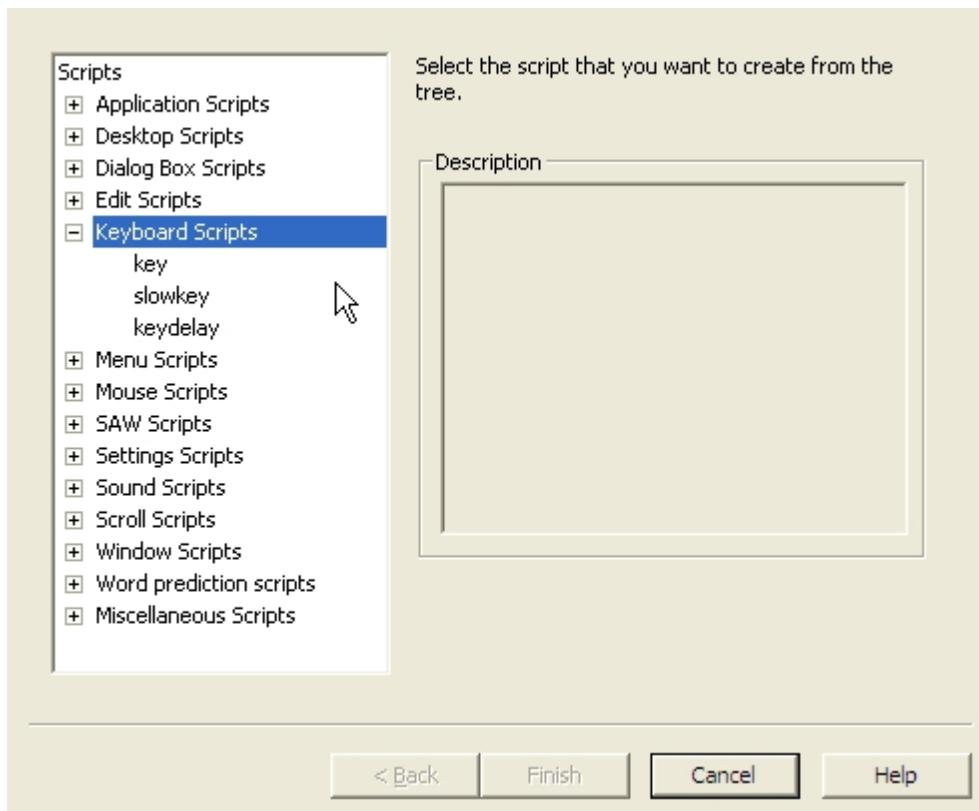
Enters the standard commands for [cut](#), [copy](#), [paste](#) and [clear](#).

Keyboard Scripts

In SAW 6 the original **key** script command has been complemented with two complementing commands, offering options for controlling the timing of the keyboard input to the target application; **slowkey** och **keydelay**.

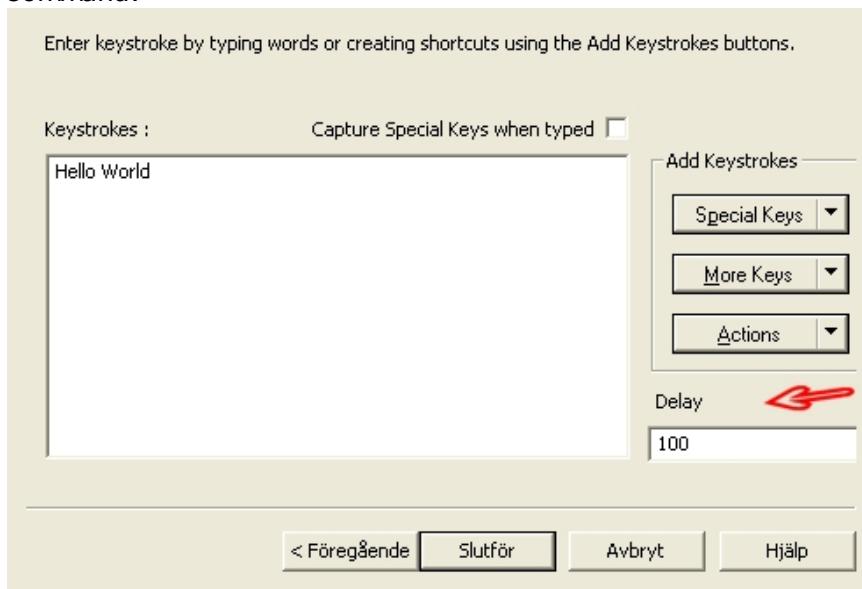
The **key** script enters a command to send keyboard presses to the current application. It does not add the keys to be sent to the 'output text' area, but adds a **key '<key presses>'** command line to the script.

It opens a [dialogue box for special and standard key](#) entry, similar to the [Item Wizard](#).



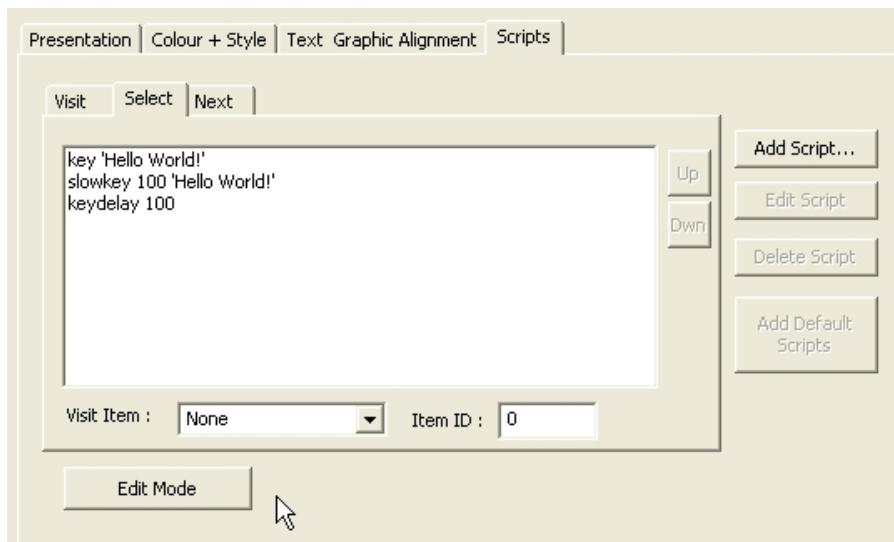
The **slowkey** script, just like **key**, allows you to send keyboard presses to the current application, but with a configurable delay between the sent keys.

The Script Wizard dialogue for the **key** and **slowkey** script commands - differing only in the delay setting option (in milliseconds - indicated by the red arrow) added for the slowkey command:



The **keydelay** script changes the default delay between sending keys. The key delay number is in ms - milliseconds. Default is 0. Allowed range is 0 - 1000. **Note:** There is no Script Wizard dialogue for setting this delay, so it must be adjusted via the manual Edit Mode option in the main Script dialogue (At the mouse cursor in the image below).

Scripts generated by the Script Wizard for **key**, **slowkey** and **keydelay**:



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Menu Scripts

<u>up</u>	Up arrow key (step/continuous).
<u>down</u>	Down arrow key (step/continuous).
<u>left</u>	Left arrow key (step/continuous).
<u>right</u>	Right arrow key (step/continuous).
<u>show menu</u>	Moves to the menu bar (equivalent of pressing and releasing Alt)
<u>show control menu</u>	Open the control (window) menu for navigating.
<u>show menu bar</u>	Go to the menu for navigating with the arrow keys.
<u>close menu</u>	Close the menu and return to the program proper.

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Mouse Scripts

There are three sub-categories of mouse script commands

<u>Mouse move</u>	Move the mouse pointer on the screen.
<u>Mouse action</u>	Perform various clicks and drags.
<u>Step size</u>	Control the speed of the mouse pointer movement.

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Mouse Move Scripts

The mouse move directions on the screen are referred to using compass points notation. The compass notation is used to avoid confusion with the arrow keys up, down, left and right. There are eight directions where North (N) is up the screen.

<u>N</u>	Send the pointer up the screen by the current step size .
<u>NE</u>	Send the pointer right and up the screen by the current step size.
<u>NW</u>	Send the pointer left and up the screen by the current step size.
<u>S</u>	Send the pointer down the screen by the current step size.
<u>SE</u>	Send the pointer right and down the screen by the current step size.
<u>SW</u>	Send the pointer left and down the screen by the current step size.
<u>W</u>	Send the pointer left on the screen by the current step size.
<u>E</u>	Send the pointer right on the screen by the current step size.
<u>move to</u>	Move to a given position on the screen. This opens the next stage of the Move To Wizard similar to the lower part of the mouse move in Item Wizard .

<u>continuous</u>	Set the pointer to move continuously when a direction script command is executed. The pointer will move steps of the current size at the scan speed, until another switch press is received.
<u>step</u>	Set the pointer to move one step of the current size when a direction script command is executed.
<u>grid scan</u>	Scan the pointer across the screen as if it were on an invisible grid. You set the number of virtual rows and columns.

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Mouse Action Scripts

SAW can carry out a number of mouse click actions including holding down shift and control keys when performing the action.

<u>click</u>	Left button click.
<u>double click</u>	Left button double click.
<u>right click</u>	Right button click
<u>right double click</u>	Right double click
<u>drag on</u>	Hold the left button down until drag off or left button (double) click.

<u>drag off</u>	Release the left button.
<u>shift click</u>	Hold down  when performing a left click.
<u>shift double click</u>	Hold down  when performing a left double click
<u>control click</u>	Hold down  when performing a left click.
<u>control double click</u>	Hold down  when performing a left double click

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Mouse Step Size Scripts

There are three set step sizes. The size of these can be set in the user options, but these can be re-set by the user given a selection set designed to do this.

<u>fine</u>	Set step to the smallest setting
<u>normal</u>	Set the step to the normal (medium) setting.
<u>coarse</u>	Set the step to the largest setting.
<u>single</u>	Set the step to a single pixel.
<u>continuous</u>	Set the pointer to move continuously when a direction script command is executed. The pointer will move steps of the current size at the scan speed, until another switch press is received.
<u>step</u>	Set the pointer to move one step of the current size when a direction script command is executed. This should be in mouse move or continuous should be here.

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SAW Scripts

There are seven sub-categories of SAW script commands

<u>Selection Sets</u>	Open other selection sets.
<u>Item</u>	Control the scanning and highlighting of any items in the selection set.
<u>Popup</u>	Cause pop-up items to appear or disappear.

Print	Print any of the texts of an item.
Send to Application	Send any of the texts of an item to the current application with focus.
Speech	Send any other text to this text-to-speech engine.
SAW Window	Control the size and position of the sore window on the screen.

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Selection Set Scripts

The Selection Set scripts allow items to open new or return to old selection sets. A new facility for designers in SAW 6 is the Auto Selection Set script that invokes the bundled Window Catcher program to dynamically create a selection set for the currently active target application. **Note** that this is still an experimental feature with limited practical application.

The commands available here are:

[open selection set](#)
[previous selection set](#)
[auto selection set](#)

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Item Template Scripts

Since SAW 5 there is a facility allowing designers to open and hence edit an item template set. Here are also scripts for changing the overall item display mode for display text and graphics.

The commands available here are:

[open item template set](#)
[display text only](#)
[display graphic only](#)
[display text and graphic](#)

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Item Scripts

State	Change the state of any given item in the selection set to the highlight all or normal state. The commands are: normal item highlight item flash item
Execution	The script in any item of a selection set may be executed in another item with the command: exec item <id>

Visit Any item in the selection set can be visited by using this command. This means that the scan can be sent to any item or group item with the command:

[visit item <id>](#)

Some special visit scripts have been included for the more common ways in which scans can be redirected. These are:

[visit up](#); send the scan into the containing group item
[visit down](#); visit the first item in the group this item contains
[visit me](#); visit this item again
[visit first](#); visit the first item in the group this item is in
[visit last](#); visit the last item in the group this item is in
[visit next](#); visit the next item in the scan order
[visit previous](#); visit the previous item in the scan order

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Popup Scripts

These scripts allow you to show and hide items that have been assigned the status of popup.

[popup show\[<id>\]](#)

This will show any popup in the selection set. If no ID is given then the current item is assumed.

[popup hide \[<id>\]](#)

This will hide any popup in the selection set. If no ID is given then the current item is assumed.

[popup item](#)

The script of the popup item will be executed when this command is given.

[popup last](#)

Causes the script of the last popup shown to be executed.

[popup save](#)

This saves the ID of the current popup for use with popup restore.

[popup restore](#)

Restores the popup of whose ID has been saved the [popup save](#) command.

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Print Scripts

This will send any of the item's texts to the printer. The commands are:

[print display text](#)
[print output text](#)
[print speech text](#)
[print help text](#)

Note: The text will only be sent if 'send to printer' is set to 'on' in the output section of the Options.

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Send to Application Scripts

This set of commands will send any of the item's texts to the current application. The commands are:

send display text
send output text
send speech text
send help text

Note: the text will only be sent if 'send to application' is set to 'on' in the output section of the Options.

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Speech Scripts

This set of commands will send any of the item's texts to the SAPI text-to-speech engine.

The commands are:

say display text
say output text
say speech text
say help text

Note: The text will only be sent if 'Use speech' is set to 'on' in the output section of the Options.

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SAW Window Scripts

These commands are used to reposition and resize the SAW window on the screen. The SAW window can also be minimised to the taskbar and restored from there using these commands.

To move the SAW window to a specific position on the screen use:

top left
top centre
top right
bottom left
bottom centre
bottom right

To move the SAW window around the screen by the current step size

SAW up
SAW down
SAW left
SAW right

To make the SAW window larger or smaller by the current step size

taller
shorter
wider
narrower

Other commands controlling the SAW window

close SAW
minimize SAW
restore SAW
hide SAW

Also see the Window Script [dock window](#) for the positioning of SAW and application windows!

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Settings Scripts

load settings

The 'load settings' command will import the user settings from a file saved either by the menu command 'save settings' or a script command 'save settings'.

save settings

The 'save settings' command saves the current user settings which may have been modified by the user to a file.

Output Settings on|off

This is a set of commands that controls where SAW can send output these commands are:

'output to application'
'output to printer'
'output to sound'
'output to speech'

Scan Settings

These commands can increase or decrease any of the User switch scanning, repeat or filter times. The syntax is inc or dec followed by the parameter name. For details look in me script [command description area of scan settings](#).

Mouse Step Settings

These commands increase and decrease the size of the three standard mouse steps. The syntax is inc or dec followed by the parameter name fine, normal or coarse. [For details look in me script command description area of mouse settings](#).

help text on|off

Switches the help text functionality on or off.

click on|off

Globally switches sound output on or off.

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Sound Scripts

These are two commands to output two different sounds:

beep

sound click

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Scroll Scripts

scroll up
scroll down
scroll left
scroll right

Moves the visible area in the current application one character or one line in a given direction.

scroll page up
scroll page down
scroll page left
scroll page right

Moves the visible area in the current application one window in the given direction.

Window Scripts

This is a set of commands to move or resize the current active window of any application. It also allows you to scan through the set of current running applications (SAW is omitted from this list)

`select next window`
`select previous window`

Moves through the set of opened applications' Windows.

`maximise window`
`minimise window`
`restore window`
`close window`

These set of commands act on the current active application. Close window is the equivalent of 

`size window`
`move window`

These commands are used in conjunction with the arrow key commands to resize, or move the current active application. They are the equivalent of using the Window or Control menu followed by 'move' or 'size'. The arrow keys can then be used to resize or move the window.

`dock window`

This command docks the current window alongside - usually above - the SAW window so that it fills the entire screen excluding the SAW window.
Use 'above' 'below' 'left' or 'right' to specify where the window goes in relation to the SAW window.

Word Prediction Scripts

This is a set of script commands to change Blade word prediction settings, view and edit word prediction words, and other word list content manipulation while selection set is running; Set word list container item in the Startup Script.

The following 8 Word Prediction script commands are available:

`blade settings`

Change Blade word prediction settings while selection set is running

`edit prediction words`

View and edit word prediction words while selection set is running

`wordlist set`

Specifies the word list container item.
Should be used once only in the startup script

`wordlist select`

Sends the current word list selection to the keyboard

`wordlist scroll pagedown`

Moves down a page, IF the word prediction list scrolls

`wordlist scroll pageup`

Moves up a page, IF the word prediction list scrolls

`wordlist scroll home`

Moves to the first page, IF the word prediction list scrolls

```
wordlist scroll end
```

Moves to the last page, IF the word prediction list scrolls

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Miscellaneous Scripts

The only command in this section is `wait`. This command pauses the execution of a script for amount of time given after the command. For example:

```
wait 4
```

will pause the execution of the script for four seconds.

Note: The length of all the wait commands can be altered with a global setting in the Special menu - Options - Output Settings page where the actual time can be increased or decreased by the percentage entered here. This is called the Wait multiplier, for example if this is set to 200% then the above command will pause the execution for eight seconds.

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Scripting Hints and Tips

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Using Copy, Cut, and Paste Commands

The SAW script commands `copy`, `cut` and `paste` do not work with all applications.

When copying and pasting between applications in the same script, you will probably need to introduce delays using the `wait` script command (refer to the example given for `wait` in the Script Commands section).

Examples

1. **Word** instead of copy, use script command:

```
key "<esc>,hold,ctrl.c"
```

2. **Calculator** Instead of copy or Ctrl+Insert, use the script

command:

```
key "<esc>,hold,alt.ec"
```

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Moving Text and Mouse Cursors

SAW has the following script commands to move the text and mouse cursors:

text cursor left, right, up, down

mouse cursor N, NE, E, SE, S, SW, W, NW

These commands automatically repeat (until the user presses a switch) only if the Continuous movement mode is set using [Options](#) on the Settings menu or by using the '[continuous](#)' script command.

Note: The 'continuous' mode does not affect movements caused by key commands (e.g.`key "<esc>left."`).

If the user wants the cursor movement to repeat for as long as the switch is **held down**, then the cursor item must be made **Auto-repeatable** (this attribute is set via the Scripts menu command), and 'step' mode must be set using the [Options](#) menu or by using the '[step](#)' script command.

How to Centralize Scripts

If several items have the same script, only one item needs to hold the script; other items can execute the script using the exec command (this acts like a GOSUB command in BASIC). The exec item <id> command executes the corresponding script of the specified item <id>; for example if the following commands are in the Visit Item script then the Visit Item script of the specified item is executed.

Example

Item 10's *Select Item* script is:

```
exec item 32
```

The corresponding script of the following specified item is executed as if it were contained in item 10.

Item 32's *Select Item* script is:

```
normal item  
send output text
```

These commands operate as if they were contained in the calling item (item 10) so their effect is to un-highlight item 10 and send the Output Text of item 10 to the current application.

Centralized scripts are easier to edit, check and correct; they also reduce the memory requirements of the selection set. An item containing centralized scripts can be placed anywhere in the current selection set. Care should be taken when editing a selection set not to delete an item containing centralized scripts - the scripts will be lost! For this reason it is best to make such an item distinctive, for example a Non-Visited Popup and keep them in a non-visited popup group item.

Irrespective of its position in a script, an exec command is only executed when the script is completed. So if the script opens another selection set, the exec command will fail as its <id> value will refer to a non-existent or different item. Therefore, exec and open selection set commands should not be in the same script. However, you can use an [open selection set <file>](#) command in a script which is executed.

Using Startup Scripts

A selection set's Startup script is executed when the selection set is Run and before any other scripts are executed. These can be edited from the Settings menu [Startup Script dialogue](#).

Typical uses of the Startup script are:

- to load user settings (load settings <file>)
- to load a desktop (open desktop <file>)
- to establish a link to an application (open application <file>, switch to <file>)
- to set up a link for word lists (wordlist set "<app;topic>" id

Note: Some large Windows applications need to be opened individually (using [open application](#) script command) before opening a desktop which refers to them. They also need time to settle down after being loaded before they are able to correctly receive output

from SAW.

Example

Word for Windows requires the following Startup script:

```
open application WinWord ;opens Word for Window first
open desktop Word.dsk
open selection set upper.sss
switch to WinWord ;switch to Word for Windows
normal ;normal step-size
move ;set window Move mode
W ;move Word window left: forces delay
Ok ;end window move mode
move ;set window Move mode again
E ;move Word window right: forces another delay
Ok ;end window move mode
load settings Peter.set
```

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Auto_repeatable Items

If an item's Auto-repeatable attribute is set, you should make its Select Item script flash the item while it repeats: Only certain items such as arrow keys and mouse movements auto-repeat.

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Script Commands

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By Function

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Functionalities

[Application scripts](#)

[Desktop scripts](#)

[Dialogue box scripts](#)

[Edit scripts](#)

[Keyboard scripts](#)

[Menu scripts](#)

[Saw scripts](#)

[Settings scripts](#)

[Sound scripts](#)

[Scroll scripts](#)

[Window scripts](#)

[Word prediction scripts](#)

[Miscellaneous scripts](#)

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Application scripts

open application
switch to application
close application
param application
alternate application

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Desktop scripts

load desktop
save desktop
move window
SizeToSawBottom

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Dialogue Box scripts

beginning of line
cancel
down
end of line
left
next area(Tab)
OK
previous area (shift + Tab)
right
select (control)
up

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Edit scripts

copy
cut
paste
undo
clear

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Keyboard Scripts

key
slowkey
keydelay

Menu scripts

down
escape
left
right
show control menu
show menu
close menu
show menu bar
up

Mouse scripts

Mouse Move

N (North - up)
NE (North East - up right)
NW (North West - up left)
S (South - down)
SE (South East - down right)
SW (South West - down left)
W (West - left)
E (East - right)
move to
continuous
grid scan

Mouse Action

click
double click
right click
right double click
drag on

drag off
shift click
shift double click
control click
control double click

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Step Size

fine (small)
normal (medium)
coarse (large)
single
step
continuous

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SAW scripts

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Selection set scripts

open selection set <file>, :output
previous set
auto selection set

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Item template scripts

open item template set <file>
DisplayGraphicOnly
DisplayTextGraphic
DisplayTextOnly

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Item scripts

exec item <id>

flash item
flash item <id>
highlight item
highlight item <id>
normal item
normal item <id>
visit down
visit first
visit item <id>
visit last
visit me
visit next
visit previous
visit up

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Popup scripts

popup hide
popup hide <id>
popup item <id>
popup last
popup restore
popup save
popup show
popup show <id>

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Print scripts

print display text
print output text
print help text
print speech text

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Send to Application

send display text
send output text
send help text
send speech text

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Speech

say display text
say output text
say help text
say speech text

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SAW window

bottom left
bottom centre
bottom right
close saw
hide saw
minimize saw
narrower
restore saw
saw down
saw left
saw right
saw up
SizeToSawBottom
shorter
taller
top left
top centre
top right
wider

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Other SAW scripts

display help text

Settings scripts

```
click <on|off>


---

dec coarse


---

dec fine


---

dec input acceptance time


---

dec normal


---

dec post acceptance delay


---

dec repeat delay


---

dec repeat time


---

dec restart scan time


---

dec scan time


---

inc coarse


---

inc fine


---

inc input acceptance time


---

inc normal


---

inc post acceptance delay


---

inc repeat delay


---

inc repeat time


---

inc restart scan time


---

inc scan time


---

load settings <file>


---

output to application (on|off)


---

output to printer (on|off)


---

output to sound (on|off)


---

output to speech (on|off)


---

help (on|off)


---

save settings


---

set hide saw (secs)
```

Sound scripts

```
beep


---

sound click
```

Scroll scripts

[scroll down](#)
[scroll left](#)
[scroll page down](#)
[scroll page left](#)
[scroll page right](#)
[scroll page up](#)
[scroll right](#)
[scroll up](#)

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Window scripts

[select next window](#)
[select previous window](#)
[maximize window](#)
[minimize window](#)
[restore window](#)
[close window](#)
[size window](#)
[move window](#)
[dock window](#)

[N](#)
[E](#)
[S](#)
[W](#)
[NE](#)
[NW](#)
[SE](#)
[SW](#)
[up](#)
[down](#)
[left](#)
[right](#)
[page down](#)
[page up](#)

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Word Prediction scripts

blade settings <"setting=value">
edit prediction words

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Miscellaneous scripts

exec item <id>
wait (secs)
dde exe
dde get
dde set
wordlist scroll end
wordlist scroll home
wordlist scroll pagedown
wordlist scroll pageup
wordlist select
wordlist set

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A to Z

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A to D

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alternate application

Opens a new instance of the specified application file and makes it the current application - but extends the [param application](#) command introducing a "switch" key and two sets of start-up parameters to be alternately sent to the application. **Note:** There is no complete script wizard available when adding this command; The string **alternate application "application.exe" "Switch" "parametersA" "parametersB"** is added into the Scripts tab dialogue, and has to be edited manually in "Edit mode" (to specify application, switch and parameters).

This script command runs the application with the parameters provided in one of the last two sets of quotes. The "switch" key controls the alternation. This is recorded in the registry so that the next time the command is issued with the same switch key it will give the other option.

This functionality may typically be needed for some EC (environmental control) application features.

Syntax alternate application <"file"> <"switch"> <"parametersA">
<"parametersB">

Parameters The <"file"> parameter specifies the path name of the application file to be

opened and run. The <"switch"> parameter - any character or short string - specifies the value recorded as an identifier in the registry to keep track of which of the following two <"parametersA"> and <"parametersB"> (internally separated by Spaces) that was last sent along when this application was launched. The alternate parameters will be used every next time. (Note: The alternate application command can not pick up its parameters from the Output Text.)

Examples

```
alternate application "C:\usr\local\apps\switcher.exe" "xx" "on" "off"  
alternate application "C:\GEWA\SendIR" "yy" "A 2 2" "H 2 2" <This command takes  
a GEWA Jupiter Telephone 'off-hook', or hangs it up (A = Answer'phone, IR Command sends  
from GEWA Prog III, from Level 2, and is repeated twice, alternatively H = Hangup'phone  
etc.)>
```

... Limitation note: The "alternate application" command does not at present allow spaces to be included in file-pathnames within the quotation marks ("") i.e. commands such as:
alternate application "c:\windows\syswow64\wscript.exe" "C:\Users\NT RECES User\My
Documents\Z-Wave Socket On.vbs" fail, resulting in the error message
"There_is_no_file_extension in "C:\Users\NT""...

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auto selection set

This script generates a selection set (using WindowCatcher) for the target window. **Note** that this is still an experimental feature **not recommended for practical use!**

Syntax

```
generate automatic set <string>
```

Parameters A number of parameters can be entered to control the automatic WindowCatcher generation of selection sets. There is no script wizard support, so script Edit mode must be used. The one that is essential to always include is "back=true", which will add a Back link to the generating selection set. See the SAW Developer Notes document for further information.

Example

```
generate automatic set back=true
```

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beginning of line

Moves the text cursor to the beginning of the current line; equivalent to pressing Home on the keyboard. This command works with dialogue boxes and most applications.

Syntax

```
beginning of line
```

Parameters none

Example

```
beginning of line      ;go to beginning of line  
key "Hello there. "   ;insert some text
```

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beep

Sounds a beep on the computer's speaker.

Syntax `beep`

Parameters none

Example

```
beep      ;beep once  
wait 0.3  ;wait 3/10 sec  
beep      ;beep again
```

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blade settings

The blade settings command makes it possible to change Blade word prediction settings while selection set is running. The settings go inside the quotes after the command. There is no editing wizard, so it is necessary to activate Edit Mode in the SAW item properties scripting tab to edit the specific settings.

Several individual settings, among those available, can be separated by commas. Each is in the form "setting=value". They are not case-sensitive.

Syntax `blade settings <"setting1=value1, setting2=value2, ...>`

Parameters See [Using Blade](#) for a full list.

Example

```
blade settings "AlphabeticalResults=true,Uppercase=true" ;presents predicted  
words alphabetically and in uppercase  
blade settings "Language = en" ;sets the prediction language to English  
blade settings "Language = sv" ;sets the prediction language to Swedish
```

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bottom centre

Moves the SAW window to the bottom centre of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

Syntax `bottom centre`

Parameters none

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bottom left

Moves the SAW window to the bottom left corner of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

Syntax `bottom left`

Parameters none

bottom right

Moves the SAW window to the bottom right corner of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

Syntax `bottom right`

Parameters none

Cancel

Cancels (dismisses) the dialogue box; equivalent to clicking on the **Cancel** button or pressing `Esc` on the keyboard.

Syntax `cancel`

Parameters none

clear

Deletes the highlighted text; equivalent to pressing Del on the keyboard or selecting the Clear or Delete command from the applications Edit menu.

Syntax `clear`

Parameters none

Note: The deleted text is not copied to the clipboard. This command works with dialogue boxes and most applications.

click

Equivalent to clicking the mouse button.

Syntax `click`

Parameters none

Examples

```
move to 100 100 ;move mouse cursor to 100,100  
click ;then click mouse button  
continuous ;move cursor repeatedly  
E ; to the East (right) until switch pressed  
click ;then click mouse button
```

click <on|off>

Sets the Click input setting; if enabled, a click sound is generated when the script command `sound click` is executed. The new setting is not saved on disk unless the [save settings](#)

command is used.

Syntax `click on / click off`

Parameters <on/off> parameter enables or disables the click sound.

Example

```
click on      ;enable click  
save settings ;save the new setting  
sound click   ;generate click sound
```

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`close`

Closes the current application; equivalent to pressing Alt+F4 on the keyboard or selecting the *Close* command from the applications Control menu.

Syntax `close`

Parameters none

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`close application`

Same as [close](#)

Syntax `close application`

Parameters none

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`close menu`

Syntax `close menu`

Parameters none

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`close saw`

Closes SAW immediately. SAW will close an switch control will be lost. If a second switch application is opened that uses the same swtich interface (eg Hotspots etc.) with an open application command prior to closing SAW then control will pass to that application.

Syntax `close SAW`

Parameters none

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`coarse`

Sets the mouse Step-size mode to coarse for all subsequent mouse movement commands (e.g. *N*, *SE*). The coarse step-size can be specified using the Options command on the

Settings menu (default 50 pixels), or by using the [dec coarse](#) and [inc coarse](#) script commands.

Syntax coarse

Parameters none

Note: The step-size is affected by the Windows setting Mouse Tracking Speed - you should use the Windows Control Panel to set the Mouse Tracking Speed to the **Slowest** setting.

Example

```
coarse      ;use coarse step-size  
continuous  ;move cursor repeatedly (until switch pressed)  
S          ;to the South (down)
```

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continuous

Sets the mouse and text cursor movement setting to Continuous mode. When a script movement command (e.g. *N, left*) is executed, the mouse or text cursor moves continuously in the specified direction until the user presses a switch. 'Continuous' affects the following script movement commands: *E, N, NE, NW, S, SE, SW, W, down, left, right, up, grid scan*. (See also [step](#) script command).

The new setting is not saved on disk unless the [save settings](#) script command is used.

Continuous is a deferred command: irrespective of where *continuous* is placed in a script, it is only obeyed **after** all other commands in the script have been executed. So if the script is:

```
continuous ;set continuous movement mode  
NE         ;move in North East direction  
click      ;click mouse button  
beep       ;sound
```

then the mouse cursor is first moved once in the NE direction, the mouse button is clicked and a beep is sounded. Only then is the continuous command executed to continue moving the mouse cursor until the user presses a switch.

Example

```
continuous ;set continuous mode  
save settings ;save new setting  
coarse      ;move cursor with coarse step-size  
NE         ;repeatedly to the North East until the switch is pressed again
```

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control click

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control double click

copy

Copies the highlighted text or graphics to the clipboard; equivalent to pressing **Ctrl+C** on the keyboard, or selecting the Copy command from the applications Edit menu. This command works with dialogue boxes and most applications.

Syntax `copy`

Parameters none

Note: This command does not work with some applications, in which case use the key script command to send the equivalent keyboard shortcut (usually **Ctrl + C**).

Examples

```
copy; copy the marked text  
end of line; go to the end of the current line  
paste; paste the cpoed text on the end of the line.
```

or, if copy does not work

```
key <esc>,hold,ctrl.c; copy the marked text by sending Ctrl + C  
end of line; go to the end of the current line  
paste; paste the cpoed text on the end of the line.
```

cut

Saves a copy of the highlighted text on the clipboard and then erases the text; equivalent to pressing **Ctrl + X** on the keyboard, or selecting the Cut command from the applications Edit menu. This command works with dialogue boxes and most applications.

Note: This command does not work with some applications, in which case use the key script command to send the equivalent keyboard shortcut (usually **Ctrl + X**).

DDE (Dynamic Data Exchange) Commands

dde exe

Sends a command to an application using Windows Dynamic Data Exchange (DDE), with SAW acting as a client to the application. SAW automatically sets up and maintains a connection to the other application for the duration of the execution of this script command.

An error beep sounds if the command is not processed by a server application (e.g. because the application has not been opened).

Syntax `dde exe <"application|topic"> <"commands">`

Parameters The `<"application|topic">` parameter pair specifies the DDE name of the application and a topic recognised by that application. The topic is usually a filename - please refer to the applications DDE documentation for the valid topics that can be used. If there is more than one instance of the application with the same topic then only the first response is processed. If the application name is omitted, then any application that understands DDE protocol may respond.

The `<"commands">` parameter is a string of one or more commands - please refer to the applications DDE documentation for the valid commands that can be used.

Example

The following script sends an OpenScript command to a ToolBook application whose filename is "test.tbk". The command puts the word "hello" into a ToolBook field object with ID number 1.

```
dde exe "toolbook|test.tbk" "put hello into text of field id 1"
```

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`dde get`

Get the value of an item (e.g. variable) from an application which has the specified topic; this is done using Windows Dynamic Data Exchange (DDE), with SAW acting as a client to the application. The value is put into the display text of a SAW item. SAW automatically sets up and maintains a connection to the other application for the duration of the execution of this script command.

An error beep sounds if the command is not processed by a server application (e.g. because the application has not been opened).

Syntax `dde get <"application|topic"> <item> <id>`

Parameters The `<"application|topic">` parameter pair specifies the DDE name of the application and a topic recognised by that application. The topic is usually a filename - please refer to the applications DDE documentation for the valid topics that can be used. If there is more than one instance of the application with the same topic then only the first response is processed. If the application name is omitted, then any application that understands DDE protocol may respond.

The `<item>` parameter is usually the name of a variable - please refer to the applications DDE documentation for the valid item names that can be used.

The `<id>` parameter is a SAW item ID number - the retrieved value will be placed in the display text of this item.

Example

The following script retrieve the variable "time" from ToolBook application whose filename is "clock.tbk". The result is then put into the display text of SAW item ID 10. (This example assumes that a DDE handle exists in the Took book application to return the value).

```
dde get "toolbook|test.tbk" time 10
```

dde set

Sets the value of an item (e.g. variable) from an application which has the specified topic; this is done using Windows Dynamic Data Exchange (DDE), with SAW acting as a client to the application. SAW automatically sets up and maintains a connection to the other application for the duration of the execution of this script command.

An error beep sounds if the command is not processed by a server application (e.g. because the application has not been opened).

Syntax `dde set <"application|topic"> <item> <id>`

Parameters The `<"application|topic">` parameter pair specifies the DDE name of the application and a topic recognised by that application. Usually, the topic is a filename and `<item>` is the name of a variable - please refer to the applications DDE documentation for the valid topics and item names that can be used. If there is more than one instance of the application with the same topic then only the first response is processed. If the application name is omitted, then any application that understands DDE protocol may respond.

The `<item>` parameter is the name of an item in the application - please refer to the applications DDE documentation for the valid item names that can be used.

The `<value>` parameter is the data for the specified item - please refer to the applications DDE documentation for the valid values that can be used to set items.

Example

The following script sets the variable "credit" in a ToolBook application whose filename is "account.tbk" to the value 100. (This example assumes that a handler exists in the Took book application to perform the assignment.)

```
dde set "toolbook|account.tbk" credit 100
```

dec

dec coarse

Decrements the Coarse mouse step-size setting by 10 pixels (to a minimum of 1 pixel). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

Select Item script of an item to decrement and save setting:

```
dec coarse      ;decrement coarse step-size by 10 pixels  
save settings ;save the new setting
```

Select Item script of a second item to move cursor using new setting:

```
coarse      ;use coarse step-size  
S          ;move to the South (down)
```

```
dec fine
```

Decrements the Fine mouse step-size setting by 1 pixel (to a minimum of 1 pixel). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

Select Item script of an item to decrement and save setting:

```
dec fine      ;decrement fine step-size by 1 pixel  
save settings ;save the new setting
```

Select Item script of a second item to move cursor using new setting:

```
fine      ;use fine step-size  
S        ;move to the South (down)
```

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```
dec input acceptance time
```

Decrements the [Input Acceptance Time](#) setting by 0.1 second (to a minimum of 0 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
dec input acceptance time ;decrement by 0.1 sec  
save settings           ;save the new setting
```

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```
dec normal
```

Decrements the Normal mouse step-size setting by 4 pixels (to a minimum of 1 pixel). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

Select Item script of an item to decrement and save setting:

```
dec normal    ;decrement normal step-size by 4 pixels  
save settings ;save the new setting
```

Select Item script of a second item to move cursor using new setting:

```
normal    ;use normal step-size  
S        ;move to the South (down)
```

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```
dec post acceptance delay
```

Decrements the [Post Acceptance Delay](#) input setting by 0.1 second (to a minimum of 0 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
dec post acceptance delay ;decrement by 0.1 sec  
save settings           ;save the new setting
```

dec repeat delay

Decrements the [Repeat Delay input setting](#) by 0.1 second (set to 0 seconds to disable repeat). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
dec repeat delay ;decrement by 0.1 sec  
save settings ;save the new setting
```

dec repeat time

Decrements the [Repeat Time input setting](#) by 0.1 second (to a minimum of 0 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
dec repeat time ;decrement by 0.1 sec  
save settings ;save the new setting
```

dec restart scan time

Decrements the [Restart Scan Time input setting](#) by 10% (to a minimum of 0%). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
save settings ;save the new setting  
dec restart scan time ;decrement by 10%
```

dec scan time

Decrements the [Scan Time input setting](#) by 0.1 second (to a minimum of 0.1 second). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
dec scan time ;decrement by 0.1 sec  
save settings ;save the new setting
```

Display

DisplayGraphiconly

Shows items so that the Graphic is only displayed. If there is only text then the test is still displayed.

Syntax DisplayTextonly

Parameters none

See also [DisplayTextonly](#) and [DisplayTextGraphic](#)

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DisplayTextGraphic

Displays both the text and graphic if possible. If there is only text then the test is still displayed. If there is only a graphic then the graphic is still displayed.

Syntax DisplayTextGraphic

Parameters none

See also [DisplayTextonly](#) and [DisplayGraphiconly](#)

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DisplayTextonly

Shows items so that text is only displayed. If there is only a graphic then the graphic is still displayed.

Syntax DisplayTextonly

Parameters none

See also [DisplayGraphiconly](#) and [DisplayTextGraphic](#)

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display help text

Causes the items Prompt text to be displayed provided that the Prompt Text input setting has been enabled either in the settings or through the [help text <on|off>](#) command. The text is displayed in a special item, called the Prompt Item; you must define the Prompt items ID number using the Help item menu command.

The items Prompt text can be specified using the [Item Properties](#) command on the Item menu. The Prompt Text input setting can be specified using the Options command on the Settings menu, or with the script command `help <on,off>`.

Note: The SAW default Visit Item script includes this command.

Example

```
prompt on          ;enable prompt text to be displayed  
display help text ;display the prompt text now
```

Note: In earlier versions of SAW this was called the prompt text.

dock window

The dock window command docks the current window alongside - usually above - the SAW window so that it fills the entire screen excluding the SAW window.

The default position of the target window is above. Use 'above' 'below' 'left' or 'right' to specify where the window goes in relation to the SAW window.

Example

```
dock window above      ; docks the active target window above the SAW  
window  
dock window right     ; docks the active target window to the right  
of the SAW window
```

double click

Equivalent to double clicking the left mouse button.

Example

```
move to 100 100 ;move mouse cursor to 100,100  
double click      ;then double click mouse button
```

double right click (not implemented)

Performs a right double-click of the mouse.

down

Moves the text cursor down a line; equivalent to pressing down arrow on the keyboard. This command can be used, for example, to move the text cursor down a line in a document, or to move the highlight cursor down a line in a list box.

If 'continuous' mode is set, movement repeats until the user presses a switch. 'Continuous' mode is set by using either the Options menu command or the [continuous](#) script command. Similarly, set 'step' mode for a single movement.

Syntax `down`

Parameters none

drag off

Equivalent to releasing (unlocking) the left mouse button. This command is used to cancel the [drag on](#) script command.

Syntax `drag off`

Parameters none

drag on

used for holding (locking) down the mouse button. This command can be cancelled using the [drag off](#) script command.

Syntax `drag on`

Parameters none

Example

Select Item script of an item to set drag on:

```
drag on ;lock the mouse button
```

Select Item script of a second item to move mouse cursor:

```
step      ;move mouse cursor once
S        ;to the South (down)
drag off ;unlock mouse button
```

E to K

edit prediction words

This command - edit word prediction words - makes it possible for the user to view and edit Blade word prediction words and abbreviations during SAW runtime. It opens up the **Word prediction list** dialog - just like the [View word prediction words](#) menu command (in the View menu).

Syntax `edit word prediction words`

Parameters none

end of line

Moves the text cursor to the end of the current line; equivalent to pressing End on the keyboard. This command works with dialogue boxes and most applications.

Example

```
end of line      ;go to end of line
key "The End. " ;insert some text
```

E (East)

Moves the mouse cursor to the East (right) using the current Step-size mode (i.e. *single*, *fine*, *normal*, or *coarse*). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the the [Edit I/O Settings](#) menu command or the [continuous](#) script command. Similarly, set [Step](#) mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)
E          ;move to the East (right)
```

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fine

Sets the mouse Step-size mode to fine for all subsequent mouse movement commands (e.g. N, SE). The fine step-size can be specified using the Options command on the Settings menu (default 5 pixels), or by using the [dec fine](#) and [inc fine](#) script commands.

Note: The step-size is affected by the Windows setting Mouse Tracking Speed - you should use the Windows Control Panel to set the Mouse Tracking Speed to the **Slowest** setting.

Example

```
fine      ;use fine step-size
continuous ;move cursor repeatedly (until switch pressed)
S          ;to the South (down)
```

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escape

Cancels (dismisses) a menu which has been pulled down from the menu bar; equivalent to pressing the Esc key on the keyboard. This command can also be used to cancel a dialogue box.

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exec item <id>

Executes the corresponding script of the specified item. For example, if this command is in the Visit Item script, then the Visit Item script of the specified item is executed. The corresponding script of the specified item is executed as if the script was contained in the current item - see example below.

If several items have exactly the same behaviour, then only one item needs to hold the script - the other items then use the exec item command to execute this command script. This makes it easier to edit and check scripts; it also reduces the memory requirements of the selection set.

Exec item is a deferred command: irrespective of where exec item is placed in a script, it is only obeyed after all other commands in the script have been executed. Therefore, the rule is that exec item and open selection set commands should not be in the same script; however, it is alright to use an open selection set command in a script which is execed by other items.

Syntax `exec item <id>`

Parameters The <id> parameter specifies the ID number of the item whose script is to be executed.

When this command is executed, an error beep sounds if the specified item does not exist.

Example

Select Item script of an item (ID 10) to exec another:

```
exec item 32      ;execute item 32s Select Item script
```

Select Item script of execed item (ID 32) - all commands execute as if this script is contained in the calling item (in this case item ID 10):

```
normal item      ;un highlight item 10
send output text; sends Output text of item 10
```

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help text <on|off>

Sets the Help Text input setting to enable or disable the display of items' Prompt Text when the script command [display help text](#) is executed.

The new setting is not saved on disk unless the [save settings](#) script command is used.

The text is displayed in a special item called the Help Item; you must define the Help Items ID number using the [Set Help Item](#) menu command. The item's Help text can be specified using the [Item Properties](#) command on the Item menu.

Syntax help text <on|off>

Parameters The <on|off> parameter determines if items' help text are displayed.

Example

```
help text on          ;enable display of prompt text
save settings         ;save the new setting
display help text     ;show Prompt text of item
```

Note: This was previously prompt <on|off> in SAW 4

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hide saw

Hides the SAW window so that any underlying windows can be viewed, and sends SAW onto the task bar with no visible window. However, scripts in the selection set continue to be executed.

Use the [restore saw](#) script command in order to restore the SAW window.

Note: This can be a useful command to use if you want to use SAW to scan another program that uses keyboard input as switches.

Example

```
hide saw      ;hide the SAW window
beep          ;sound
wait 2        ;insert some text
beep          ;sound
restore saw   ;restore the SAW window
```

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highlight item

Highlights the specified item using the items highlight border style and highlight colours (foreground, background, border). If the specified item does not exist, then an error beep sounds when this command is executed. This command is part of the default Visit Item script

Syntax highlight item [<id>]

Parameters The optional <id> parameter specifies the ID number of the item to be highlighted. If no <id> is specified, then the current item is highlighted.

Example

Select Item script of an item to highlight itself:

```
highlight item      ;highlight itself  
say speech text    ;auditory prompt
```

Select Item script of an item to highlight another item:

```
beep              ;sound  
highlight item 10 ;highlights item 10
```

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flash item

Flashes the specified item once. If the specified item <id> does not exist, then an error beep sounds when this command is executed.

Syntax `flash item [<id>]`

Parameters The optional <id> parameter specifies the ID number of the item to be flashed. If no <id> is specified, then the current item is flashed.

Example

Select Item script of an item to flash itself:

```
normal item      ;un highlight item  
wait 1           ;wait one second  
flash item       ;flash itself
```

Select Item script of an item to flash another item twice:

```
flash item 10   ;flashing item 10  
wait 0.2        ;wait 0.2 second  
flash item 10   ;flash item 10 again
```

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grid scan

Divides the screen into a grid with the specified number of columns and rows, and places the mouse cursor at the nearest grid point.

If the current mouse cursor position is at the end of a row, then the cursor is placed at the first grid point of the next row. Similarly, if the current cursor position is at the end of the bottom row (i.e. bottom right corner), then the cursor wraps round to the top left corner of the screen.

The grid can be scanned in virtual rows and columns by holding down the switch; the cursor scans to the next grid point until the switch is released. This requires the items Auto-repeatable attribute to be set on the [Item Properties - Presentation](#) page.

Syntax `grid scan <col> <row>`

Parameters The <col> and <row> parameters specify the number of columns and rows in the grid respectively.

Example

Select Item script of an item to scan a 5 by 3 grid by holding down the switch (the items Auto-repeatable attribute must be set):

```
grid scan 5 3  ;5 columns x 3 rows
```

inc

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inc coarse

Increments the Coarse mouse step-size setting by 10 pixels (to a maximum of 999 pixels). The new setting is not saved on disk unless the [save settings](#) script command is used.

Examples

Select Item script of an item to increment and save setting:

```
inc coarse      ;increment coarse step-size by 10 pixels  
save settings ;save the new setting
```

Select Item script of a second item to move cursor using new setting:

```
coarse      ;use coarse step-size  
S          ;move to the South (down)
```

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inc fine

Increments the Fine mouse step-size setting by 1 pixel (to a maximum of 999 pixels). The new setting is not saved on disk unless the [save settings](#) script command is used.

Examples

Select Item script of an item to increment and save setting:

```
inc fine      ;increment fine step-size by 1 pixel  
save settings;save the new setting
```

Select Item script of a second item to move cursor using new setting:

```
fine      ;use fine step-size  
S        ;move to the South (down)
```

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inc input acceptance time

Increments the [Input Acceptance Time](#) setting by 0.1 second (to the maximum of 10 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc input acceptance time    ;increment by 0.1 sec  
save settings                 ;save the new setting
```

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inc normal

Increments the Normal mouse step-size setting by 4 pixels (to a maximum of 999 pixels). The new setting is not saved on disk unless the [save settings](#) script command is used.

Examples

Select Item script of an item to increment and save setting:

```
inc normal ;increment normal step-size by 4 pixels  
save settings;save the new setting
```

Select Item script of a second item to move mouse cursor using new setting:

```
normal ;use normal step-size  
S ;move to the South (down)
```

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inc post acceptance delay

Increments the [Post Acceptance Delay](#) input setting by 0.1 second up to the maximum of 10 seconds. The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc post acceptance delay ;increment by 0.1 sec  
save settings ;save the new setting
```

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inc repeat delay

Increments the [Repeat Delay input setting](#) by 0.1 second up to the maximum of 10 seconds. The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc repeat delay ;increment by 0.1 sec  
save settings ;save the new setting
```

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inc repeat time

Increments the [Repeat Time input setting](#) by 0.1 second (to a maximum of 10 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc repeat time ;increment by 0.1 sec  
save settings ;save the new setting
```

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inc restart scan time

Increments the [Restart Scan Time input setting](#) by 10% (to a maximum of 1000%). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc restart scan time ;increment by 10%  
save settings ;save the new setting
```

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inc scan time

Increments the [Scan Time input setting](#) by 0.1 second up (to a maximum of 10 seconds). The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
inc scan time ;increment by 0.1 sec  
save settings ;save the new setting
```

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key

Sends <"string"> to the current application.

Syntax key <'string'>, or key <"string"> (GIDEI format)

Parameters The <"string"> parameter specifies the string of text or command codes to be sent to the current application. SAW can send the string in either its newer script format, or in the same format as the Trace Centers ACCESS utility program and the Microsoft Serial Keys Accessibility Control Panel setting. These latter commands are called GIDEI codes (General Input Device Emulating Interface) - see below. The string can include commands codes to perform special functions, such as holding the Shift, Alt and/or Ctrl key(s) down (or sending number pad keys, or even mouse actions for GIDEI) etc.

Note: The thumb of rule should be to use the newer style key scripts (available via the Properties [Item Script Wizard - Keyboard Scripts](#)) as the main option, and revert to GIDEI script commands only for things not otherwise available.

Note also: that an alternative method of sending a string to the application is to specify the string in the items Output text, Display text, Prompt text, or Speech text (via the Presentation menu command), and then use the corresponding 'send **** text' script command.

Example

```
key 'Hello World!' ;sends text to the current application  
                      ;(new script format, generated by the  
                      ;Script Wizard)  
key '<ALT>fo' ;sends Alt+f o to open a file via the  
                  ;menu bar  
key "Hello World!" ;sends text to the current application,  
                      ;as above using the older GIDEI format  
key "<esc>,hold,alt.fo" ;sends the same Alt+f o as above using  
                        ;the older GIDEI format  
key "<esc>,click,left." ;clicks the left mouse button (GIDEI)  
                           ;Note: The new script command is just  
                           ;click and thus not using the key script
```

GIDEI codes

The explanation on the use of GIDEI codes is adapted from the ACCESS program documentation, with kind permission from Trace Center and Microsoft.

[Sending keys to an application](#)
[GIDEI Escape Sequence Mode](#)

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keydelay

Changes the default delay between keys sent to the target application via the . The key delay number is in ms - milliseconds. The general default is 0. The suggested alternative

delay is 100. Allowed range is 0 - 1000.

Note: There is no Script Wizard dialogue for setting this delay, so the suggested 100 must be changed via the manual Edit Mode option in the main Script dialogue

Syntax keydelay <delay>

Parameters The <delay> parameter specifies the delay between sent keys in ms (milliseconds) in the range 0 - 1000.

Example

```
keydelay 200 ;sets the delay to 200 ms
```

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L to O

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left

Moves the text cursor a character to the left; equivalent to pressing left arrow on the keyboard. This command can be used, for example, to move the text cursor left one character in a document.

If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options_menu command or the [continuous](#) script command. Similarly, set Step mode for a single movement.

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NE (North East)

Moves the mouse cursor to the North East using the current Step-size mode (i.e. *single*, *fine*, *normal*, or *coarse*). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options_menu command or the [continuous](#) script command. Similarly, set [step](#) mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)
NE          ;move to the North East
```

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normal item

Displays the specified item using the items normal border style and normal colours (foreground, background, border). This command is used to un highlight an item. If the specified item does not exist, then an error beep sounds when this command is executed.

Syntax normal item [<id>]

Parameters The optional <id> parameter specifies the ID number of the item to be un highlighted. If no <id> is specified, the current item is un highlighted.

Examples

Next Item script of an item to un highlight itself:

```
normal item ;un-highlight itself  
visit next ;scan next item
```

Select Item script of an item to un highlight another item:

```
beep ;sound  
normal item 10 ;un-highlight item 10
```

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normal

Sets the mouse Step-size mode to normal for all subsequent mouse movement commands (e.g. N, SE). The normal step-size can be specified using the Options command on the Settings menu (default 20 pixels), or by using the [dec_normal](#) and [inc_normal](#) script commands.

Note: The step-size is affected by the Windows setting Mouse Tracking Speed - you must use the Windows Control Panel to set the Mouse Tracking Speed to the Slowest setting.

Example

```
normal ;use normal step-size  
continuous ;move cursor repeatedly (until switch pressed)  
S ;to the South (down)
```

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load settings

Loads the specified settings file from the current SAW User folder and makes the settings active. If the specified settings file does not exist, then an error beep sounds when this command is executed. You need not include the settings filename extension .set.

Syntax load settings <file, :output>

Parameters The <file, :output> parameter specifies the name of the settings file to be loaded from the current SAW User folder. If the parameter is given as ":output", the current item's output text is used as the settings file name.

Examples

```
load settings test  
load settings myset.set  
load settings :output ;the file name must be in the Output text of the item.
```

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maximize

Maximizes the window of the current application.

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minimize

Minimizes the window of the current application to a program icon. Use the script commands

[restore](#) or [maximize](#) to re-open the window of a minimized application.

To minimise the SAW window use the [minimize SAW command](#)

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minimize saw

Minimizes SAWs window to a program icon so that any underlying windows can be viewed.

Use the '[restore saw](#)' script command to restore the SAW window. See also the ['hide SAW'](#) command

Example

```
minimize saw      ;iconize the SAW window
beep             ;sound
wait 2           ;pause
beep             ;sound
restore saw     ;restore the SAW window
```

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move

Sets Move Window mode so that subsequent script mouse movement commands (e.g. N, E) move the current window (e.g. application, dialogue box) in the specified direction. When this command is executed, the mouse cursor changes to a cross of four arrowheads and is positioned in the middle of the windows title bar.

The sequence of script commands to move the current window is as follows:

1. move - to set Move Window mode.
2. mouse movement commands (e.g. N, E) - to move the window to the required position.
3. Ok - to fix the window at the new position, or

Cancel - to leave the window position unchanged (note that executing move again cancels the Move Window mode, leaving the window position unaltered)

The above sequence is best achieved by putting each of the commands into individual items as in the example below.

Example

Select script of Item 1 - select this item to set Move Window mode:

```
move      ;set move mode
```

Select script of Item 2 - select this item to move the window down:

```
coarse    ;use coarse step-size
S        ;move window to the South (down)
```

Select script of Item 3 - when the window is at the required position, this item must be selected to fix the new position (alternatively, select item 1 again to cancel the Move Window mode and leave the position unchanged):

```
Ok       ;fix new window position
```

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move to <x><y>

Moves the mouse cursor to the specified screen pixel coordinate.

Syntax move to <x> <y>

Parameters The <x> parameter specifies the horizontal screen coordinate in screen pixels (0 = left of screen). The <y> parameter specifies the vertical screen coordinate in screen pixels (0 = top of screen).

Example

```
move to 640 480 ;move to bottom right corner of a low resolution VGA screen  
move to 0 0 ;move to top left corner of the screen
```

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movewindow

Moves an application's window to a given specified screen pixel coordinate.

Syntax movewindow <file> <x> <y>

Parameters <file> is the name of the executable to be moved. The <x> parameter specifies the horizontal screen coordinate in screen pixels (0 = left of screen). The <y> parameter specifies the vertical screen coordinate in screen pixels (0 = top of screen).

Example

```
movewindow calc.exe 0 0 ;move the top left corner of the calculator window to  
the top left of the screen  
movewindow winword.exe 200 100 ;move the top left corner of the WOrd Window  
to 200 pixels from the left edge of the screen and 100 pixels from the top of  
the screen
```

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N (North)

Moves the mouse cursor to the North (up) using the current Step-size mode (i.e. *single*, *fine*, *normal*, or *coarse*). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the '[continuous](#)' script command. Similarly, set '[step](#)' mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)  
N          ;move to the North (up)
```

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NW (North West)

Moves the mouse cursor to the North West (up and left) using the current Step-size mode (i.e. *single*, *fine*, *normal*, or *coarse*). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the '[continuous](#)' script command. Similarly, set '[step](#)' mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)  
NW         ;move to the North West
```

narrower

Decreases the width of the SAW window by an amount equal to the current Step-size mode (i.e. *single*, *fine*, *normal*, or *coarse*), leaving the centre of the SAW window at the same position.

Example

```
coarse      ;use coarse step-size (default 50 pixels)
narrower   ;make SAW window narrower by 50 pixels
```

next area

Moves the focus to the next active area of the current dialogue box; equivalent to pressing  on the keyboard.

Ok

Confirms the dialogue box; equivalent to pressing  on the keyboard when the OK button is highlighted.

open

open application <file>

Opens a new instance of the specified application file and makes it the current application (see also the [param application](#) and [switch to](#) script commands). If the specified application file does not exist, then an error beep sounds and the current application continues to be used. You need not include the application filename extension .EXE

Note that in SAW 6 the 'open application' command has been enhanced to allow launching other executable files than just .exe, e.g. .bat and .jar files.

Syntax open application <file, :output>

Parameters The <file, :output> parameter specifies the path name of the application file to be opened and run. If the parameter is given as ":output", the current item's output text is used as the application path and file name.

Examples

```
open application notepad
open application "C:\Documents and Settings\User\My documents\test_doc.rtf"
open application :output    ; opens the file named in the Output Text area
```

open desktop <file>

Opens the specified desktop file from the current SAW User folder and makes it the current desktop. If the full path name is used then any desktop can be opened. You need not include the desktop filename extension .dsk. If the specified desktop file does not exist, then an error beep sounds and the current desktop continues to be used.

Syntax `open desktop <file, :output>`

Parameters The <file, :output> parameter specifies the name of the desktop file to be opened from the current SAW User folder. If the parameter is given as ":output", the current item's output text is used as the desktop file name.

Examples

```
open desktop write  
open desktop maths.dsk  
open desktop :output
```

open item template set <file>

open selection set <file>

Opens and runs the specified selection set file. If a folder is specified, it becomes the new SAW current folder from where subsequent desktop, settings, graphics, and selection set files are loaded. If the specified selection set file does not exist, then an error beep sounds the current selection set continues running. If a folder is specified, it becomes the new SAW User folder. You need not include the selection set filename extension .sss

Syntax `open selection set <file, :output>`

Parameters The <file, :output> parameter specifies the path name of the selection set file to be opened. If the parameter is given as ":output", the current item's output text is used as the selection set file name.

Examples

```
open selection set startup  
open selection set andrew.sss  
open selection set :output  
open selection set C:\Users\user1\Documents\My Selection Sets\music\startup;  
makes C:\Users\user1\Documents\My Selection Sets\music the new SAW User folder
```

output to

output to application <on|off>

Sets the Output to Application setting to enable or disable text to be sent to the current application when the script command [send display text](#), [send output text](#), [send help text](#), or [send speech text](#) is executed. The new setting is not saved on disk unless the [save settings](#) script command is used.

Note: that this command does not affect the script command 'key'.

Syntax `output to application <on|off>`

Parameters The <on|off> parameter determines if text can be sent to the current application.

Example

```
output to application off ;disable output  
save settings           ;save the new setting  
send output text        ;no text is sent  
key "hello"             ;but text can still be sent with key
```

output to printer <on|off>

Sets the Output to Printer setting to enable or disable text to be sent to the printer when the script command [print display text](#), [print output text](#), [print help text](#), or [print speech text](#) is executed. The new setting is not saved on disk unless the [save settings](#) script command is used.

Syntax `output to printer <on|off>`

Parameters The <on|off> parameter determines if text can be sent to the printer.

Example

```
output to printer off ;disable output  
save settings         ;save the new setting  
print prompt text    ;no text is sent
```

output to speech <on|off>

Sets the Speech to synthesiser setting to enable or disable text to be sent to the speech synthesiser when the script command [say display text](#), [say output text](#), [say help text](#), or [say speech text](#) is executed. This does not effects the playing on WAV or MP3 files. The new setting is not saved on disk unless the [save settings](#) script command is used.

Syntax `output to speech <on|off>`

Parameters The <on|off> parameter determines if text can be sent to the current application.

Example

```
output to speech off;disable output  
save settings         ;save the new setting  
say speech text       ;no text is sent
```

output to sound <on|off>

Sets the Speech to synthesiser setting to enable or disable text to be sent to the speech synthesiser when the script command [say display text](#), [say output text](#), [say help text](#), or [say speech text](#) is executed. This does not effects the playing on WAV or MP3 files. The new setting is not saved on disk unless the [save settings](#) script command is used.

Syntax output to sound <on|off>

Parameters The <on|off> parameter determines if text can be sent to the current application.

Example

```
output to sound off ;disable output  
save settings      ;save the new setting  
say speech text    ;no text is sent
```

P to R

page down

Equivalent to pressing the Pg Dn key on the keyboard. This command can be used, for example, to scroll down a page in a document or a list box.

Note: You can also use the command key "<esc>Pagedown." or key "<esc>Pgdn." for the same effect

page up

Equivalent to pressing the Pg Up key on the keyboard. This command can be used, for example, to scroll up a page in a document or a list box.

Note: You can also use the command key "<esc>Pageup." or key "<esc>Pgup." for the same effect

param application <file>

Opens a new instance of the specified application file and makes it the current application - just like the [open application](#) command - but allows additional start-up parameters to be sent along to the application (See also the [switch to](#) script command.) **Note:** There is no complete script wizard available when adding this command; The string **param application "application.exe" "parameters"** is added into the Scripts tab dialogue, and has to be edited manually in "Edit mode" (to specify application and parameters).

Syntax param application <"file"> <"parameters">

Parameters The <"file"> parameter specifies the path name of the application file to be opened and run. The parameter <"parameters"> specifies the start-up parameters

(separated by Space) to be sent along when the application is launched. (Note: The param application command can not pick up its parameters from the Output Text like the open application command can.)

Examples

```
param application "calc.exe" "-p"  
param application "C:\hello.bat" "friends"  
param application "C:\GEWA\SendIR" "A 2 2" <This command takes a GEWA Jupiter Telephone 'off-hook' (A = Answer'phone, IR Command sends from GEWA Prog III, from Level 2, and is repeated twice)>
```

Limitation note: The "param application" command does not at present allow spaces to be included in file-pathnames within the quotation marks ("") i.e. commands such as:

param application "c:\windows\syswow64\wscript.exe" "C:\Users\NT RECES User\My Documents\Z-Wave Socket On.vbs" fail, resulting in the error message
"There_is_no_file_extension in "C:\Users\NT"".

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paste

Pastes the contents of the clipboard to the current application; equivalent to pressing  +  on the keyboard, or selecting the Paste command from the applications Edit menu.

Note: This command does not work with some applications, in which case use the key script command to send the equivalent keyboard shortcut usually `Key "<esc>,hold,ctrl.V"`

Example

The following script pastes some text (previously cut or copied to the clipboard from the Write application) to the Notepad application, and then switches back to Write:

```
switch to Notepad ;make Notepad the current application  
paste ;paste clipboard to Notepad  
switch to Word ;back to Word
```

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previous area

Moves the focus to the previous active area of the current dialogue box; equivalent to pressing Shift+tab on the keyboard as with the command:

```
key "<esc>,hold,shift.<esc>tab.".
```

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print output text

Sends the item's Output Text to the printer if the Output to Printer setting has been enabled.

The item's Output Text can be specified using the Item Properties command on the Item menu. The Output to Printer setting can be specified using the Options command on the Settings menu, or with the script command ['output to printer <on|off>' .](#)

print speech text

Sends the item's Speech Text to the printer if the Output to Printer setting has been enabled.

The item's Speech Text can be specified using the Item Properties command on the Item menu. The Output to Printer setting can be specified using the Options command on the Settings menu, or with the script command ['output to printer <on|off>'](#).

Popups

popup last

This command executes the Select Item script of the item that was previously popped up. This command is useful for stepping back to the last popped up item. If no item has yet been popped up, then an error beep sounds when this command is executed. The popup last command does not cause the specified item to be displayed - this must be done by putting popup show in the Select Item script of the specified item.

Note: SAW does not maintain a history of all previous items popped up, so you can only go back one step; if you need to back-track to a particular item, use the '[popup save](#)' and '[popup restore](#)' script commands.

Examples

Select Item script of Pop-up item ID 10 to hide itself and then to pop up the previous item (ID 20):

```
popup hide    ;hide itself  
popup last   ;execute Select script of previous item ID 20
```

Select Item script of Pop-up item ID 20 so it shows itself when popup last in item ID 10 is executed:

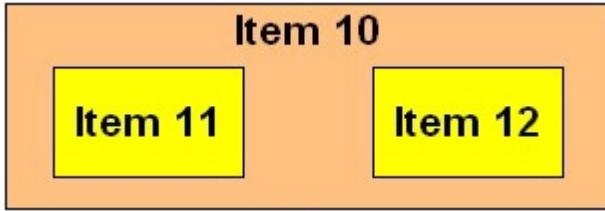
```
popup show    ;show itself  
visit down   ;scan child items
```

popup save

Saves the ID number of the current popup item. Later, popup restore can be used to execute the Select Item script of the saved item. The popup save and '[popup restore](#)' commands are useful for returning to a particular popup item. If no item has yet been popped up, then an error beep sounds when this command is executed.

Example

Item ID 10 is a Popup containing two items (ID 11, 12).



The Select Item script of item ID 11 saves the Popup ID (i.e.10) before hiding the Popup and scanning another item:

```
popup save      ;save current Popup ID number (i.e. 10)
popup hide      ;hide the Popup item
popup item 20   ;pop up another item
```

Later, the Select Item script of an item can cause the saved item to be popped up again:

```
popup restore    ;execute Select Item script of item 10
```

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popup show

Makes visible the specified Popup item. If the specified item does not exist or it is not a Popup item, then an error beep sounds when this command is executed.

Syntax `popup show [<id>]`

Parameters The optional `<id>` parameter specifies the ID number of the Popup item to be shown. If no `<id>` is specified, then the current item is shown.

Examples

This is the typical Select Item script of a Popup item which is the parent of a number of items to be scanned:

```
popup show      ;show itself
visit down     ;scan child items
```

Select Item script of an item to show a Popup item:

```
popup show 20    ;show item 20
```

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popup hide

Hides the specified popup item. If the specified item does not exist or it not a Popup item, an error beep sounds when this command is executed.

Syntax `popup hide [<id>]`

Parameters The optional `<id>` parameter specifies the ID of the popup item to be hidden. If no `<id>` is specified, SAW searches from the current item up the hierarchy (parent, grandparent, etc.) for the first parent, grandparent etc. popup item to be hidden.

Example

Select Item script of an Popup item to hide itself, and then scan to another item:

```
popup hide      ;hide itself
visit item 10   ;visit item 10
```

Select Item script of an item to hide a popped up item:

```
popup hide 20    ;hide item 2
```

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popup item

This command executes the select Item script of the specified popup item as if the popup item had been selected. This is in contrast to the '[exec item](#)' command. If the specified item does not exist or it is not a Popup item, then an error beep sounds when this command is executed.

Note: The popup item command does not cause the specified item to be displayed - this must be done by putting popup show in the Select Item script of the specified item (see script below).

Syntax `popup item [<id>]`

Parameters The `<id>` parameter specifies the ID of the popup item to be hidden. If no `<id>` is specified an error beep sounds when this command is executed.

Example

Normally the specified popup item is the parent of a group of items to be scanned, so the Select Item script of the specified item should be:

```
popup show      ;show itself  
visit down    ;scan the items in the group
```

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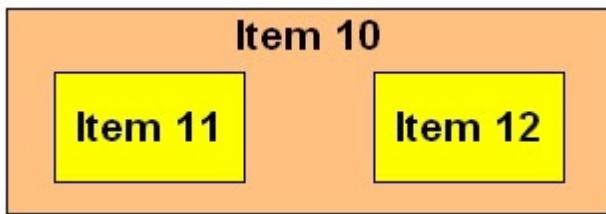
popup restore

This command executes the Select Item script of the item whose ID was previously saved using `popup save`. The `popup restore` and [popup save](#) commands are useful for returning to a particular Popup item. If no item ID has been previous saved, then an error beep sounds when this command is executed.

The `popup restore` command does not cause the specified item to be displayed - this must be done by putting `popup show` in the Select Item script of the specified item.

Example

Item ID 10 is a Popup containing two items (ID 11, 12).



The Select Item script of item ID 11 saves the Popup ID (i.e. 10) before hiding the Popup and scanning another item:

```
popup save      ;save current Popup ID number (i.e. 10)  
popup hide      ;hide the Popup item  
popup item 20  ;pop up another item
```

Later, the Select Item script of an item can cause the saved item to be popped up again:
`popup restore ;execute Select Item script of item 10`

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previous set

Opens the last or previous selection set that the set containing this item was opened from.

This can be useful for common selection sets which have dialogue commands, for example answering 'Yes' or 'No' to pop-up questions

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print display text

Sends the items Display Text to the printer if the Output to Printer setting has been enabled.

The item's Display Text can be specified using the Item Properties on the Item menu. The Output to Printer setting can be specified using the Options command on the Settings menu, or with the script command [output to printer <on|off>](#).

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print help text

Sends the item's Prompt text to the printer if the Output to Printer setting has been enabled.

The item's Help text can be specified using the Item Properties command on the Item menu. The Output to Printer setting can be specified using the Options command on the Settings menu, or with the script command [output to printer <on|off>](#).

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restore

Restores the window of an application which has been minimized or maximised using the [minimize](#) or [maximize](#) script command, and makes it the current application. Note that the applications icon must be highlighted (using [switch to <file>](#)) or this command to restore the application. To restore the SAW window use the `restore SAW` command

Example

The following script highlights the icon of (minimized) Notepad and restores its window to make it the current application:

```
switch to Notepad ;highlight Notepads icon  
restore           ;restore Notepads window and make it active  
key "Hello."      ;send text to Notepad
```

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prompt <on|off>

See [help text \(on/off\)](#)

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restore saw

Restores SAW's window after it has been minimized using the [minimize SAW](#) or [hide SAW](#) commands.

Example

```
minimize saw   ;iconize the SAW window  
beep          ;sound  
wait 2        ;wait 2 seconds
```

```
beep          ;sound  
restore saw  ;restore the SAW window
```

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right

Moves the text cursor a character to the right; equivalent to pressing right arrow on the keyboard. This command can be used, for example, to move the text cursor right one character in a document. The equivalent 'key' command is `key"<esc>right."`

If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the [continuous](#) script command. Similarly, set [step](#) mode for a single movement.

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right click

Equivalent to clicking the right mouse button at the current pointer position.

Syntax `right click`

Parameters none

Example

```
right click      ;then click right mouse button  
continuous       ;move cursor repeatedly  
E                ; to the East (right) until switch pressed again  
right click      ;then click right mouse button
```

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right double click

Equivalent to double clicking the right mouse button at the current pointer position.

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S

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S (South)

Moves the mouse cursor to the South using the current Step-size mode (i.e.single, fine, normal, or coarse). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the [continuous](#) script command. Similarly, set Step mode for a single movement.

Example

```
Normal    ;use normal step-size (default 20 pixels)  
S        ;move to the South (down)
```

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save desktop

Saves the specified desktop file to the current SAW User folder. The desktop file is saved in

the current SAW User folder. You need not include the desktop filename extension .dsk

Syntax `save desktop <file, :output>`

Parameters The `<file, :output>` parameter specifies the path name of the desktop file to be opened. If the parameter is given as "`:output`", the current item's output text is used as the desktop path and file name. If no path is given the current SAW folder is assumed.

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save settings

Saves the current settings on disk; the settings file is saved in the current SAW User folder using the current settings filename. The script command [load settings <file>](#) must have been previously executed to make `<file>` the current settings filename. If the current settings filename has not yet been defined, then an error beep sounds when this command is executed.

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saw

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saw down

Moves the SAW window down one step using the current Step-size mode (i.e. single, fine, normal, or coarse). [Continuous](#) mode does not effect this command.

Example

```
normal      ;normal step-size (default 20 pixels)
saw down    ;move SAW window down by 20 pixels
```

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saw left

Moves the SAW window left one step using the current Step-size mode (i.e. single, fine, normal, or coarse). [Continuous](#) mode does not effect this command.

Example

```
normal      ;normal step-size (default 20 pixels)
saw left    ;move SAW window left by 20 pixels
```

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saw right

Moves the SAW window right one step using the current Step-size mode (i.e. single, fine, normal, or coarse). Continuous mode does not effect this command.

Example

```
normal      ;normal step-size (default 20 pixels)
saw right   ;move SAW window right by 20 pixels
```

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saw up

Moves the SAW window up one step using the current Step-size mode (i.e. single, fine, normal, or coarse). Continuous mode does not effect this command.

Example

```
normal      ;normal step-size (default 20 pixels)
saw up     ;move SAW window up by 20 pixels
```

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SE (SouthEast)

Moves the mouse cursor to the South East using the current Step-size mode (i.e. single, fine, normal, or coarse). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the continuous script command. Similarly, set step mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)
SE          ;move to the South East
```

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single

Sets the Step-size mode to single one pixel movement for all subsequent mouse movement commands (e.g. N, SW etc.). This allows for very fine mouse movements compared with fine, normal and course.

Example

```
single      ;use single step-size
continuous  ;move cursor repeatedly (until switch pressed again)
S           ;to the South (down)
```

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say

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say display text

Sends the item's Display text to the speech synthesiser if either the Speech to synthesiser or Speech to engine setting has been enabled. The items Display text can be specified using the Item Properties command on the Item menu.

The Speech to synthesiser setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#). The Speech to engine setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#).

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say output text

Sends the item's Output text to the speech synthesiser if either the Speech to synthesiser or Speech to engine setting has been enabled. The items Output text can be specified using the Item Properties command on the Item menu.

The Speech to synthesiser setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#). The Speech to engine setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#).

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say help text

Sends the item's Help text to the speech synthesiser if either the Speech to synthesiser or Speech to engine setting has been enabled. The items Help text can be specified using the Item Properties command on the Item menu.

The Speech to synthesiser setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#). The Speech to engine setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#).

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say speech text

Sends the item's Speech text to the speech synthesiser if either the Speech to synthesiser or Speech to engine setting has been enabled, or plays the named .WAV or MP3 file if the output sound setting has been enabled. The items Speech text can be specified using the Item Properties command on the Item menu.

The Speech to synthesiser setting can be specified using the Options command on the Settings menu, or with the script command [output to speech <on|off>](#). The Speech to engine setting can be specified using the Options_command on the Settings menu, or with the script command [output to speech <on|off>](#).

The Speech as WAV or MP3 sound setting can be specified using the Options command on the Settings menu, or with the script command [output to sound <on|off>](#).

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scroll

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scroll down

Scrolls the applications window down one line (the text cursor position is not affected); equivalent to clicking on the down arrow icon on the applications vertical scroll bar.

Note: This command does not work with all applications.

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scroll left

Scrolls the applications window left one character (the text cursor position is not affected); equivalent to clicking on the left arrow icon on the applications horizontal scroll bar.

Note: This command does not work with all applications.

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scroll page down

Scrolls the applications window down a page (the text cursor position is not affected); equivalent to clicking under the scroll box icon on the applications vertical scroll bar.

Note: This command does not work with all applications.

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scroll page left

Scrolls the applications window left a page (the text cursor position is not affected); equivalent to clicking to the left of the scroll box icon on the applications horizontal scroll bar.

Note: This command does not work with all applications.

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scroll page right

Scrolls the applications window right a page (the text cursor position is not affected); equivalent to clicking to the right of the scroll box icon on the applications horizontal scroll bar.

Note: This command does not work with all applications.

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scroll page up

Scrolls the applications window up a page (the text cursor position is not affected); equivalent to clicking above the scroll box icon on the applications vertical scroll bar.

Note: This command does not work with all applications.

scroll right

Description Scrolls the applications window right one character (the text cursor position is not affected); equivalent to clicking on the right arrow icon on the applications horizontal scroll bar.

Note: This command does not work with all applications.

scroll up

Scrolls the applications window up one line (the text cursor position is not affected); equivalent to clicking on the up arrow icon on the applications vertical scroll bar.

Note: This command does not work with all applications.

select

Selects (highlights) the current item in a list box; equivalent to pressing space on the keyboard.

Example

The following script highlights the first filename in the filenames list of an Open File dialogue box:

```
key "<esc>,hold,alt.fo"      ;Alt+f to open a file
wait 0.5                      ;wait for dialogue box to appear
key "<esc>tab."              ;Tab to filenames list box
select                         ;highlight the first filename
```

select next

If a number of applications are opened, this command causes the next opened non-minimized application to become active: it becomes the current application and its window is displayed.

This command is equivalent to pressing  +  on the keyboard, except that minimized applications are ignored.

Select next can be used to cycle through all the opened non-minimized applications.

select previous

If a number of applications are opened, this command causes the last opened non-minimized application to become active: it becomes the current application and its window is displayed.

This command is equivalent to pressing  +  +  on the keyboard, except that

minimized applications are ignored.

Select `previous` can be used to cycle through all the opened non-minimized applications.

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send

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send display text

Sends the item's Display text to the current application if the Output to Application setting has been enabled.

The item's Display text can be specified using the Item Properties command on the Item menu. The Output to Application setting can be specified using the Options command on the Settings menu, or with the script command [`output to application <on|off>`](#).

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send output text

Sends the item's Output text to the current application if the Output to Application setting has been enabled.

The item's Output text can be specified using the Item Properties command on the Item menu. The Output to Application setting can be specified using the Options command on the Settings menu, or with the script command [`output to application <on|off>`](#).

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send help text

Sends the item's Help text to the current application if the Output to Application setting has been enabled.

The item's Help text can be specified using the Item Properties command on the Item menu. The Output to Application setting can be specified using the Options command on the Settings menu, or with the script command [`output to application <on|off>`](#).

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send speech text

Sends the items Speech text to the current application if the Output to Application setting has been enabled.

The items Speech text can be specified using the Item Properties command on the Item menu. The Output to Application setting can be specified using the Options command on the Settings menu, or with the script command [`output to application <on|off>`](#).

set hide saw <secs>

Sets the Hide SAW After Sending to Application output setting to the specified number of seconds. The SAW window will be hidden for the specified time after text has been sent to an application using the script command [send display text](#), [send output text](#), [send help text](#), or [send speech text](#).

The new setting is not saved on disk unless the [save settings](#) script command is used.

Syntax `set hide saw <secs>`

Parameters The <secs> parameter specifies the number of seconds for which SAW will be hidden.

Example

```
set hide saw 3      ;set to 3 seconds  
save settings      ;save the new setting  
send output text   ;send text (SAW window hidden for 3 secs)
```

shift

shift click

Equivalent to holding down the Shift key on the keyboard and clicking the left mouse button.

Examples

```
move to 100 100 ;move mouse cursor to 100,100  
shift click      ;then Shift+click mouse button  
  
continuous      ;move cursor repeatedly (until switch pressed)  
E               ;to the East (right)  
shift click     ;Shift+click mouse button
```

shift double click

Equivalent to holding down the Shift key on the keyboard and double clicking the left mouse button.

Examples

```
move to 100 100      ;move mouse cursor to 100,100  
shift double click  ;Shift + double click mouse button  
  
continuous          ;move cursor repeatedly (until switch pressed)  
E                  ;to the East (right)  
shift double click ;Shift + double click mouse button
```

shift double right click

Equivalent to holding down the Shift key on the keyboard and double clicking the right mouse button.

Examples

```
shift double right click      ;Shift + double click mouse button  
  
continuous                  ;move cursor repeatedly (until switch pressed)  
E                          ;to the East (right)  
shift double right click    ;Shift + double click mouse button
```

shift off

This command is equivalent to releasing the Shift key on the keyboard after having been held down using the [shift on](#) script command.

shift on

This command is equivalent to holding down the Shift key on the keyboard. Characters are converted to their shifted form (e.g. abc is converted to ABC) when they are sent to an application using the script command [send display text](#), [send output text](#), [send help text](#), or [send speech text](#), and [key <string>](#).

Use the [shift off](#) script command to release the Shift key.

Examples

```
shift on          ;lock Shift key  
send output text ;sends the shifted form  
key "hello"      ;sends the shifted form "HELLO"  
  
shift on      ;lock Shift key  
double click ;same as script command shift double click
```

shift right click

Equivalent to holding down the Shift key on the keyboard and clicking the right mouse button.

Examples

```
shift right click      ;then Shift+click mouse button  
  
continuous              ;move cursor repeatedly (until switch pressed)  
E                      ;to the East (right)  
shift right click       ;Shift+click mouse button
```

shorter

Decreases the height of the SAW window by an amount equal to the current Step-size mode (i.e. single, fine, normal, or coarse), leaving the vertical centre of the SAW window at the same position.

Example

```
coarse    ;use coarse step-size (default 50 pixels)
shorter   ;make SAW window shorter by 50 pixels
```

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show control menu

Pulls down the [control or window menu](#) of the current application; equivalent to pressing



on the keyboard.

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show menu

Pulls down the the first menu of the current applications menu bar (usually File menu).

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show menu bar

Highlights the first item in the menu bar of the current application; equivalent to tapping the [Alt](#) on the keyboard.

Example

```
show menu bar      ;highlight first item in menu bar
right            ;highlight next item in the menu bar
down             ;pull down the menu
                  ;(i.e. press down arrow key)
```

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size

Sets Size Window mode so that subsequent script mouse movement commands (e.g. NW, SE) change the size of the current application window in the specified direction. When this command is executed, the mouse cursor changes to a cross of four arrowheads and is positioned at the centre of the current window.

The sequence of script commands to change the size of the current window is as follows:

1. size - to set Size Window mode.
2. mouse movement commands (e.g. NW, SE) - to change the window to the required size; the cursor is now at placed the bottom right corner of the window and is changed to a double arrow head.
3. Ok - to fix the windows new size, or

Cancel - to leave the window size unchanged (note that executing size again cancels the Size Window mode, leaving the window size unaltered).

The above sequence is best achieved by putting each of the commands into individual items as in the example below.

Example

Select script of Item 1 - select this item to set Size Window mode:

```
size      ;set size mode
```

Select script of Item 2 - select this item to expand the window:

```
coarse   ;use coarse step-size  
SE       ;move to expand the window diagonally
```

Select script of Item 3 - when you are satisfied with the size, this item must be selected to fix the new size (alternatively, select item 1 again to cancel the Size Window mode and leave the size unchanged):

```
Ok      ;fix new window size
```

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SizeToSawBottom

This will move Saw to the bottom of the screen and then resize the <file> window so that it fills the remaining space on the desktop.

Note: This command is not supported in the Script Wizard, and has now been complemented with the overlapping and more flexible [dock window](#) script command

Syntax SizeToSawBottom <file>

Parameters <File> is the Application Executable file name.

Example

```
SizeToSawBottom EXCEL.EXE ;The current SAW Selection set will be moved to the  
bottom of the screen and the Excel window resized to fill the rest of the  
screen.
```

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slowkey

Just as **key**, the **slowkey** command sends <"string"> to the current application, but with the set delay between the keys sent.

Syntax slowkey <delay> <'string'>, or slowkey <delay> <"string"> (GIDEI format)

Parameters The <delay> parameter specifies the delay between keys in ms (milliseconds). The <"string"> parameter specifies the string of text or command codes to be sent to the current application. SAW can send the string in either its newer script format, or in the same format as the Trace Centers ACCESS utility program and the Microsoft Serial Keys Accessibility Control Panel setting. These latter commands are called GIDEI codes (General Input Device Emulating Interface) - see below. The string can include commands codes to perform special functions, such as holding the Shift, Alt and/or Ctrl key(s) down (or sending number pad keys, or even mouse actions for GIDEI) etc.

Note: The thumb of rule should be to use the newer style scripts (available via the Script Wizard) as the main option, and revert to GIDEI script commands only for things not otherwise available.

Example

```
slowkey 100 'Hello World!' ;sends text to the current
                           application (new script format,
                           generated by the Script Wizard)
slowkey 200 '<ALT>fo'      ;sends Alt+f o to open a file
                           via the menu bar
slowkey "Hello World!"     ;sends text to the current
                           application, as above, using the
                           older GIDEI script format
slowkey "<esc>,hold,alt.fo";sends the same Alt+f o as above
                           (using the GIDEI script format)
```

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sound click

Sounds a click if the Click input setting has been enabled.

Example

```
click on      ;enable click
sound click   ;generate click sound
```

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step

Sets the mouse and text cursor movement setting to Step mode. When a script movement command (e.g. N, left) is executed, the mouse or text cursor moves one step in the specified direction. Step applies to the following script movement commands: E, N, NE, NW, S, SE, SW, W, down, left, right, up, grid scan. (See also [continuous](#) script command.)

The new setting is not saved on disk unless the [save settings](#) script command is used.

Example

```
step          ;set Step move
save settings ;save new setting
coarse        ;move cursor with coarse step-size
NE            ;one step in North East direction
```

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SW (South West)

Moves the mouse cursor to the South West (down and left) using the current Step-size mode (i.e. single, fine, normal, or coarse). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the [continuous](#) script command. Similarly, set [step](#) mode for a single movement.

Example

```
Normal       ;use normal step-size (default 20 pixels)
SW           ;move to the South East
```

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switch to <file>

Displays the window of the specified application and makes it the current application; if the application has been minimized, then its icon is highlighted instead. If the specified application is not open when the command is executed, then an error beep sounds and the current application continues to be used.

Syntax switch to <file>, :output>

Parameters

The <file, :output> parameter specifies the name of the opened application to be made the current application. If the parameter is given as ":output", the current item's output text is used as the application file name.

Note: The specified application must be already open (refer to open application <file> script command). You need not include the application filename extension .EXE

Examples

```
switch to Write      ;make Write the current application  
key "Hello."        ;send text to Write
```

The following script highlights the icon of (minimized) Notepad and restores its window to make it the current application:

```
switch to Notepad   ;highlight Notepads icon  
restore            ;restore Notepads window and make it active  
key Hello.         ;send text to Notepad
```

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T to Z

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W (West)

Moves the mouse cursor to the West (left) using the current Step-size mode (i.e. single, fine, normal, or coarse). If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the continuous script command. Similarly, set step mode for a single movement.

Example

```
Normal      ;use normal step-size (default 20 pixels)  
W          ;move to the South East
```

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wait <secs>

Waits or pauses the execution of the script commands for the specified time before executing the next script command. This is used to allow time for commands to be obeyed before the next command is issued. SAW has no way of telling if a command has been completed (e.g. open application), so we have to give enough time sometimes for them to be completed before sending the next command (e.g. Open File via a 'key' command).

Syntax

Parameters The <secs> parameter specifies the time for which SAW pauses before the next script command is executed.

Example

Script to copy the result of a calculation from the Calculator to a Write document:

```
normal item      ;un highlight item  
sound click      ;sound  
say speech text  ;speech prompt (if any)  
key <esc>hold,alt.ec ;copy result via menu bar  
wait 2           ;wait for copy to be done  
switch to Write   ;make Write current application  
wait 2           ;wait for Write  
key <esc>hold,alt.ep ;paste result via menu bar  
wait 2           ;wait for paste to be done  
switch to Calc    ;make Calculator current application
```

Note: Because some computer systems run faster or slower than others, it may be necessary or desirable to change the duration of all wait commands in all scripts of a

selection set. Instead of editing every script, it may be preferable to edit the Wait percentage multiplier in the Options command of the Settings menu. The default value is 100 (percent); changing it to 50 makes every wait command pause for 50% of the previous time, making it twice as fast; changing it to 200% makes every wait command pause twice as long as normal.

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taller

Increases the height of the SAW window by an amount equal to the current Step-size mode (i.e. single, fine, normal, or coarse), leaving the vertical centre of the SAW window at the same position.

Example

```
coarse    ;use coarse step-size (default 50 pixels)
taller    ;make SAW window taller by 50 pixels
```

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top left

Moves the SAW window to the top left corner of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

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top centre

Moves the SAW window to the top centre of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

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top right

Moves the SAW window to the top right corner of the screen. This command can be used to view information in a window which is otherwise partially obscured by the SAW window.

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undo

Equivalent to selecting the Undo command from the applications Edit menu, or pressing **Ctrl + Z** on the keyboard. This command works with edit boxes and most applications.

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up

Moves the text cursor up a line; equivalent to pressing up arrow on the keyboard. This command can be used, for example, to move the text cursor up a line in a document, or to move the highlight cursor up a line in a list box.

If Continuous mode is set, movement repeats until the user presses a switch. Continuous mode is set by using either the Options menu command or the [continuous](#) script command. Similarly, set [step](#) mode for a single movement.

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visit

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visit down

Moves down to the next hierarchy level, i.e. to the items inside the current one. It then executes the Visit Item script of the first visitable item inside it and makes that the current item.

This command is usually used in the Select Item script of a group item containing a number of items. When the group item is selected, the visit down command causes the items in the group to be scanned.

Note: Even if this command is specified several times in a particular script, it is only executed once (i.e. you cannot move down several levels at once).

Example

Select Item script of a group item to scan items in the group:

```
normal item      ;un highlight item
sound click     ;make sound
say speech text ;speech prompt (if any)
visit down      ;scan to the first item in the group
```

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visit first

Executes the Visit Item script of the first item in the group item or window that the item is in. It then makes it the current item (use the [Group Order](#) command on the Format menu to view or change the ID of the first item in the group).

This command is usually used in the Select Item script of an item in a group to start scanning from the first item in the group.

Example

Select Item script of an item in a group to send text and then restart the scanning cycle from the first item in the group:

```
normal item      ;un highlight item
sound click     ;make sound
say speech text ;speech prompt (if any)
send output text ;send text to current application
visit first      ;restart scan from first item in group
```

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visit item <id>

Executes the Visit Item script of the specified item and makes it the current item.

Syntax visit item <id>

Parameters The <id> parameter specifies the ID number of the item to be visited. If the specified item does not exist, then an error beep sounds when the command is executed.

Example

Select Item script of an item in a group to send text and then scan to a group item at another hierarchy level:

```
normal item      ;un highlight item
sound click     ;make sound
say speech text ;speech prompt (if any)
send output text ;send text to current application
visit item 20    ;scan to a group item somewhere else
```

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visit last

Executes the Visit Item script of the last item in the group and makes it the current item (use the [Group Order](#) command on the Format menu to view or change the ID of the last item in the group).

Example

Select Item script of an item in a group to send text and then scan to the last item in the group:

```
normal item      ;un highlight item
sound click     ;make sound
say speech text ;speech prompt (if any)
send output text ;send text to current application
visit last       ;scan to last item in group
```

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visit me

Executes the Visit Item script of the current item and makes the item scanned again.

This command is usually used in the Select Item script of an item to continue scanning from the same item. It is useful if you want to be able to repeatedly select an item, for example a key `<esc>tab.` command.

Example

Select Item script of an item to send text and then continue scanning from itself:

```
normal item      ;un highlight item
sound click     ;make sound
say speech text ;speech prompt (if any)
send output text ;send text to current application
visit me         ;continue scan from current item
```

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visit next

Executes the Visit Item script of the next item in the group order and makes it the current

item (use the [Group Order](#) command on the Format menu to view or change the order).

Example

This command is used in the default Next Item script:

```
normal item ;un-highlight item  
visit next ;scan next item
```

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visit previous

Executes the Visit Item script of the previous item in the group and makes it the current item (use the [Group Order](#) command on the Format menu to view or change the order).

Note: This command can be used in the default 'Next Item' script to reverse the normal scanning order (e.g. perform right to left scanning for Hebrew or Arabic).

Example

User-defined default Next Item script of the Default item (ID 0) to scan items from right to left without having to specify the group order:

```
normal item ;un-highlight item  
visit previous ;scan previous item
```

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visit up

Moves up one hierarchy level to the parent item that the current item is in. It then executes the Visit Item script of the parent item one level up and makes it the current item.

Note: Even if this command is specified several times in a particular script, it is only executed once (i.e. you cannot move down several levels at once).

This command is usually used in the Select Item script of one item in a group. To escape from a row or column (say). When the item is selected, the visit up command causes the current parent and subsequent groups contained in the same item as the parent to be scanned.

Examples

Select Item script of an item in a group to scan send text and then scan the current and subsequent groups:

```
normal item ;un-highlight item  
sound click ;make sound  
say speech text ;speech prompt (if any)  
send output text ;send text to current application  
visit up ;scan parent item
```

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wider

Increases the width of the SAW window by an amount equal to the current Step-size mode (i.e. single, fine, normal, or coarse), leaving the horizontal centre of the SAW window at the same position.

Example

```
coarse ;use coarse step-size (default 50 pixels)
```

```
wider      ;make SAW window wider by 50 pixels
```

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wordlist

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wordlist scroll home

This script command causes a word list supplied by an external wordlist application (such as Prophet or WordAid) that is displayed by other items in the same group to scroll to the beginning of the list.

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wordlist scroll pagedown

This script command causes the word list supplied by another application (eg Prophet or WordAid) that is displayed by other items in the same group to scroll down, displaying the next set of words.

Note: The new internal Blade predictions currently just scrolls the list one step up and down.

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wordlist select

This script command is used instead of "send output text" in the Select script of a word list item. It sends to the target application whatever is currently set in the items Display and Output text by a rate enhancement program (eg Prophet or WordAid).

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wordlist set

Enables SAW to receive a list of words from a server application using Windows Dynamic Data Exchange (DDE), with SAW acting as a client to the application. SAW automatically sets up and maintains a connection to the other application until SAW exits the Run mode. This command is usually found in the Startup script of a selection set.

An error beep sounds if the command is not processed by a server application (e.g. because the application has not been opened).

Typically, the server application is a rate enhancement program which produces a list of words (e.g. prediction words {Prophet}, alphabetically sorted words{WordAid}) which match the users partially typed word. By specifying the ID number of a SAW group item in this script command, the list of words fill the Display and Output text of the child items (excluding those set to be Word List Items) according to the group order.

Syntax `wordlist set <"application|topic"> <id>`

Parameters The <"application|topic"> parameter pair specifies the DDE name of the application and a topic recognised by that application. The topic is usually the name of a wordlist - please refer to the applications DDE documentation for the valid topics that can be used. If there is more than one instance of the application with the same topic then only the first response is processed. If the application name is omitted, then any application that understands DDE protocol may respond.

The <id> parameter specifies the ID number of a parent or group item containing the child items that will fill with a list of words (excluding those set to be Word List Items) They are filled in the group order.

Note: The server application must be "SAW aware" - that is, it is able to respond to the following DDE commands sent by SAW:

wordlist	returns a list of words separated by CR/LF
[selectword(<n>)]	outputs word <n> from the list to the target application

Example

The following Startup script of selection set enables a prediction list to be shown in a group of item. Group item 10 is linked to Prophet so that the items in the group are automatically filled with predicted words as the user is typing.

```
wordlist set "prophet|prediction" 10
```

Additional script is needed in each item in the group to enable the word in the item to be output to the target application when the user selects it - refer to the script command [wordlist select](#).

Note: Using Prophet. Before loading the desktop which includes Prophet, SAW should start Prophet without a display window by sending the command:

```
open application "\profwin\prophet -u NoWindow"
```

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wordlist scroll end

This script command causes the word list supplied by another application (eg Prophet or WordAid) that is displayed by other items in the same group to scroll to the end of the list.

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wordlist scroll pageup

This script command causes the word list supplied by another application (eg Prophet or WordAid) that is displayed by other items in the same group to scroll up, displaying the previous set of words.

Note: The new internal Blade predictions currently just scrolls the list one step up and down.

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Changing the Script XML File

The ScriptML.xml file is used to display the Script Commands in the Script Command Wizard. The file contains all the script commands in groupings that describe where they might be used.

In the install it is installed into the following folder

Program Files\ACE Centre\SAW 6 (or Program (x86)\ACE Centre\SAW 6 etc.)

The scriptML mark-up language is used to show the Script Commands in the Script Command Wizard in SAW. The file sets how the commands will be displayed in different groups so that the user can understand how they maybe used.

TAG Definitions

The table below show the allowed tags and how they should be used.

<scriptgrouping>	This is the tag that should be seen at the top of a scriptML file. All other tags should be enclosed within it.	
<group>	This defines a group of script commands and would be a heading the script command wizard tree.	
	Level	This is at what level it should appear in the tree. Normally starts with 1 then 2 etc.
	Name	This is the text that will appear for the grouping of script commands. This will appear on the tree's node.
<script>	This defines an actual script command. This will link with a particular script to add it to the Items script.	
	Name	The name for the script command. This will appear in the tree node.
	Id	This is the id for a particular script command. See the next section for the definitions of the ids.

The table below shows all the possible script commands id's that can be used with the **<script>** tag id attribute.

ID	Command
1	key
2	open application
3	switch to application
4	close Application
5	load Desktop
6	save Desktop
7	OK
8	cancel
9	next area
10	previous area
11	select (Select a Control / Space)
12	end of line
13	beginning of line
14	cut
15	copy
16	paste
17	undo

18	clear
19	up
20	down
21	left
22	right
23	show menu
24	show control menu
25	show menu bar
26	close menu
27	N (Mouse Up)
28	NE (Mouse Up Right)
29	NW (Mouse Up Left)
30	S (Mouse Down)
31	SE (Mouse Down Right)
32	SW (Mouse Down Left)
33	W (Mouse Left)
34	E (Mouse Right)
35	mouse move to ...
36	continuous
37	grid scan (x,y)
38	click
39	double click
40	right click
41	right double click
42	drag on
43	drag off
44	shift Click
45	shift Double Click
46	small Step
47	medium Step
48	large Step
49	single Step
50	step
51	open selection set
52	previous Set
53	normal item
54	highlight item
55	flash item
56	execute item
57	visit up
58	visit down
59	visit item
60	visit me
61	visit first
62	visit last
63	visit next
64	visit previous
65	popup show
66	popup hide
67	popup item
68	popup last
69	popup save
70	popup restore
71	print Display
72	print Output
73	print Speech
74	print Help
75	send Display
76	send Output
77	send Speech

78	send Help
79	speak Display
80	speak Output
81	speak Help
82	minimize SAW
83	hide SAW
84	restore SAW
85	SAW up
86	SAW down
87	SAW left
88	SAW right
89	SAW top left
90	SAW top centre
91	SAW top right
92	SAW bottom left
93	SAW bottom centre
94	SAW bottom right
95	SAW taller
96	SAW shorter
97	SAW wider
98	SAW narrower
99	close SAW
100	display help text
101	load settings
102	save settings
103	output to application
104	output to printer
105	output to sound
106	output to speech
107	inc scan time
108	inc restart time
109	inc input acceptance time
110	inc post acceptance time
111	inc repeat delay
112	inc repeat time
113	dec scan Time
114	dec restart time
115	dec acceptance time
116	dec post acceptance time
117	dec repeat delay
118	dec repeat time
119	inc fine
120	inc normal
121	inc coarse
122	dec fine
123	dec normal
124	dec coarse
125	help on off
126	click on off
127	beep
128	sound click
129	scroll up
130	scroll down
131	scroll left
132	scroll right
133	scroll page up
134	scroll page down
135	scroll page left
136	scroll page right
137	select next window

138	select previous window
139	maximize window
140	minimize window
141	restore window
142	close window
143	size window
144	move window
145	wait
146	mouse move (Item Wizard)
147	mouse action (Item wizard)
148	open item template
149	control click
150	control double click
151	speak speech text
152	Display Text Only
153	Display Graphic Only
154	Display Text and Graphic
155	slowkey
156	generate selection set
157	blade settings
158	edit prediction words
159	keydelay
160	dock window
161	wordlist select
162	wordlist set
163	wordlist scroll pagedown
164	wordlist scroll pageup
165	wordlist scroll home
166	wordlist scroll end
167	param application

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Sample ScriptXML File

```
<?xml version="1.0"?>
<scriptgrouping>
    <group level="1" name="Application Scripts">
        <script name="open application" id="2"></script>
        <script name="Switch To application" id="3"></script>
        <script name="close application" id="4"></script>
        <script name="param application" id="167"></script>
        <Script Name ="Close Application" Id =" Four"> </Script> </group>
    <group level="1" name="Desktop Scripts">
        <script name="load desktop" id="5"></script>
        <script name="Save desktop" id="6"></script>
    </group>
    <group level="1" name="Dialog Box Scripts">
        <script name="OK" id="7"></script>
        <script name="cancel" id="8"></script>
        <script name="next area" id="9"></script>
        <script name="previous area" id="10"></script>
        <script name="select" id="11"></script>
        <script name="end of line" id="12"></script>
        <script name="begining of line" id="13"></script>
    </group>
    <group level="1" name="Edit Scripts">
        <script name="cut" id="14"></script>
        <script name="copy" id="15"></script>
```

```

<script name="paste" id="16"></script>
<script name="undo" id="17"></script>
<script name="clear" id="18"></script>
</group>
<group level="1" name="Keyboard Scripts">
    <script name="key" id="1"></script>
    <script name="slowkey" id="155"></script>
    <script name="keydelay" id="159"></script>
</group>
<group level="1" name="Menu Scripts">
    <script name="up" id="19"></script>
    <script name="down" id="20"></script>
    <script name="left" id="21"></script>
    <script name="right" id="22"></script>
    <script name="show menu" id="23"></script>
    <script name="show control menu" id="24"></script>
    <script name="show menu bar" id="25"></script>
    <script name="close Menu" id="26"></script>
</group>
<group level="1" name="Mouse Scripts">
    <group level="2" name="Mouse Move">
        <script name="N" id="27"></script>
        <script name="NE" id="28"></script>
        <script name="NW" id="29"></script>
        <script name="S" id="30"></script>
        <script name="SE" id="31"></script>
        <script name="SW" id="32"></script>
        <script name="W" id="33"></script>
        <script name="E" id="34"></script>
        <script name="move to" id="35"></script>
        <script name="continuous" id="36"></script>
        <script name="Step" id="50"></script>
        <script name="grid Scan" id="37"></script>
    </group>
    <group level="2" name="Mouse Action">
        <script name="click" id="38"></script>
        <script name="double click" id="39"></script>
        <script name="right click" id="40"></script>
        <script name="right double Click" id="41"></script>
        <script name="drag on" id="42"></script>
        <script name="drag off" id="43"></script>
        <script name="shift click" id="44"></script>
        <script name="shift double click" id="45"></script>
        <script name="control click" id="149"></script>
        <script name="control double click" id="150"></script>
    </group>
    <group level="2" name="Step Size">
        <script name="fine" id="46"></script>
        <script name="normal" id="47"></script>
        <script name="coarse" id="48"></script>
        <script name="single" id="49"></script>
        <script name="continuous" id="36"></script>
        <script name="Step" id="50"></script>
    </group>
</group>
<group level="1" name="SAW Scripts">
    <group level="2" name="Selection Sets">
        <script name="open Selection Set" id="51"></script>
        <script name="previous Selection Set" id="52"></script>

```

```

        <script name="generate selection set" id="156"></script>
</group>
<group level="2" name="Item Template">
        <script name="open Item Template Set" id="148"></script>
        <script name="Display Text Only" id="152"></script>
        <script name="Display Graphic Only" id="153"></script>
        <script name="Display Text and Graphic" id="154"></script>
</group>
<group level="2" name="Item">
        <group level="3" name="State">
                <script name="normal item" id="53"></script>
                <script name="highlight item" id="54"></script>
                <script name="flash item" id="55"></script>
        </group>
        <group level="3" name="Execution">
                <script name="exec" id="56"></script>
        </group>
        <group level="3" name="vist">
                <script name="visit Up" id="57"></script>
                <script name="visit Down" id="58"></script>
                <script name="visit Item" id="59"></script>
                <script name="visit me" id="60"></script>
                <script name="visit First" id="61"></script>
                <script name="visit Last" id="62"></script>
                <script name="visit Next" id="63"></script>
                <script name="visit Previous" id="64"></script>
        </group>
</group>
<group level="2" name="Popup">
        <script name="popup show" id="65"></script>
        <script name="popup hide" id="66"></script>
        <script name="popup item" id="67"></script>
        <script name="popup last" id="68"></script>
        <script name="popup save" id="69"></script>
        <script name="popup restore" id="70"></script>
</group>
<group level="2" name="Print">
        <script name="print display Text" id="71"></script>
        <script name="print output Text" id="72"></script>
        <script name="print speech Text" id="73"></script>
        <script name="print help Text" id="74"></script>
</group>
<group level="2" name="Send to Application">
        <script name="send display text" id="75"></script>
        <script name="send output text" id="76"></script>
        <script name="send speech text" id="77"></script>
        <script name="send help text" id="78"></script>
</group>
<group level="2" name="Speech">
        <script name="speak display text" id="79"></script>
        <script name="speak Output text" id="80"></script>
        <script name="speak speech text" id="151"></script>
        <script name="speak help text" id="81"></script>
</group>
<group level="2" name="SAW Window">
        <script name="minimize SAW" id="82"></script>
        <script name="hide SAW" id="83"></script>
        <script name="restore SAW" id="84"></script>
        <script name="SAW up" id="85"></script>
        <script name="SAW down" id="86"></script>

```

```

<script name="SAW left" id="87"></script>
<script name="SAW right" id="88"></script>
<script name="SAW top Left" id="89"></script>
<script name="SAW top Centre" id="90"></script>
<script name="SAW top Right" id="91"></script>
<script name="SAW bottom Left" id="92"></script>
<script name="SAW bottom Centre" id="93"></script>
<script name="SAW bottom Right" id="94"></script>
<script name="SAW taller" id="95"></script>
<script name="SAW shorter" id="96"></script>
<script name="SAW Wider" id="97"></script>
<script name="SAW narrower" id="98"></script>
<script name="close SAW" id="99"></script>
</group>
<script name="Display Help Text" id="100"></script>
</group>
<group level="1" name="Settings Scripts">
<script name="Load Settings" id="101"></script>
<script name="Save Settings" id="102"></script>
<group level="2" name="output Settings">
<script name="output to application" id="103"></script>
<script name="output to printer" id="104"></script>
<script name="output to sound" id="105"></script>
<script name="output to speech" id="106"></script>
</group>
<group level="2" name="Scan Settings">
<script name="inc scan time" id="107"></script>
<script name="inc restart time" id="108"></script>
<script name="inc input acceptance Time" id="109"></script>
<script name="inc post acceptance Time" id="110"></script>
<script name="inc repeat delay" id="111"></script>
<script name="inc repeat time" id="112"></script>
<script name="dec scan time" id="113"></script>
<script name="dec restart time" id="114"></script>
<script name="dec input acceptance Time" id="115"></script>
<script name="dec post acceptance Time" id="116"></script>
<script name="dec repeat delay" id="117"></script>
<script name="dec repeat time" id="118"></script>
</group>
<group level="2" name="Mouse Step Settings">
<script name="Inc fine" id="119"></script>
<script name="Inc normal" id="120"></script>
<script name="Inc coarse" id="121"></script>
<script name="Dec fine" id="122"></script>
<script name="Dec normal" id="123"></script>
<script name="Dec coarse" id="124"></script>
</group>
<script name="help text On|Off" id="125"></script>
<script name="click sound On|Off" id="126"></script>
</group>
<group level="1" name="Sound Scripts">
<script name="beep" id="127"></script>
<script name="sound click" id="128"></script>
</group>
<group level="1" name="Scroll Scripts">
<script name="scroll up" id="129"></script>
<script name="scroll down" id="130"></script>
<script name="scroll left" id="131"></script>
<script name="scroll right" id="132"></script>
<script name="scroll page up" id="133"></script>

```

```

<script name="scroll page down" id="134"></script>
<script name="scroll page left" id="135"></script>
<script name="scroll page right" id="136"></script>
</group>
<group level="1" name="Window Scripts">
    <script name="select next window" id="137"></script>
    <script name="select previous window" id="138"></script>
    <script name="maximize window" id="139"></script>
    <script name="minimize window" id="140"></script>
    <script name="restore window" id="141"></script>
    <script name="close window" id="142"></script>
    <script name="size window" id="143"></script>
    <script name="move window" id="144"></script>
    <script name="dock window" id="160"></script>
</group>
<group level="1" name="Word prediction scripts">
    <script name="blade settings" id="157"></script>
    <script name="edit prediction words" id="158"></script>
    <script name="wordlist set" id="162"></script>
    <script name="wordlist select" id="161"></script>
    <script name="wordlist scroll pagedown" id="163"></script>
    <script name="wordlist scroll pageup" id="164"></script>
    <script name="wordlist scroll home" id="165"></script>
    <script name="wordlist scroll end" id="166"></script>
</group>
<group level="1" name="Miscellaneous Scripts">
    <script name="wait" id="145"></script>
</group>
</scriptgrouping>

```

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The SAW Keyboard/Switch Designer Interface

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Keyboard Interface

SAW 6 is (as was SAW5) fully enabled for keyboard access. This means that a switch user can design their own selection sets using a keyboard emulator. SAW users can create their own SAW interfaces.

Selection sets created for this purpose in SAW 5 should be fully functional in SAW 6

Most dialogues have their keyboard interfaces indicated in the normal underlining of the alt key combination to the use.

Selecting items through the keyboard

We have employed a scanning technique to give keyboard and switch users a way of selecting items that are to be edited. The  key is used to move a scan from one item to the next, and  (Space) to select the item to be edited. The  key is used to open the properties dialog. The editing scan obeys the same rules as the switch scan, except that non scan items are highlighted, and popup items are only scanned if they are visible.

The scan starts at the top level and scans all visible items at that level. You can move up and down the hierarchy as you can when running in User mode.



To enter and scan inside a container item (effectively a visit down) use the .



To leave a containing or group item and return to scanning the level above use the .

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Keyboard Shortcuts

	Shortcut	Notes
Items and Selection sets		
Add New Item	+ +	Then use left click
New Selection Set	+	Enter name and then
Showing Text Graphics for a Selection Set		S - Show Both T - Hide Text G - Hide Graphic
Choosing Items		
Next item		Does not move to hidden items but does allow you to edit items marked 'not scanned'
Select one item		(Space)
Add item to Selection	+	
Enter group	+	
Leave group	+	
Edit properties		Opens the properties dialog for the selected items
Editing Items		
Copy (selected item)	+	
Copy Script	+ +	
Copy Presentation	+ +	
Paste Item / Presentation / Script	+	
Cut (selected item)	+	
Delete Item		
Undo (last action<s>)	+	
Re-do last Undo<s>	+	
Add New Item	+	Then use mouse to position or put in any position after keyboard move.

Apply Changes		Applies last style change to other items.
Group Order		Select item first
Moving/sizing items		
Move up / down / left / right		
Move into / out of group up / down / left / right		
Size Shorter / taller / wider / narrower		Top left corner is fixed
Snap to Grid <on off>		
Aligning items with each other		
Lefmost / Rightmost / Topmost / Bottommost		
Tallest / Shortest / Widest / Narrowest		Top left corner of every item is fixed.
Space Across / Down Container		Container can be the tool window or a group item.
Align centres Vertically / Horizontally		
Item Templates		
Open Template Toolbox		
Close Template Toolbox		Close application when toolbox is active window
Navigate		As in a selection set - see above
Move to Selection Set - Template Toolbox		
Apply template to item		
Selection Set Viewer		
Item Specifications		
Select item		
Item Specifications (Set up or Edit properties)		
Resizing and Moving the Selection Set		
Use Context menu move		

Use Context menu Size	
Resize Selection Set	
Change X (horizontal) or Y (vertical) Size	or
Maintain Aspect ratio (Resize)	
Item Properties - Presentation	
Edit Display Text, Show / Hide	
Line Spacing, Font	,
Edit Display Output, Same as Display	,
Edit Speech Output, Same as Display	,
Test Speech	,
Sound File Name, Browse	
Graphic File Name, Show / Hide, Browse	,
Edit Help Text	
Popup / Wordlist Item / Reset Swap	,
Not Scanned / Auto-repeatable / Escape item	, ,
Cancel	, ,
OK	
Apply	
Item Properties - Colour + Style	
Text - normal colour	
Text - highlight colour	
Background - normal colour	
Background - highlight colour	
Border - normal colour	
Border - highlight colour	
Thickness - normal	
Thickness - highlight	

Style	
Open colour pallete	
Navigate pallete	
Choose Colour	
Change Thickness or Style	
Apply (changes to item)	

More colours pallette

Basic Colours	
Custom Colours	
Define Custom Colours	
Hue	
Sat(uration)	
Lum(enance)	
Red	
Green	
Blue	
Add to Custom Colours	
OK	
Cancel	

Adds to currently selected custom colour box

Text_Graphic Alignment

Text Top	
Text Bottom	
Text Left	
Text Right	
Text Graphic Area Split	
Smaller / Larger - Text / Graphic	

Text_Graphic Alignment - Advanced

Text Vertical (position)	
Text Horizontal (position)	
Graphic Vertical (position)	
Graphic Horizontal (position)	

OK



Cancel



Menus

[File](#)



[Edit](#)



[View](#)



[Item](#)



[Format](#)



[Settings](#)



[Help](#)



[Control or Window](#)



Options



Input Settings

Selection method



Scan time



Restart extra scan time



Input acceptance time



Post acceptance delay



Repeat delay



Repeat time



Reverse Switches



Use Swap switch



Show Help text



Sound Click



Switch Interface

Switch wizard



Switch Interface



Set as Default



Configure



The use and

Output Settings

Send to Serial Port



Use Speech	+
Send to Clipboard	+
Play WAV or MP3 sounds	+
Send to Printer	+
Send to Application	+
Hide Title when scanning	+
Allow window resizing	+
Hide SAW	+
Step	+
Continuous	+
Wait Multiplier	+
Fine / Test	+ / +
Normal / Test	+ / +
Coarse / Test	+ / +

Speech Engine Setup

Select Voice	+ ,
Volume	+ ,
Rate	+ ,
Pitch	+ ,
Test (the voice)	+

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Controlling Windows Desktops

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Desktops

It is important for efficient access that SAW is able to launch applications. A user may well need to use more than one application. In order to aid loading multiple applications SAW can remember all the applications that are running on a computer and store them in a 'desktop file'. This file can then be 'loaded' later and the applications will be automatically re-opened.

If any of the applications is already open then second instances will be opened.

Note: The size and position of applications' windows are usually now retained by the applications themselves. SAW 3 used to save the position and size but this is no longer possible or necessary. In fact, the complexity in handling desktops over the different newer versions of Windows have made this function somewhat unreliable. If a desktop configuration does not do what you expect it to do, it may be more reliable to instead use a set of [open application](#) script commands (now enhanced in SAW 6)

Desktops can either be loaded from the SAW File menu or by a SAW script command.

SAW can enable the user to load desktops and switch from one application and its associated selection set to another application and selection set. The switch user can also load desktops from specially designed "startup" selection set files.

A desktop can be saved to disk. Different desktops can be saved for different purposes, for example:

Mathematics Desktop	word processor, equation editor, calculator, drawing program
Art Desktop	drawing program, painting program

The name of the currently opened applications - apart from SAW - together with the size and position of their windows can be saved on disk as a desktop file (with extension .DSK) usually in the same folder as the current selection sets' environment.

Making Desktops

Having chosen which applications are to be used in a SAW environment we can create a desktop:

open or make a new selection set and open the associated application(s) to be included on the Desktop:

save the desktop using the 'Save Desktop As' command on the File - Desktop Files sub-menu. Alternatively users can save desktops if an item with the appropriate SAW script command is available.

When a selection set is run, the Startup Script of the first selection set used would typically load a desktop and a settings file; it would also specify the application which initially receives output from SAW (see Switching Applications).

For example

```
load desktop ART.DSK  
switch to application paint.exe
```

Note: A desktop file makes specific reference to disk and folder path names and so is the least portable aspect of SAW. It may well need to be created afresh when selection sets and their desktop file(s) are copied to another computer.

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Switching between Applications

In order to easily switch between applications a command 'switch to' is available in SAW to do this.

The program noted in the command must be running and you need to know the name of the executable file (EXE file) that you need to switch to. This may not be the same as the name of the application, for example to switch to MS Word you need to use the name WINWORD.EXE.

Note: If you do not know the name, use the Task manager ($\text{Ctrl} + \text{Alt} + \text{Delete}$) and go to Processes to find the name when the program is running.

Examples

```
switch to windword.exe (MS Word)  
switch to calc.exe (The Windows Calculator)  
switch to accmath.exe (AccessMaths)
```

Another way of switching to other applications is to use the Windows keyboard shortcuts:

$\text{Alt} + \text{Tab}$ and $\text{Alt} + \text{Shift} + \text{Tab}$. If you lock Alt the successive pressing of Tab will switch from one application to another. A window will appear with icons representing each of the applications currently running. This list will include SAW and it is important although not critical to make sure that you do not switch to sort itself. The new application will 'come to the top' when the a key is released.

Switch one application example script line

```
key "<esc>,hold,alt.<esc>tab."
```

and switch back in the opposite direction

```
key "<esc>,hold,alt.<esc>,hold,shift.<esc>tab."
```

Scan the applications - needs three items each with these script

1. key "<esc>,lock,alt.;hold down the Alt key"
2. key "<esc>tab.;move to the next application on the list"
3. key "<esc>,rel.;release the Alt key to go to that application"

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Moving SAW and Application Windows

SAW Window

SAW has a number of commands to help you arrange the desktop. The SAW Window itself can be moved to the corners and top and bottom centres of the screen with the commands:

top left
top centre
top right
bottom left
bottom centre
bottom right

The size of the SAW window can be altered with the commands [wider](#), [narrower](#), [shorter](#) and [taller](#). These commands take the size of the mouse step settings; [coarse](#), [normal](#) and [fine](#).

SAW and Application window

The new [dock window](#) script command allows you to dock the SAW window onto the bottom, top or side (left or right) of a current active application. The **application window** is re-sized to accomodate the SAW window.

This command partly overlaps the (since SAW 5 available) [SizeToSawBottom](#) command.

Application windows

These can be moved to a given position with the command:

movewindow

To move any open application window you have to give the name of the executable file and the pixel coordinates of the top left hand corner of the screen. for example:

Movewindow calc.exe 0 0

will move the calculator window to the top left hand corner of the screen.

You can also move application windows around by combining [move](#) and [size](#) with [up](#), [down](#), [left](#) and [right](#) arrow key commands

Working with Wordlists

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Blade word prediction

Because the earlier SAW dependence on external wordlist and prediction programs has become increasingly difficult to maintain, the decision was made to add proper word prediction within SAW 6 itself. This is a completely new word prediction engine called "**Blade**".

This is installed as part of SAW 6, and runs within SAW 6 (and not as a separate program, as was the only options available in SAW 5 and earlier SAW versions). Blade does however reside in a separate open source DLL, so other software can be written to use it.

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Using Blade

Functionality

The new prediction engine has the following functionality:

- Records the frequency of each word
- Records the frequency of word pairs, triplets and larger groups (it doesn't remember every combination of words - this would require and almost unlimited amount of memory. It decides automatically what is likely to have an impact on the predictions it makes)
- Updates its information as the user types (in fact at the end of each sentence)
- Predicts differently at the beginning of a sentence. Both the first word is modified - predicting words which commonly appear at the beginning of a sentence, and also the next few words can take into account the position of the sentence start.
- Tracks words recently typed and moves them up the prediction list. (Because when typing an email or document, some words or names relevant to the subject of the document are likely to recur even though they might be quite rare in the language overall)
- Takes account of other punctuation and numbers in deciding the most likely next word (not just full stop which triggers predictions for the start of a sentence)
- In SAW: can track letters both typed using the machine's keyboard as well as within a SAW keyboard.
- Learns which words have capital letters - will predict words using capital letters if they are usually typed with capitals, when not at the beginning of a sentence.

In addition Blade offers optional **abbreviation expansion**:

The list of abbreviations must be set up by the user – when SAW/Blade installs there are no pre-defined abbreviations in any language.

The abbreviation list consists of a list of abbreviations and the text into which they expand. Whenever one of the abbreviations is typed it is immediately expanded. If there should be a trigger character at the end of the abbreviation (eg abbreviations are expanded on pressing ".", then this must be included in the defined abbreviations).

Abbreviations must be preceded by either a space or new line to be processed. No preceding space should be included in the definition.

The abbreviations can be defined in the user vocab editing screen. In SAW6 this can be launched via Menu - View - View word prediction words...

There is a separate section explaining the above listed functionality in more technical detail, and how Blade works. This is mainly intended for programmers.

Converting scripts to use Blade

Which word prediction engine is used by SAW is determined by the selection set startup script. This will contain a line to initialise word prediction, such as:

```
wordlist set "prophet|prediction" 2921
```

The number on the end is the ID of the item that will contain the displayed prediction items. The quoted part in the middle specifies the engine.

Setting up Blade

The new word prediction is initialised in exactly the same way, but using "blade|" - note that SAW requires a | character within the quotes. The engine name (Prophet, Blade etc.) is before the "|" character, and any other options after it. To use the new word prediction system, the above line would be changed to:

```
wordlist set "blade|" 2921
```

Settings

Blade has some optional settings which can also be specified in this command. The settings go inside the quotes after the | character:

```
wordlist set "blade|AlphabeticalResults=true,Uppercase=true" 2921
```

The individual settings are separated by commas, and each is in the form "setting=value". They are not case-sensitive. The settings can also be changed at any time when the script is running using this new script command:

```
blade settings "settings"
```

(when adding a script command this is listed at the end, in the miscellaneous section. There is no editing wizard, it is necessary to activate Edit Mode in the SAW item properties scripting tab to edit this)

The possible settings:

- **AlphabeticalResults = true or false.** If this is set to true, the predictions are returned in alphabetical order. If false, they are listed most likely first (this is the default)
- **OmitPreviousSuggestions = true or false.** If true then predictions will not include those which were suggested when one character less had been typed. So if after just pressing 'g' the predictions included "going", and this was not selected, it will not be predicted again if you then type 'o'. Presumably if it wasn't the right word the first time, then it still won't be the intended word. A word is only omitted after the next character is typed. It will be displayed again if it still matches after 2 characters have been typed. Thus in the above example after typing 'i', blade will now predict "going" again. The default for this setting is true
- **SimpleSingleLetter = true or false** If this is set to true, then after a single letter at the beginning of a word has been typed, Blade always gives the same predictions for each possible letter. I.e. it does not adjust the predictions based on the previous words. The predictions will simply be the most common words starting with the letter. The purpose is that if users know what predictions will be generated, they can select them more rapidly, and the benefit of this may outweigh the fact that the intended word is less frequently predicted.
- **MinimumLength = N (a number)** This sets the minimum length for predicted words. Any word with fewer than N characters will not be included in the predictions. The idea is that for some users there is little point predicting some very short but common words (e.g. "a") because they can just as quickly be typed. The default value is 0 which includes all words in the available data.
- **MinimumGain = N (a number)**. This is similar to MinimumLength, but the limit is based

upon the number of characters already typed. This specifies that only words containing N extra characters, beyond those which have already been typed, should be included. Thus if MinimumGain = 2, once you have typed "we" then "were" can be predicted, but "web" cannot. The default value is 0 which includes all words in the available data. If both MinimumLength and MinimumGain are specified then both are used - only words which fit both conditions are included.

- **Case ='Lower' or 'Normal' or 'InitialLetter' or 'NextInitialLetter' or 'Upper'**. This controls whether the results are displayed in upper or lower case. The default is Normal, in which case words are displayed as they are stored in the data. I.e. words which have a capital letter are displayed as such.

The possible options are:

Lower: text is entirely in lower case, even if the word would normally have a capital letter, or be all capitals, e.g. "hello stuart"

Normal: words are shown as they are stored, i.e. usually in lower case, e.g. "hello Stuart". If a word is typed with a capital, then all predictions are shown capitalised.

InitialLetter: the first letter of every word is capitalised, e.g. "Hello Stuart". Words in all capitals in the lexicon (BBC, USA) remain in all capitals, and are not converted.

NextInitialLetter: as above for the next word only. Then the state is automatically reset to Normal.

Upper: the text is entirely in capitals, e.g. "HELLO STUART"

- **PunctSpace = Off or Single or Double**. This controls whether spaces are added automatically after every punctuation mark. If Off automatic spaces are only added after words selected from the predicted words. Single adds one space after any punctuation mark. Double adds two spaces after '.' and '?', but still a single space after other marks. These automatic spaces are removed again if another punctuation mark immediately follows the first – ie typing '...' produces exactly that with one or two spaces on the end, not '...'. The default is Off. **Note** that opening brackets - ([and { - are ignored in punctuation processing. They are neither followed by automatic spaces, nor remove any automatic spaces which preceded them.
- **Language = code** The code should be either a full culture code,
eg: en-GB = UK English.
en-US = US English
sv-SE = Swedish (Sweden).
(The full list is here:
<http://msdn.microsoft.com/en-us/library/system.globalization.cultureinfo%28VS.80%29.aspx>)

Or, more usually, the code can be just the first 2 letters of this to specify the language. Different user data is stored for each language, but not culture (ie changing from "en" to "sv" loads different user data files, but changing "en-GB" to "en-US" does not). The system data is dependent on the files installed with SAW. At the time of writing this is likely to be one generic file each for English ("en") and Swedish ("sv"). Therefore at the moment Blade doesn't distinguish between UK and US English, for example. This defaults to the language of the computer.

- There is one other setting described in the Blade technical document:
NumberPredictions. Using this in SAW has no effect - SAW automatically sets the number of predictions to fill the available spaces in the selection set. If this setting is included, it is just ignored.

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External predictors (since SAW 5 and earlier)

SAW 5 could use several different prediction systems: Penfriend, WordAid and Prophet. These each needed to be installed separately and SAW had to request predictions from them as needed. Some of these are fairly old programs and have issues on more recent operating systems. Windows 7 causes some problems, and as far as it is known not all will correctly track keys pressed on 64-bit machines.

The code to support these has not been changed in SAW 6. Therefore if they are already working on a machine with saw SAW 5 they should also work in SAW 6. However no attempt has been made to update these and they will probably progressively become less useful as 64-bit and Windows 7 or later become more common.

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The Word Prediction Item Control

Content?

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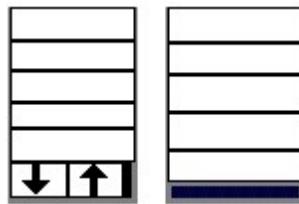
Setting up Word Lists

Word List groups can be set up in the same way as earlier versions of SAW. A group can be constructed and items added to it so that it becomes a word listing for word prediction group.

A word list selection set can be designed for use with word listing and word prediction utilities such as **Blade**, **WordAid**, **Prophet** and **Penfriend**. Words are sent to a designated parent item containing empty items for the supplied words.

Example

Here are two possible designs for a word list group item in a selection set:



The left hand design is for word lists: it includes commands ([wordlist_items](#) not filled by words) to scroll the word list. The right hand design is for word prediction; scrolling is not offered since predictions after the fifth item are unlikely to be helpful.

For each design, the grey background rectangle is a group item containing:

five text items (white rectangles) to be filled with words.

an escape item (small black rectangle) to start scanning letters again ('[Wordlist item](#)' on the item Properties - Presentation page should be checked for all items NOT to be filled with words such as escape items and word list scrolling items)

The left hand design also includes:

two scroll items to scroll the word list down/up.

Word list selection set

The Startup script must include one or more of the following commands:

```
wordlist set "blade|" <id>
wordlist set "wordaid|topic/alpha" <id>
wordlist set "prophet|prediction" <id>
wordlist set "Penfriend|topic" <id>
```

where <id> is the identity number of the group item. Note the use of the vertical line character '|' after the utility name.

if two word lists are needed in a selection set (one may be on a Popup, for example) then all groups must be specified in the Startup script:

e.g.

```
wordlist set "blade|" 2921
wordlist set "wordaid|topic/alpha" 40
wordlist set "Penfriend|topic" 2342
Wordlist set "prophet|prediction" 75
```

Word items

Leave the Display Text blank but set it to Show; it is filled by the word prediction utility according to the group order. The Select script should include the command '`wordlist select`' instead of the usual '`send output text`'.

Escape item

Set as Word List item and include the script command such as visit up.

Scroll items

Set as 'Word List Item'. The Select script should include one of the following commands:

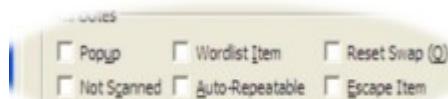
```
wordlist scroll pagedown
wordlist scroll pageup
wordlist scroll home
or
wordlist scroll end
```

instead of the usual `send output text`.

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Wordlist Items

Any control or escape items that are in the same parent item as items to be filled with words from a predictor or wordlisting utility must be designated as 'Wordlist Items'. All items to be filled with words should have this option un-ticked.



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Word List Commands - Advanced

Currently there are three programs that can supply word lists to SAW to speed writing, Prophet, WordAid and Penfriend. In order to implement word-lists in a selection set you need to create a item containing blank items to accept the words.

SAW then has to get the words from these programs and put them in the items you have set up. You need to know the ID number of the item which will contain the lists of words. A command (`Wordlist <source> <ID>`) then designates this group item as the list container. This command is usually placed in the [startup script](#) of the selection set.

In order for the words to appear the listing program needs to be running with no visible prediction list of its own.

Note: The command to start the word listing programs can be made from SAW and should be placed in an initial setup selection set rather than the one displaying the wordlist.

Blade

See [Using Blade](#).

Prophet

This utility provides a list of predicted words based on previous typing by the user. This utility is available from the ACE Centre.

Initializing Prophet

If Prophet is used, SAW should send the following command before loading the desktop:

The following command starts Prophet without a display window.

```
open application "C:\program files\prophet\prophet.exe -U NoWindow"
```

Note: This Assumes that Prophet has been installed in the default directory or folder.

```
wordlist set "prophet|prediction" 2342; set up the item 2342 as containing the wordlists
```

Penfriend

(not fully functional in this version - see note)

This utility provides a list of predicted words based on previous typing by the user and includes abbreviation expansion of words and phrases. This utility is available from Penfriend Ltd. or Inclusive Technology among others.

Penfirend XP will automatically be started if a request is made by SAW for a wordlist.

```
wordlist set "Penfriend|topic" 2342; set up the item 2342 as containing the wordlists
```

Penfriend will start automatically if a selection set requiring it is opened by SAW.

Note: To use Penfriend you must have new word learning, automatic capitalisation **and** smart punctuation set to **OFF** in Penfriend.

WordAid

This utility provides alphabetic lists of words. If the user has started typing a word then WordAid provides an alphabetic word list matching the letters typed so far. If the user has not started typing a word then WordAid provides a topic list of commonly used words and phrases. WordAid includes abbreviation expansion of words and phrases. This utility is

available from the ACE Centre.

Word Aid has to be set not to show its wordlist -a setting within WordAid itself, please refer to the WordAid Help file for details

Starting WordAid.

To start WordAid use the command:

```
open application "C:\program files\wordaid 2\wordaid 2.exe
```

Note: Make sure that the WordAid settings are set to 'Hide Wordlist'

set up the item 2969 as containing the wordlists

```
wordlist set "Wordaid|topic/alpha" 2969
```

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Extending the Key Controls SAW Can Send

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Keys other than Alphabetic, Number and Punctuation.

SAW can send the full range of characters from space (032 or 020 hex) to character 'ÿ' (0255 or OFF hex) in the normal Windows character range. SAW 6 should now also fully support Unicode in all internal and external function (though the practical testing of this has still not been extensive). To see this range of characters in any font open the application 'Character Map' in Start menu - Programs - Accessories or Accessories - System Tools, depending on the version of Windows you are running.

See [key](#) (Key Function - sending keystrokes, for more detail), and [Special Keys](#) section of the Item - Keyboard wizard, or the [Item Script Wizard - Keyboard Scripts](#).

Accented or extended character set

To enter accented and other characters (not readily available via your keyboard) using SAW you can copy them from Character Map and paste them into the Display and Output text.

An alternative is to type them from the keyboard using the alt+numeric keypad sequence:

Hold the down and type the number code of the character on the numeric keypad (not the number keys) with the Num Lock function on. Start with a zero and type the other numbers and then release .

Modifier keys

The keyboard however contains keys that are not characters. SAW has its own keyhook interface for sending these keyboard commands into Windows and the active application. These commands are easiest accessed via the [Item Script Wizard - Keyboard Scripts](#), or via the [Special Keys](#) section of the Item - Keyboard wizard

SAW also supports the [GIDEI code standard](#) used for the Serial Keys option of the Control Panel - Accessibility Options to send these keys.

Examples are 'End', 'Page up', 'Escape', etc.

To ease the entry of keys SAW has a key entry wizard. To activate the wizard activate the right click context menu for an item and select [Item wizard](#). You can also select Item wizard from the Item menu. To see how to add modifier and other [special keys click this link](#)

Entering sequences - newer format

Here follows a few examples of the format used by the key script wizards:

To send the following sequence is used:
key '<HOME>'

Sending modifier keys we need to hold down the modifier until the next 'proper' key is entered. For example + is entered as:
key '<CTRL><END>'

A combination of , and followed by a standard "g" character will be entered as:
key '<SHIFT><ALT><CTRL>g'

Entering sequences - old GIDEI format

When using selection sets created with earlier versions of SAW you will encounter this format, and it still works in SAW 6. We recommend that you use the new format except for keys and combinations not yet supported in the newer script format.

To send special keys in GIDEI an escape character starts the command sequence and a full stop ends the sequence. For example to send the sequence is:

```
<esc>Home.
```

The special modifier keys can be used in the same way. In this case we need to hold down the modifier until the next 'proper' key. The for example + is:

```
<esc>,hold,ctrl.<esc>end.
```

The punctuation with no spaces is critical in this syntax. , and can be used singly or in combination with this syntax.

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Sending Keys to an Application

Each key on your computer keyboard is given a key name, and it is this key name that you must use in the [key <string>](#) script command if you want to be able to type that key.

The [SAW key script codes list](#) contains the names that SAW uses for special keys that are longer than a single character, and the [GIDEI Key names List](#) provides a list of all the key names in the GIDEI script format.

Many of the key names consist of a single character. To type that key, you just send that single character. For example, to type the word "hello", you simply add that text to the item output text and use the [Send output text](#) script. Alternatively, if you would prefer to send the key or text string directly from the item script, you can use the Script Wizard, select "Keyboard Scripts" and the "key" command and enter the appropriate keystrokes. If you enter the string "hello" this results in the following script command in the script dialogue:

```
key 'hello'
```

For the keys that do not have a single character key name, you should use the "Add Keystrokes" - "Special Keys", "More Keys" or "Actions" list boxes in the Script Wizard - Keyboard Scripts - key dialogue to select the desired key or [keys script codes](#) to be sent.

Examples

Note: The Single Quotes and Angle Brackets are parts of the syntax.

```
key 'X'                      ;send the X character  
key '<END>'                 ;send the End key
```

Alternatively, you may still use the manual script editing mode to add the older [GIDEI keyboard commands](#) for the desired keystrokes to be sent.

You will then have to use the key name with special characters to indicate that you are specifying a single key. These special characters are the "Escape" character, "Comma" and the "Full-stop" character:

The Escape character is a special character that belongs to a group called Control characters. The Escape <esc> is the character used to signal the start of key names. To

insert an escape character in a key string insert the five character sequence <esc>.

The full-stop is the character used to signal the end of key names (typically used when the key name is longer than a single character).

The comma is used to separate special holding states, hold, combine or lock (down), for keys.

Examples

Note: The full-stop characters and commas are an essential part of the syntax.

```
Key "X"                      ;send the X character  
Key "<esc>end."            ;send the End key  
Key "<esc>,hold,shift."    ;hold the shift key down for the next keypress
```

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Key scripting codes

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SAW key script codes

This is a list of the currently supported key script codes supported by SAW's own scripting format.
(**Note:** that the GIDEI format still supports substantially more and more fine-grained functions, so may still be relevant for specific things not found here)

(the abbreviation "p/r" stands for "pressed and released")

alt	<ALT>	alt key pressed down (released on next std char)
alt+shift	<ALT+SHIFT>	alt and shift keys pressed down (rel on next standard char)
alt lock	<ALT_LOCK>	alt key lock on
alt unlock	<ALT_UNLOCK>	alt key lock off
apps	<APPS>	apps key p/r (corresponding to right click for context menu)
backspace	<BACK>	backspace key p/r
capslock	<CAPSLOCK>	caps lock key toggled
capslock on	<CAPSLOCK_ON>	caps lock key on
capslock off	<CAPSLOCK_OFF>	caps lock key off
control / ctrl	<CTRL>	control key pressed down
ctrl+alt	<CTRL+ALT>	control and alt keys pressed down
ctrl+shift	<CTRL+SHIFT>	control and shift keys pressed down
ctrl+alt+shift	<CTRL+ALT+SHIFT>	control and alt and shift keys pressed down
ctrl lock	<CTRL_LOCK>	control key lock on
ctrl unlock	<CTRL_UNLOCK>	control key lock off
delay	<DELAY 500>	inserts a delay of specified time in ms (500 def.)
delete / del	<DELETE>	Delete key p/r
down	<DOWN>	down arrow key p/r
end	<END>	end key p/r
enter / return	<ENTER>	enter or return key p/r
esc / escape	<ESC>	esc / escape key p/r
f1	<F1>	function 1 key p/r
f10	<F10>	function 10 key p/r
f11	<F11>	function 11 key p/r
f12	<F12>	function 12 key p/r
f2	<F2>	function 2 key p/r

f3	<F3>	function 3 key p/r
f4	<F4>	function 4 key p/r
f5	<F5>	function 5 key p/r
f6	<F6>	function 6 key p/r
f7	<F7>	function 7 key p/r
f8	<F8>	function 8 key p/r
f9	<F9>	function 9 key p/r
home	<HOME>	home key p/r
ins / insert	<INSERT>'	insert key toggled
kp0	<NUMPAD0>	Numeric pad 0 key p/r, "0" or "ins"
kp1	<NUMPAD1>	Numeric pad 1 key p/r, "1" or "end"
kp2	<NUMPAD2>	numeric pad 2 key p/r, "2" or "down arrow"
kp3	<NUMPAD3>	numeric pad 3 key p/r, "3" or "pgdn"
kp4	<NUMPAD4>	numeric pad 4 key p/r, "4" or "left arrow"
kp5	<NUMPAD5>	numeric pad 5 key p/r, "5"
kp6	<NUMPAD6>	numeric pad 6 key p/r, "6" or "right arrow"
kp7	<NUMPAD7>	numeric pad 7 key p/r, "7" or "home"
kp8	<NUMPAD8>	numeric pad 8 key p/r, "8" or "up arrow"
kp9	<NUMPAD9>	numeric pad 9 key p/r, "9" or "pgup"
left	<LEFT>	left arrow key p/r
left Win key	<LWIN>	left Windows key p/r
numlock	<NUMLOCK>	num lock key toggled
numlock on	<NUMLOCK_ON>	num lock key on
numlock off	<NUMLOCK_OFF>	num lock key off
pagedown	<PAGEDOWN>	page down key p/r
pageup	<PAGEUP>	page up key p/r
pause	<PAUSE>	pause key p/r
printscreen	<PRINTSCRN>	print screen key p/r
repeat character	<REPEAT 2><END_REPEAT>	repeats the last character the number of times specified (2 is default)
right	<RIGHT>	right arrow key p/r
right Win key	<RWIN>	right Windows key p/r
scrolllock	<SCROLLOCK>	scroll lock key toggled
scrolllock on	<SCROLLOCK_ON>	scroll lock key on
scrolllock off	<SCROLLOCK_OFF>	scroll lock key off
shift	<SHIFT>	shift key pressed down
shift lock	<SHIFT_LOCK>	shift key lock on
shift unlock	<SHIFT_UNLOCK>	shift key lock off
space	<SPACE>	space key p/r
tab	<TAB>	tab key p/r
up	<UP>	up arrow key p/r

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Gidei Codes

SAW uses GIDEI codes (originally from the TRACE Center) to provide keyboard and mouse emulation. Special GIDEI (General Input Device Emulating Interface) codes are used to specify keyboard and mouse actions. These codes can be put in an items Output Text or in an items script (using the `key` command). Please refer to the `key` command in the Script Commands section for a full description of GIDEI codes.

[Using ANSI Codes](#)

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Gidei Quick Review

- To type ASCII characters (e.g. letters of the alphabet, numbers, punctuation marks), just type the required text.
Example: `key "How are you?"`
- To type Special keys, you have to use Escape Sequence in the following format: key "`<esc><key name>`".
Example: `key "<esc>backspace."`
- When using Keyboard Commands, the sequence is: `<esc>` followed by a "comma", followed by the commands key name, followed by another "comma", followed by the Special Key name, and ending with a full-stop.
Example: `<esc>,hold,shift.`

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Gidei Escape Sequence Mode

If you look at the computer keyboard, you will find that there are many keys without single character key names to allow you do things other than type single characters; for example, the "Control" and "Enter" keys. We call these keys Special Keys since you have to do something different (include the `<esc>` and full-stop) if you want to type them.

To type them, you have to use the GIDEI's *Escape Sequence Mode*. This is done by starting with an `<esc>` character followed by the required key name of the key or command, and ending with a full-stop. For example, to type a "Return", the script command

is:

```
key "<esc>ret." ;where ret is short for the Return (Enter) key
```

There is an Escape sequence for every special key on the keyboard; these are listed in the section [GIDEI Key names List](#). You can just copy the sequence letter by letter (remember to use the commas, with a full-stop at the end) as they appear in this list.

You will notice that some key names contained in the "GIDEI Key names List", such as the Shift, Alt (Alternate), and Control key names, contain the "hold" command. Remember, for example, that the Shift key is held down with an alphabetic character to make it capitalized. To use these modifier keys we use a slightly different approach, as explained in [Typing Modifier Keys \(Shift, Control, Alt.\)](#).

Additional commands which can be combined with the various keyboard key names are listed in the section entitled [GIDEI Keyboard Commands](#)

Note: Whenever you use hold or lock Keyboard Command in your Escape Sequence, you will need to follow the Escape character with a comma before specifying the Keyboard Command and separate this from the key name with another comma.

See Also

- [GIDEI Quick Review](#)
- [Moving The Mouse using GIDEI codes](#)
- [Clicking the Mouse using GIDEI codes](#)
- [Handling Errors \(Keyboard or Mouse\) in GIDEI](#)
- [GIDEI Keyboard Commands](#)
- [GIDEI Mouse Commands](#)
- [GIDEI Miscellaneous Commands](#)
- [GIDEI Key names List \(Escape Sequences\)](#)

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Typing Modifier Keys



Often, it is necessary to hold a key down while typing another key: for example, holding the Shift key and typing a letter key to get an upper case character. To do this, you use the "hold" command, followed by the second key. This causes the selected modifier key to be held down while the second key is typed; the modifier key is then released.

Examples:

```
key "<esc>,hold,shift.a"           ;types uppercase "A" - note Key "A" will do the same
key "<esc>,hold,alt.fs"             ;saves file via the menu bar
key "<esc>,hold,ctrl.<esc>esc."    ;switches to the Task Manager
key "<esc>,hold,shift.A"           ;types lowercase "a" - note Key "a" will do the same
```

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Gidei Keyboard Commands

combine Used to type two to five keys simultaneously using a single escape sequence, for example:

```
key "<esc>,combine,shift,left."
```

hold Holds the specified keys down along with the next keys sent, for example

```
key "<esc>,hold,ctrl."
```

lock Locks keys down until the rel command is used to release them (i.e. a "key down" is transmitted with no "key up". The Return or Enter key name should never be locked down. Typically used with modifier keys Shift, Control, and Alternate. For example:

```
key "<esc>,lock,shift."
```

rel Releases "locked" keys (sends "key up") and clears any pending hold keys:

```
key "<esc>,rel."
```

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Using ANSI Codes

Note: This section is hopefully not so relevant since the Unicode support has been added in SAW 6. However the Alt + ANSI code format may still be used - both in SAW script and GIDEI script format. **However note also** that due to a bug, the coded character will not be sent directly, but first when an additional character has been sent. So the following script examples will work if (and only if) for example an extra Space character is sent from the script after the ANSI code sequence.

...

SAW will send most characters in the range 0128 - 0255 direct from the output text (as well as the full Unicode set).

Some characters can be incorrectly sent if they are put in an item's Output Text. In this case, the ANSI code may be used. In Windows applications, ANSI codes are entered by holding down the Alt key and typing the code on the numberpad. In SAW, GIDEI codes are used to emulate this actions. A list of the Ansi codes can be found in Windows manuals. You can also run Character Map (Accessories {system}) which will also give you most of the codes and you can work out the few missing ones.

Some useful ANSI codes:

"	=	034
#	=	035
@	=	064
\	=	092
£	=	0163

Example

The ANSI code for double quotes ("") is 034, so the GIDEI sequence is:

```
key "<esc>,lock,alt.<esc>kp0.<esc>kp3.<esc>kp4.<esc>,rel."  
(followed by e.g. key '<SPACE>' - or; key "<esc>space." in GIDEI)
```

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GIDEI Keynames List (Escape Sequences)

(the abbreviation "p/r" stands for "**pressed and released**")

alt	<esc>, hold, alt.	alt key pressed down
backspace	<esc>backspace.	backspace key p/r
bksp	<esc>bksp.	backspace key p/r
capslk	<esc>capslk.	caps lock key toggled
capslock	<esc>capslock.	caps lock key toggled
comma	<esc>comma.	comma key p/r
control	<esc>, hold, control.	control key pressed down
ctrl	<esc>,hold , control.	control key pressed down
del	<esc>del.	numeric pad del key p/r, "." or "del"
delete	<esc>delete.	Delete key p/r
divide	<esc>divide.	divide key p/r, "/"

down	<esc>down.	down arrow key p/r
end	<esc>end.	end key p/r
enter	<esc>enter.	enter or return key p/r
esc	<esc>esc.	esc key p/r
escape	<esc>escape.	escape key p/r
f1	<esc>f1.	function 1 key p/r
f10	<esc>f10.	function 10 key p/r
f11	<esc>f11.	function 11 key p/r
f12	<esc>f12.	function 12 key p/r
f2	<esc>f2.	function 2 key p/r
f3	<esc>f3.	function 3 key p/r
f4	<esc>f4.	function 4 key p/r
f5	<esc>f5.	function 5 key p/r
f6	<esc>f6.	function 6 key p/r
f7	<esc>f7.	function 7 key p/r
f8	<esc>f8.	function 8 key p/r
f9	<esc>f9.	function 9 key p/r
home	<esc>home.	home key p/r
ins	<esc>ins.	numeric pad ins key p/r, "0" or "ins"
insert	<esc>insert.	insert key toggled
kp*	<esc>kp*.	numeric pad star key p/r, "*"
kp+	<esc>kp+.	Numeric pad plus key p/r, "+"
kp-	<esc>kp-.	Numeric pad minus key p/r, "-"
kp/	<esc>kp/.	numeric divide key p/r, "/"
kp0	<esc>kp0.	Numeric pad 0 key p/r, "0" or "ins"
kp1	<esc>kp1.	Numeric pad 1 key p/r, "1" or "end"
kp2	<esc>kp2.	numeric pad 2 key p/r, "2" or "down arrow"
kp3	<esc>kp3.	numeric pad 3 key p/r, "3" or "pgdn"
kp4	<esc>kp4.	numeric pad 4 key p/r, "4" or "left arrow"
kp5	<esc>kp5.	numeric pad 5 key p/r, "5"
kp6	<esc>kp6.	numeric pad 6 key p/r, "6" or "right arrow"
kp7	<esc>kp7.	numeric pad 7 key p/r, "7" or "home"
kp8	<esc>kp8.	numeric pad 8 key p/r, "8" or "up arrow"
kp9	<esc>kp9.	numeric pad 9 key p/r, "9" or "pgup"
kpdel	<esc>kpdel.	numeric pad . key p/r, "." or "del"
kpdelete	<esc>kpdelete.	numeric pad . key p/r, "." or "delete"
kpdivide	<esc>kpdivide.	Numeric pad divide key p/r, "/"
kpdown	<esc>kpdown.	numeric pad 2 key p/r, "2" or "down arrow"
kpdp	<esc>kpdp.	Numeric pad . key p/r, "." or "del"
kpend	<esc>kpend.	Numeric pad 1 key p/r, "1" or "end"
kpenter	<esc>kpenter.	Numeric pad enter key p/r,
kphome	<esc>kphome.	Numeric pad 7 key p/r, "7" or "home"
kpins	<esc>kpins.	Numeric pad 0 key p/r, "0" or "ins"
kpinsert	<esc>kpinsert.	Numeric pad 0 key p/r, "0" or "ins"
kpleft	<esc>kpleft.	Numeric pad 4 key p/r, "4" or "left arrow"
kpmidl	<esc>kpmidl.	numeric pad 5 key p/r, "5"
kpminus	<esc>kpminus.	numeric pad minus key p/r, "-"
kppagedown	<esc>kppagedown.	numeric pad 3 key p/r, "3" or "pgdn"
kppageup	<esc>kppageup.	numeric pad 9 key p/r, "9" or "pgup"
kppgdn	<esc>kppgdn.	numeric pad 3 key p/r, "3" or "pgdn"
kppgup	<esc>kppgup.	numeric pad 9 key p/r, "9" or "pgup"
kpplus	<esc>kpplus.	numeric pad plus key p/r, "+"
kpright	<esc>kpright.	numeric pad 6 key p/r, "6" or "right arrow"
kpslash	<esc>kpslash.	Numeric pad divide key p/r, "/"
kpstar	<esc>kpstar.	Numeric pad star key p/r, "*"
kptimes	<esc>kptimes.	numeric pad star key p/r, "*"
kpup	<esc>kpup.	Numeric pad 8 key p/r, "8" or "up arrow"
lalt	<esc>, hold, lalt.	left alternate key pressed down
lcontrol	<esc>, hold, lcontrol.	left control key pressed down
lctrl	<esc>, hold, lctrl.	left control key pressed down

left	<esc>left.	left arrow key p/r
leftalt	<esc>, hold, leftalt.	left alternate key pressed down
leftcontrol	<esc>, hold, leftcontrol.	left control key pressed down
leftctrl	<esc>, hold, leftctrl.	left control key pressed down
leftshift	<esc>, hold, leftshift.	left shift key pressed down
lshift	<esc>, hold, lshift.	left shift key pressed down
multiply	<esc>multiply.	star key p/r, "*"
numlk	<esc>numlk.	num lock key toggled
numlock	<esc>numlock.	num lock key toggled
pagedown	<esc>pagedown.	page down key p/r
pageup	<esc>pageup.	page up key p/r
period	<esc>period.	period key p/r, "."
pgdn	<esc>pgdn.	page down key p/r
pgup	<esc>pgup.	page up key p/r
printscrn	<esc>printscrn.	print screen key p/r
printscreen	<esc>printscreen.	print screen key p/r
prtsc	<esc>prtsc.	print screen key p/r
ralt	<esc>, hold, ralt..	right alternate key pressed down
rcontrol	<esc>, hold, rcontrol.	right control key pressed down
rctrl	<esc>, hold, rctrl.	right control key pressed down
ret	<esc>ret.	return or enter key p/r
return	<esc>return.	return or enter key p/r
right	<esc>right.	right arrow key p/r
rightalt	<esc>, hold, rightalt.	right alternate key pressed down
rightcontrol	<esc>, hold, rightcontrol.	right control key pressed down
rightctrl	<esc>, hold, rightctrl.	right control key pressed down
rightshift	<esc>, hold, rightshift.	right shift key pressed down
rshift	<esc>, hold, rshift.	right shift key pressed down
scroll	<esc>scroll.	scroll lock key toggled
scrolllock	<esc>scrolllock.	scroll lock key toggled
shift	<esc>, hold, shift.	shift key pressed down
space	<esc>space.	space key p/r
tab	<esc>tab.	tab key p/r
tilde	<esc>tilde.	tilde key p/r, `"
up	<esc>up.	up arrow key p/r

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Handling Errors in Gidei

There are two types of errors which can be made when specifying GIDEI command codes.

The first type of error is mis-spelling a word in an Escape sequence command. If this type of error is made, then a short low beep will be sounded when the command is executed; however, further text and commands can still be sent to the application.

The second type of error is more critical, and is indicated by a short high beep. It occurs when the rules of the GIDEI Standard have been violated, and the keyboard/mouse emulator software linked to SAW is unable to recover from the error. In this case, all text and commands will be ignored and will not be sent to the application until a "CLEAR" command is executed. You must spell "CLEAR" in uppercase letters. This command clears the error condition so that further text and commands can be sent to the application.

Example:

```
key "<esc>,CLEAR." ;clears the critical error
```

Moving the mouse using Gidei Codes

In order to use the mouse, you can either use SAWs mouse script commands (e.g. *N*, *click*, *shift click*), or use the [GIDEI Mouse Commands](#) with the Escape Sequence mode.

Use the "move" command to move the mouse. The move command takes two numbers after it: first the motion in the horizontal direction and then the motion in the vertical direction. There must be either a "+" or "-" sign before the number. Positive numbers move the mouse pointer to the right or down. Negative numbers move the mouse pointer left and up.

Examples:

```
key "<esc>,move,+10, 20."      ;moves 10 pixels right, and 20 pixels up  
key "<esc>,move, 10,+20."      ;moves 10 pixels left, and 20 pixels down  
key "<esc>,move,+0, 10."       ;moves 0 pixels right, and 10 pixels up
```

Clicking the mouse using Gidei Codes

In order to click the button on a mouse, you use the "click" command.

Examples:

```
key "<esc>,click,left."    ;clicks the left button  
key "<esc>,click,right."   ;clicks the right button  
key "<esc>,click."         ;clicks the default button (usually left)
```

If there is no button mentioned in the command, then the default button is pressed. On multiple-button mice (e.g. IBM mouse), the default button is the left button. See the section [GIDEI Mouse Commands](#) for a complete list of mouse commands.

Gidei Mouse Commands

click	Sends a "button down" immediately followed by a "button up" of the specified mouse button: <code>key "<esc>,click."</code>
dblclick	Sends two click actions of the specified mouse button: <code>key "<esc>,dblclick."</code>
moulock	Locks the specified mouse button down (i.e. sends "button down" with no "button up"): <code>key "<esc>,moulock."</code>
mourel	Releases "locked" mouse buttons (i.e. sends "button up"): <code>key "<esc>,mourel."</code>
moureset	Causes the mouse to move its position to the top left corner of the screen and also reset its internal "x" and "y" counter to (0,0):

```
key "<esc>,moureset.".
```

SAW automatically issues this command every time a selection set is run.

move Moves the mouse a specified distance in the specified direction:

```
key "<esc>,move,+10,-20."
```

goto Moves the mouse to a specified location:

```
key "<esc>,goto,100,200."
```

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Miscellaneous Gidei Commands

CLEAR Causes the GIDEI to clear error conditions caused by illegal syntax.

Note: This command must be in uppercase.

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Talking to other applications

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Controlling SAW from Another Application

Note: The DDE communication described here is now rather outdated and not actively used. It has previously been used for the communication with external wordlist programs - now replaced by the integrated Blade word prediction feature in SAW 6 - and some earlier ToolBook applications, as indicated in the example below. As far as we know, this feature should still be functional, but it is not lately tested in practical use.

Example

A ToolBook application can command SAW to load the selection set required for each page that the user turns to. The following handler in a ToolBook page script will command SAW to load the selection set number.ss:

```
to handle enterPage
    set sawScript to open selection set number
    executeRemote sawScript application saw topic script
end
```

A script of two or more lines can be sent to SAW:

e.g. set SawScript to hide saw & crlf & wait 5 & crlf & restore saw
where & is the string concatenation operator and crlf is the carriage return/linefeed constant.

When SAW receives a script via DDE it checks the syntax of each line. Only if every line in the script is valid will SAW then obey the script.

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Setting data in an application

Example

The contents of a field on the current page of a ToolBook application can be set by SAW. The applications book script should include a handler such as :

```
to handle remoteSet what, value
    if what = info then
        set text of field info to value
        respondRemote OK
    else
        forward
    end if
end
```

When SAW sends a command such as:

```
dde set toolbook info SAW User
```

the field info on the current ToolBook page will be set to SAW User.

Saw as a DDE Server

SAW can act as a Windows Dynamic Data Exchange (DDE) server for a client application. An application can send script commands to SAW for execution: for example, to load a selection set, change settings, and highlight items.

The SAW script commands must be sent by the client application as a string separated by carriage return/linefeed; the string must be addressed to application **SAW** with topic name **script**.

SAW must be in Run mode (i.e. the Run menu item is ticked) in order for SAW to receive and execute the string of script commands. If SAW is not in Run mode, it will reply with a DDE NAK (Busy) code, and AppReturnCode = 0.

Before executing the script commands, SAW performs a syntax check on each line of the script. If any line fails, SAW returns a DDE NAK code, and AppReturnCode = the offending line number. If all lines pass the syntax check, SAW returns a DDE ACK (OK) code, and AppReturnCode = 0.

Example

The exact format of the DDE command depends on the client application. This sample ToolBook command shows a string comprising four SAW script commands which sounds a beep, highlights item 10, waits 2 seconds, and then normalizes item 10.

```
-- sample ToolBook command to send a string of SAW script commands
set SawCommands to beep & crlf & highlight item & crlf & \
wait 2 & crlf & normal item 10
executeRemote SawCommands application saw topic script
```

Using DDE commands

Saw supports the DDE (Dynamic Data Exchange) protocol which enables Windows applications to communicate with each other and to exchange data. DDE is used by SAW to interact with the rate enhancement uses described in Hints and tips for using DDE 22 to 24 below. This section describes the use of DDE with other applications which support DDE, such as ToolBook.

The following DDE commands can be used in SAW scripts:

- dde exe to send a plicationcommand to another application
- dde get to get the value of an item (eg. a variable) in another application
- dde set to set the value of an item (eg. a variable) in another application

Note: SAW must be in Run mode (i.e. the Run menu item is ticked) to send and receive DDE messages.

Getting Data from an Another Application

Example

The Display Text of a SAW item can be set to the contents of field title on the current ToolBook page. The ToolBook applications book script should include a handler such as:

```
to handle remoteGet what
if what = title then
    get text of field title
    respondRemote OK
else
    forward
end if
end
```

Note that ToolBook returns to SAW the current value of the special variable **It** (assigned by the Get command).

When SAW sends a command such as:

```
dde get toolbook title 10
```

the Display Text of item 10 is set to the contents of field title on the current ToolBook page. To specify a particular ToolBook application such as demo.tbk send the command:

```
dde get toolbook|demo.tbk title 10
```

Menus

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Context Menus

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Context Menus

The context menus are rapid ways for mouse users to access quick editing of item properties. The menus can be accessed with a right-click or by using the shortcut, shift + f10

There are three context menus

[Top item](#)

The SAW Window itself

[Group item](#)

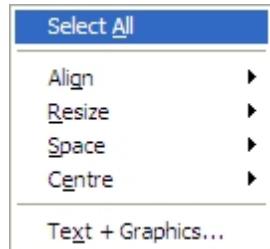
Any item containing other items

[Individual item](#)

Normal items

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Top Item Context Menu



Format tools (align, resize, space, and centre) are applied to all top level items on the work area. These can be group items or individual items.

Text + Graphics - this displays a dialogue box that allows users to quickly change a selection set so that items display only graphics (if there is one), only text (if there is some) or both.

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Group Item Context Menu



Using the format tools (align, resize, space, and centre) from this menu applies changes to all items contained within the selected group item.

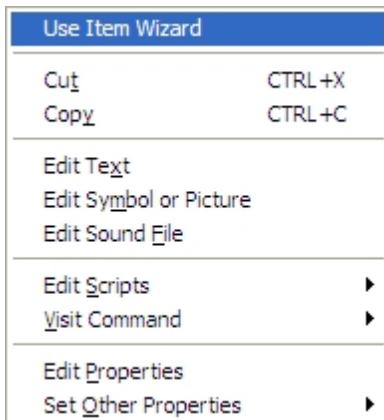
Select All selects all the items contained within the group item

All the other options apply to the group item itself.

see [The right-click group item context menu](#)

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Item Context Menu



See [The Single Item Right-Click Context Menu](#)

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File Menu Commands

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File Menu Commands

The full File menu offers the following commands: The number of commands will depend on the user mode SAW is set to.

Item	Description
New	Creates a new selection set.
Open	Opens an existing selection set.

Save	Saves a selection set using the same file name.
Save As	Saves a selection set using a new file name.
Export in text format	Saves a selection set in a text format file
Generate selectio set	Generate a SAW selection set for the selected open target window with the help of the WindowCatcher utility
Item Template Set	Open, save and edit the template toolbox
Desktop Files	Open, save and edit desktops
Settings Files	Save and load the user settings
Print	Prints the selection set as a picture.
Print Preview	Displays the selection set on the screen as it would appear printed.
Print Setup	Selects a printer, printer settings and printer connection.
1 - 4	A list of the 4 last selection set files opened or saved from the file menu.
Exit	Exits SAW.

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New

shortcut  + 

The **New** command on the File menu closes the current selection set so that a new one can be created in a blank SAW window. You can open an existing selection set with the [Open command](#).

Note: If changes have been made to the current selection set and it has not been saved, a dialogue box is displayed for you to decide if the changes should be saved. All selection set filenames automatically end with the extension .sss (e.g. demo.sss).

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Open

shortcut  + 

The Open command on the File menu opens a previously saved selection set. SAW displays the Selection set File Open dialogue box so you can open your selection set.

A standard Windows file open dialogue box is used. The following options allow you to specify which file to open:

File Name

Type or select the filename you want to open. This box lists files with the extension you select in the List Files of Type box. Files can be opened by double clicking on their names

in the list or single clicking and pressing the 'open' button.

List Files of Type

Select the type of file you want to open: '.sss', or all files '.*' for exported text files.

If changes have been made to the current selection set and it has not been saved, a dialogue box is displayed for you to decide if the changes should be saved. All selection set filenames automatically end with the extension .sss (e.g. demo.sss).

Note: As with many Windows applications, you can have two or more instances of SAW open simultaneously. This enables you to edit two or more selection sets at the same time.

Selection sets saved in SAW 3 format cannot be directly loaded into SAW 6, they must be exported in SAW 3 as text files and then this text file loaded by SAW 6. They can then be saved as SAW 6 sss files. SAW 4 and 5 files should be possible to open directly in SAW 6, but earlier versions cannot open SAW 6 files either exported txt or saved as sss files.

If an error occurs during conversion, a message beep sounds, and a dialogue box describing the error is shown if SAW is not running. Script errors will be highlighted if the offending script is edited.

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Save

shortcut  + 

A standard Windows file open dialogue box is used. Use this command to save the current selection set and its screen position using its existing file name. When you save a selection set for the first time, SAW displays [Selection Set File Save As dialogue box](#) so you can name your selection set. If you want to change the name and folder of an existing selection set before you save it, choose the [Save As Command](#).

Note: All selection set filenames automatically end with the extension .sss (e.g. demo.sss).

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Save As

shortcut  + , 

A standard Windows file open dialogue box is used. The following options allow you to specify the name and location of the selection set you are about to save:

File Name

Type a new filename to save a selection set with a different name. A filename can contain up to 255 characters and an extension of up to three characters. SAW adds the extension sss automatically

Use this command to save the current selection set and its screen position using a different filename. SAW displays the Selection Set File SaveAs dialog box so you can name your selection set

To save a selection set with its existing name and folder, use the [Save command](#).

Note: If changes have been made to the current selection set and you attempt to close or run it then a dialogue box is displayed for you to decide if the changes should be saved. All selection set filenames automatically end with the extension .sss (e.g. demo.sss).

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Export in text format

shortcut **[Alt]** + **F**, **E**

Use this command to save the current selection set in a text file. Exported text files have the default extension 'txt', and may be inspected, printed, edited, and loaded into SAW 6 using the File Open command.

This option is intended for exporting selection sets to the future versions of SAW.

Note: Export from earlier versions of SAW to import (open) them in SAW 6

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Generate selection set

shortcut **[Alt]** + **F**, **G**

Use this command to generate a selection set from the selected open application window with the help of WindowCatcher.

The following dialog will be opened allowing you to select the preferred window among those that are currently open:



This option is still experimental. The selection sets created by WindowCatcher are dependent on GUI-based and position dependent selections in the target window. The functionality is also dependent on the level of support for the Microsoft accessibility APIs (MSAA and UI-Automation) that are implemented in the target app. The resulting selection sets are therefore currently of limited practical value to the end-user.

Also see: [auto_selection_set](#) script command (and the **SAW_Developer_Notes_2012** document for technical information).

Item Template Set

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Item Template Set

The File menu allows you to create new template files, open old template files and convert selection sets into template files. Item template sets are saved as sst files.

For descriptions of Item Templates see '[Adding an item from the template toolbox](#)', '[Editing Templates](#)' and '[Creating Item Templates](#)'

New Item Template Set

shortcut + , ,

This menu command will open a blank window in which you can create a new template toolbox page. If you already have a selection set open, or another template you'll be asked if you wish to save the existing selection settled template before continuing.

Open Item Template Set

shortcut + , ,

This menu command will open an existing template for editing.

Convert to Item Template Set

shortcut + , ,

This command will convert the current selection set into a template toolbar window. To see details of how to [edit templates click this link](#). After the conversion process, you will need to save the template as an sst file.

Desktop Files

Desktop Files

For a description of Desktops refer to the section '[Desktops](#)'.

Load Desktop

shortcut **Alt** + **F**, **D** **D**

The Load Desktop command on the Settings menu loads a previously saved [desktop](#) comprising those applications open when the desktop was saved. SAW displays the Desktop File Open dialogue box so you can load your desktop.

Note: If changes have been made to the current desktop and you select the Exit command, on the File menu then the changes are discarded unless they have been saved using the Save 'Desktop As' command (or an item with the appropriate script command). All desktop filenames automatically end with the extension .dsk (e.g. demo.dsk).

Desktop files saved using other versions of SAW are not compatible with SAW 6 and new desktop files will have to be saved when upgrading earlier SAW environments.

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Save Desktop As

shortcut **Alt** + **F**, **D** **O**

The Save Desktop As command on the Settings menu saves on disk the current desktop of opened applications. A desktop includes all the opened applications. SAW displays the 'Desktop File Save' dialogue box so you can save your desktop.

All the applications open at the time the desktop was saved can be re-opened with load desktop as a menu or item script command

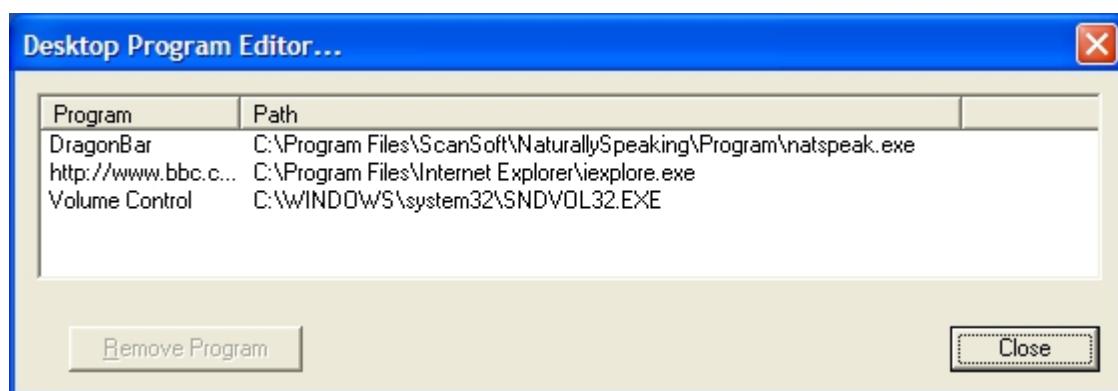
Note: If you specify a filename that already exists, a dialogue box is displayed for you to confirm that the existing file should be replaced. All desktop filenames automatically end with the extension .dsk(e.g. demo.dsk).

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Edit Desktop File

shortcut **Alt** + **F**, **D** **C**

Edit Desktop allows you to remove applications from the list of those loaded by the current desktop. This option is greyed out if a desktop is not loaded.



Select the program you do not want loaded and then select 'Remove Program'. When you close this window you will be asked if you wish to save the changes to the file.

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Settings Files

Settings Files

shortcut + ,

The settings files (*.se) contain the user options configured under the Settings menu - Options. These settings can be saved and loaded from the File menu - Settings Files or from item script commands.

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Load Settings

shortcut + ,

The **Load Settings** command on the Settings menu loads a previously saved settings file and makes the settings active. SAW displays the Settings File Open dialog box so you can load your settings.

Note: All settings saved as the default by checking the box on the [Input settings tab](#) of the Settings dialogue box will automatically when SAW starts.

Settings saved in earlier versions of SAW cannot be read by SAW 6. An error message will be given if SAW is not running, otherwise an error beep will be heard.

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Save Settings As

shortcut + ,

The **Save Settings** command on the Settings menu saves the current settings. SAW displays the [Settings File Save dialog box](#) so you can name your settings.

Note: All settings can be saved as the default by checking the box on the [Input settings tab](#) of the Settings dialogue box.

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Print

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Print

Shortcut +

This prints an image of the selection set. Any visible popups will be printed.

This command presents a Print dialog box , where you may specify the range of pages to be printed, the number of copies, the destination printer, and other printer setup options.

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Print Preview

shortcut **[Alt + F, V]**

This command will display the Visit Item, Select Item and Next Item scripts of the selected item as it will appear when printed.

When you choose this command, the main window will be replaced with a print preview window in which one or two pages will be displayed in their printed format. The print preview toolbar offers you options to view either one or two pages at a time; move back and forth through the document; zoom in and out of pages; and initiate a print job.



The print preview toolbar offers you the following options:

Print

Bring up the print dialog box, to start a print job.

Next Page

Preview the next printed page.

Prev Page

Preview the previous printed page.

One Page / Two Page

Preview one or two printed pages at a time.

Zoom In

Take a closer look at the printed page.

Zoom Out

Take a larger look at the printed page.

Close

Return from print preview to the editing window.

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Print Setup

shortcut **[Alt + F, R]**

Use this command to select a printer and a printer connection. This command presents a Print Setup dialog box , where you specify the printer and its connection.

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Exit command (File menu)

Shortcut **[Alt + F4]**

Use this command to end your SAW session. You can also use the Close command on the application Control menu or the standard close icon. SAW prompts you to save documents with unsaved changes.

Edit Menu Commands

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Edit menu commands

shortcut  + 

The full Edit menu offers the following commands: The number of commands will depend on the user mode SAW is set to

Menu	Description
Undo/Redo Changes	Reverse previous editing operation or reapply a change that has been undone
Cut Item	Deletes item from the selection set and moves it to the clipboard
Copy Item	Copies item from the selection set to the clipboard
Paste (.....)	Pastes the item / properties of the item from the clipboard into the selection set. The word following Paste (item, script, or presentation) will depend on the last copy action
Delete	Deletes item from the selection set
Copy Scripts	Copies the scripts of the current selected item
Copy Presentation	Copies the presentation of the current selected item
Select All	Selects all the items in a selection set
Update using CCF	Allows interaction with the CCF-SymbolServer for the management of symbol content of the selection set with the help of the CCF-SymbolServer and its vocabulary resources

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Undo/Redo Changes

Undo shortcut  +  **Redo shortcut**  + 

Most changes can now be undone or redone - multiple undo/redo's are available. Once saved and closed changes are permanent.

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Cut Item

shortcut  + 

Use this command to delete the currently selected item from the selection set and place it

on the clipboard. If a parent item is selected, all its children are also placed onto the clipboard and then deleted. This command is unavailable if there is no item currently selected.

Note: All information concerning the item is saved (i.e. size, scripts, presentation). The item on the clipboard can be pasted into a selection set using the [Paste Item](#) command.

Note: Cutting data to the clipboard replaces the contents previously stored there.

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Copy Item

shortcut  + 

Use this command to save a copy of the selected item onto the clipboard for subsequent pasting into another item. If a parent item is selected, then all its children are also copied. If you wish to only copy the scripts or the presentation of the item then use the edit menu commands [copy scripts](#) and [copy presentation](#).

This command is unavailable if there is no item currently selected.

Note: All the characteristics of the item are copied (i.e. size, scripts, presentation). The copied item on the clipboard can be pasted into a selection set using the [Paste Item](#) command.

Copying data to the clipboard replaces the contents previously stored there.

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Paste

The name of the command changes, depending on what the clipboard content is, that is what was the subject of the last copy or cut command issued: copy item: copy scripts: copy presentation. There are three different ways the Paste command can be used, they are :

[Paste Item](#)

[Paste Scripts](#)

[Paste Item Presentation](#)

Note: You can Paste (Item, Presentation, or Script) from one selection set into another either by opening the second set or by having two SAW edit windows open at the same time.

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Paste Item

shortcut  + 

The **Paste Item** command on the Edit menu pastes an item from the clipboard to the selection set. This command can be used to make duplicate items when creating a new selection set.

When you choose this command, the cursor changes to a cross to indicate the top left corner of the item to be pasted. Move the cursor to the required position and click the mouse button to add the item. If the [Snap to Grid](#) feature is active, the top left corner of the item is automatically aligned to the nearest grid point.

If you click with the pointer within the border of an existing item, the new item becomes a child of that item.

Note: Before pasting an item, you should use the [Copy Item](#) or [Cut Item](#) menu command to place it onto the clipboard.

Before inserting the item by clicking down the left mouse button, you can press <Esc> key to cancel the process of pasting an item.

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Paste Item Presentation

shortcut +

The **Paste Presentation** command on the Edit menu pastes the presentation and other characteristics of an item from the clipboard into the currently selected item. The selected item adopts the following pasted characteristics:

- **Presentation** (colours, text font etc. but not the parameters output text, display text etc.)
- **Auto-repeatable** and **Reset swap** attributes
- **Size**

You can paste presentations into multiple items.

Note: Before pasting presentation characteristics to the selected item, use the Copy Presentation command to place an item's characteristics onto the clipboard.

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Paste Scripts

shortcut +

The Paste Scripts command on the Edit menu pastes the Visit Item, Select Item, and Next Item scripts from the clipboard to the currently selected item.

You can paste scripts into multiple items.

Note: Before pasting scripts to the selected item, you must use the [Copy Scripts](#) menu command to place them onto the clipboard

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Delete

shortcut

Remove the currently selected item from the selection set.

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Copy Scripts

shortcut + +

The **Copy Scripts** command places a copy of the currently selected item's three scripts (i.e. Visit Item, Select Item, Next Item) onto the clipboard for subsequent pasting into another item.

Note: Scripts copied to the clipboard can be pasted into another item using the [Paste Scripts](#) command.

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Copy Presentation

shortcut + +

The Copy Presentation command places a copy of the currently selected item's presentation and other characteristics onto the clipboard for subsequent pasting into another item. The following characteristics are copied:

- the item's Presentation
- the item's Auto-repeatable and Reset swap attributes
- the item's size

Note: The copied characteristics on the clipboard can be pasted into another item using the [Paste Item Presentation](#) command.

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Select all

shortcut + or + ,

Selects all the items contained in the currently selected item, or the top item if no item is selected.

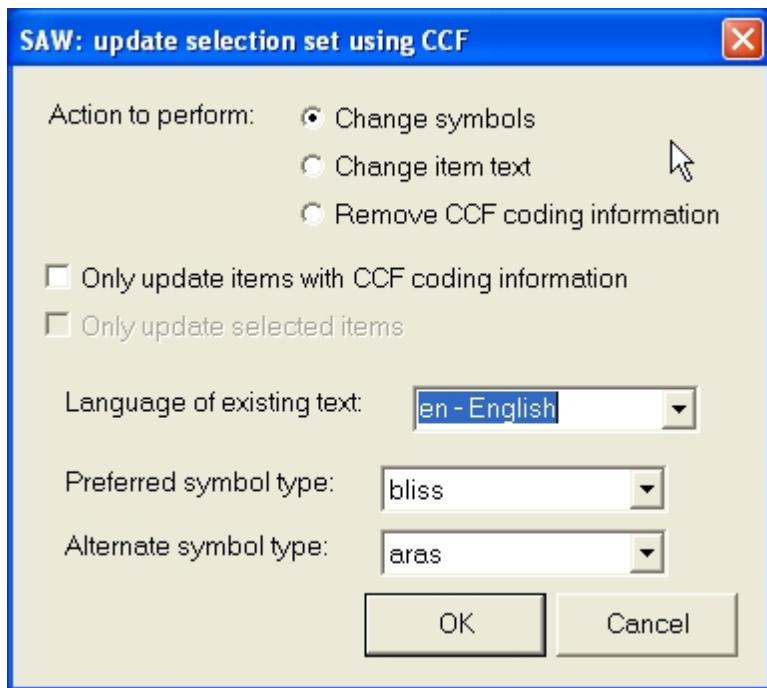
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Update using CCF

shortcut + ,

This command opens up a dialogue for interaction with the CCF-SymbolServer for the management of symbol content of the selection set with the help of the **CCF-SymbolServer** and its vocabulary resources. **Note:** To be functional this requires the CCF-SymbolServer (see [www.conceptcoding.org](#)) to be separately installed and running on the system.

The following dialogue is opened:



...

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View Menu Commands

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View Menu Commands

The View menu offers the following commands: The number of commands will depend on the user mode SAW is set to.

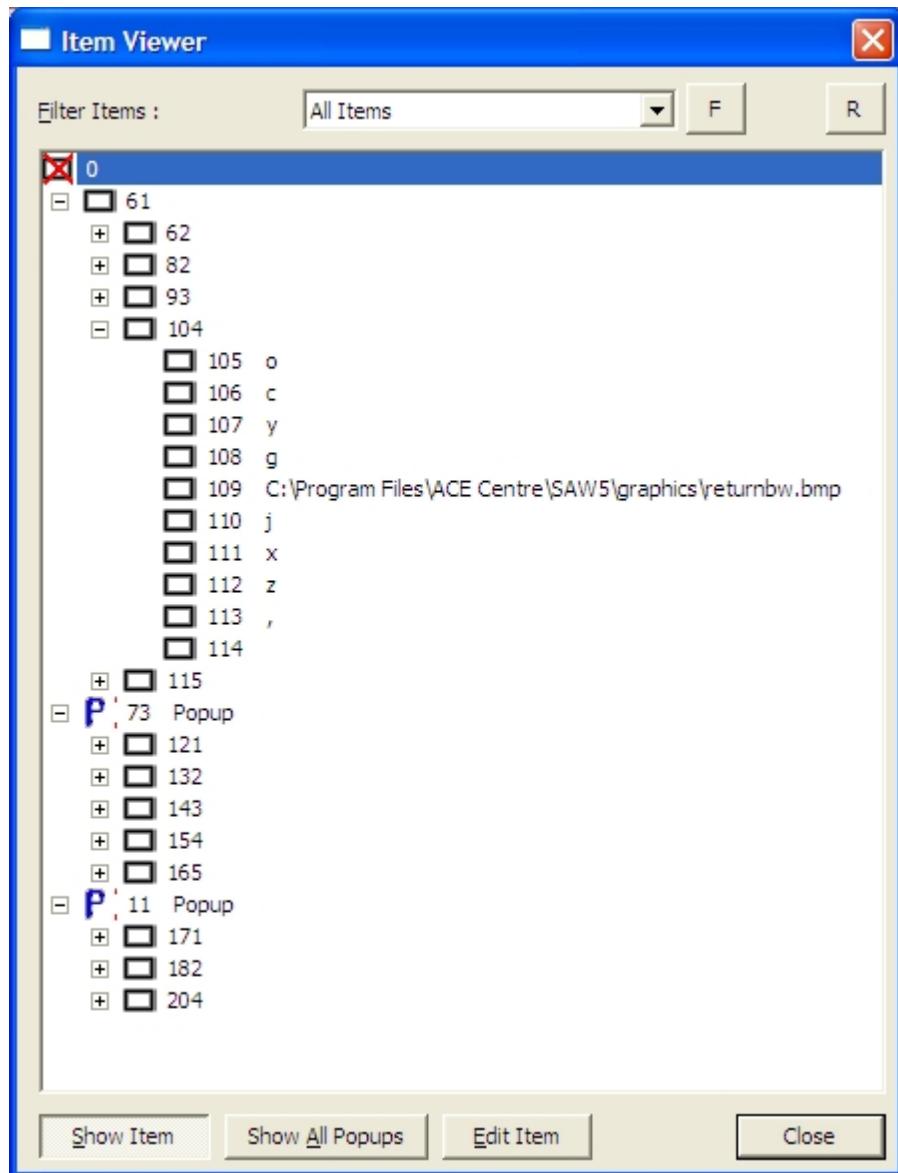
Item	Description
Selection Set Viewer	Opens a dialogue which shows a tree structure of the items in the selection set.
Show all Popups	Makes visible all popup items in the selection set.
Hide	Hides the currently selected item if it is set as a popup.
Hide all Popups	Hides all the items in a selection set which have been set as popup items.
Item Specifications	Open the a dialogue which enables you to edit the properties of any item in the selection set, hidden or not.
Toolbars	Open or hide the designer toolbar.

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Selection Set Viewer

shortcut +

The selection set viewer allows designers to see the contents of a selection set, including any popup items, and, by clicking on the list, select that item. You can quickly move to an item and edit it using the viewer. Popups can be hidden or shown and so can the items that sit on top of them. Gives the designer a better idea of how a selection set is constructed.



Note: The viewer window can be moved around the screen and resized if required. It remembers its size and position for this SAW session but not between sessions

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Show all Popups

shortcut + ,

The **Show all Popup** command on the Item menu makes visible all Popup items in the selection set.

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Hide

shortcut select an item and use **Shift + Ctrl + H**

The Hide command on the Item menu hides the currently selected Popup item.

Note: An item can be defined as a Popup by setting its Popup attribute using the Presentation menu dialogue or the right click context menu. When a selection set is run, all Popup items are initially hidden.

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Hide all Popups

shortcut **Alt + V, P**

The Hide All Popups command on the Item menu hides all Popup items in the selection set.

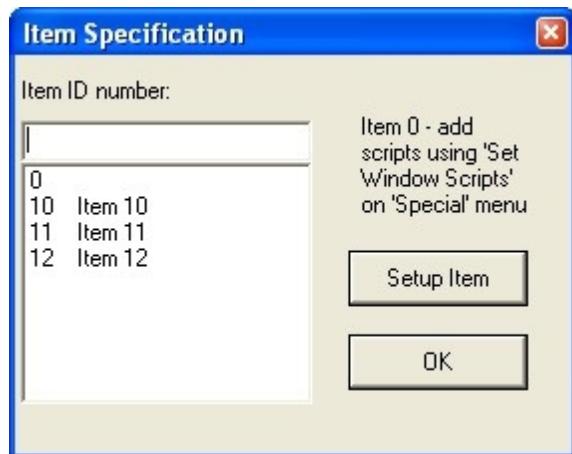
Notes: An item can be defined as a Popup by setting its Popup attribute in the Presentation dialogue of the Item Properties or from the item context menu. When a selection set is run, all Popup items are initially hidden.

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Item Specifications

shortcut **Alt + V, F**

The Specifications command on the Item menu enables an item ID number to be specified so that its scripts and presentation can be edited. Use this command to edit items (e.g. Popups) which are not visible on the screen.



Item ID number The list box shows the ID number of all items in the selection set. For easier identification of an item, the list shows its ID number followed by either its Display Text or its graphic filename (if it has no Display Text), whether set to Show or not.

[Setup Item](#)

Opens the item properties dialogue box for that item

Toolbars

shortcut **Alt** + **V**, **T** **D**

SAW 6 (as SAW5) has a floating design toolbar giving quick access to common functions.



The bar can be re-sized into different aspect ratios by dragging the edges or corner of the bar.



The tools available are:



new selection set



open an existing selection set



save current selection set



cut selected item(s)



copy selected item



paste selected item



undo last change



redo last undo



add a new item



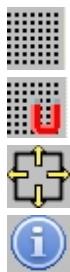
delete selected item



use item wizard



run selection set



- display layout grid on/off
- use snap to grid on/off
- auto resize on/off
- set item to use to display help text

The toolbar can be opened and closed from menu and from icon on title bar. It can be resized and moved around the screen. It remembers its size and position on the screen between SAW sessions.

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View word prediction words

This command opens the Word prediction list dialog (below) to view and edit word prediction words, as well as to view existing and define new abbreviations.

The dialog has a title bar 'User words not in system list' with a dropdown arrow. Below is a table with columns 'Word' and 'Occurs'. The table contains the following data:

Word	Occurs
aac	1
abbreviation	3
abbreviations	2
about	2
absolute	1
Access	1
ACE	2
adding	1
adds	1
AKK	11
along	1
Amberntson	2
amending	1
another	1
användningen	1
application	4
arbetsområde	1

On the right side of the dialog are buttons: 'Add', 'Delete', 'Delete all', and 'Save'.

The prediction list content can be viewed and edited in three modes - plus the option to view and edit the Abbreviation expansion list - available from the listbox at the top of the dialogue:

All user words	
All user words	
User words not in system list	
Words deleted from system list	
Abbreviations	
a	
aaa	1
aac	1
abbreviation	3
abbreviations	2
about	2
absolute	1
Access	1
ACE	2
adding	1
adds	1
AKK	11
aktiv	1
aktiva	1
aldrig	1
ale	1
alla	2

Blue colour indicates words which don't appear in the system dictionary

[Delete all](#)

[Save](#)

Below the abbreviation list is displayed. Note that the character that triggers the abbreviation expansion has to be included in the abbreviation (in the list below this is either a Space or a dash/hyphen character), as well as any space character following the expanded string. (Some more details about abbreviations are found in [Using Blade](#))

Abbreviations	
aac-	Augmentative and Alternative Com
Abbrev.	Word
aac-	Augmentative&Alternative...
akk-	Alternativ&och&Kompletterande...
dr-	Can&have&a&drink&please?&
dr-	Can&have&a&drink&please?&
fo-	Can&have&some&food&please...
fo-	Can&have&some&food&please...
he-	Please&can&you&help&me?&
he-	Please&can&you&help&me?&
hy-	How&are&you?&
hy-	How&are&you?&
ml-	Mats&Lund&lv&
pa-	I&am&in&pain.&
pa-	I&am&in&pain.&
rp-	I&need&repositioning.&
rp-	I&need&repositioning.&
ta-	Thinner&shorter&

In the list spaces are indicated by '&'.

[Delete all](#)

[Save](#)

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Item Menu Commands

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Item menu commands

The full Item menu offers the following commands: The number of commands shown will

depend on the designer options.

Item	Description
Add	Adds a new item to the selection set.
Item Toolbox	Opens the item template toolbox for access to the library of pre-formed items.
Item Controls	Access to special items - Word Prediction
Grid Wizard	Open the grid creation wizard
Item Wizard	Open the item wizard
Item Setup	Editing the item's presentation and scripts.
Set Help Item	Enables the ID number of the help item to be specified.
Apply	Applies the most recent changes to the currently selected item.

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Add

Shortcut  +  + 

The **Add** command on the Item menu adds a new item to the selection set.

When you choose this command, the cursor changes to a cross to indicate the position of the top left corner of the item to be added. Move the cursor to the required position and click the mouse button to add the item.

If the [Snap to Grid](#) feature is active, the top left corner of the item is automatically aligned to the nearest grid point.

If you click within the border of an existing item, the new item becomes a child of that item.

Before adding the item by clicking down the left mouse button, you can press  to cancel the process of adding a new item.

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Item Toolbox

shortcut  + 

This opens the Item templates Toolbox. See '[Adding an Item from the template toolbox](#)' for details.

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Item Control - Word Prediction

shortcut **[Alt]** + **I**, **C** **W**

This creates the special word prediction / wordlisting item.

See [The Word Prediction Item Control](#)

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Grid Wizard

shortcut **[Alt]** + **I**, **R**

Starts the grid creation wizard.

See [The Grid Maker Wizard](#)

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Item Wizard

shortcut **[Alt]** + **I**, **E**

This starts the item wizard to set up the currently selected item.

See [Item Wizard](#)

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Item Properties

Shortcut **[Shift]** + **[Ctrl]** + **I**

This command allows you to change all the characteristics of an item. It opens a dialogue box with tabs to change pages.



[Presentation](#)

The details of text, images and sound ([the presentation parameters](#)) attached to the item.

[Colours + Style](#)

The colours in both normal and highlighted states and the shape and thickness of the border. Apply item styles.

[Text/Graphic Arrangement](#)

The relative positions of the Text and/or graphic within the item.

[Scripts](#)

Editing the three scripts, visit, select and next item



OK

Make the changes to the item and close the

dialogue box.

Cancel	Close the dialogue box and ignore any changes made (unless they have been already applied)
.	.
Apply	Makes the changes to the item but does not close the dialogue box.

Help

Display the help file.

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Set Help Item

shortcut **[Alt]** + **[I], [H]**

When an item is scanned, its Prompt text is displayed in a special item called the Help Item. There is only one help item in a selection set.

The Set Help Item command on the Item menu enables the ID number of the help item to be specified.



Note: The Help text of an item is displayed by using the **script** command [display prompt text](#) which is in the SAW Default Visit Item script.

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Apply

shortcut **[Ctrl]** + **[L]**

The Apply command on the Item menu applies the most recent changes made in another item to the currently selected item.

Any changes made to:

an item's **Presentation** (colours, shape, borders, text/image visibility and font) excluding the texts and image/sound file names.

an item's **Auto-repeatable** or **Reset swap** attributes

can be applied to another item without affecting any other aspects of the presentation or its size.

Example

The foreground and background colour of all items in a selection set can be rapidly altered to

the same colour scheme by first changing the colour of one item, and then repeatedly applying the changes to all other items using the Apply command.

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Format Menu Commands

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Format Menu Commands

The full Format menu offers the following commands: The number of commands will depend on the user mode SAW is set to

Item	Description
Align	Align items with each other within a group or the top item
Resize	Make items the same size as each other.
Space	Evenly space items vertically and horizontally.
Centre	Align items' centres.
Snap to Grid	Enables or disables the snap to grid feature.
Show Grid	Displays or hides a grid of points.
Grid Spacing	Enables the horizontal and vertical grid spacing to be specified.
Group Order	Set the scanning order.
Resize Selection Set	Specify the size of the SAW top item in pixels.
Text and Graphics	Set the default item presentation to text, graphic or both.
Page background	Set page background colour and image, and turn the display of the background image on/off.

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Align

shortcut (see [Keyboard Shortcuts](#))

Align will adjust the position of items so that all items in the top item, selected group item, or set of selected items will line up:

- tops to the topmost.
- bottoms to the bottommost.
- left sides to the leftmost.
- right sides to the rightmost items.

See also [Aliging and Spacing Items](#)

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Resize

shortcut (see [Keyboard Shortcuts](#))

Resize will adjust the size of items so that all items in the top item, selected group item, or set of selected items will size to the:

- tallest.
- shortest.
- widest.
- narrowest.

See also [Re-sizing Items](#)

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Space

shortcut (see [Keyboard Shortcuts](#))

Space will adjust the position of items so that all items in the top item or selected group item are equally spaced within the item. For a set of selected items the items will space equally within the item they are contained in (this is the top item for the items in the top level).

See also [Aliging and Spacing Items](#)

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Centre

shortcut (see [Keyboard Shortcuts](#))

Centre will adjust the position of items so that all items in the top item, selected group item, or set of selected items will line up:

- vertical centres.
- horizontal centres.

See also [Aliging and Spacing Items](#)

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Snap To Grid

Shortcut  + 

If **Snap To Grid** on the Settings menu is enabled, then the top left corner of new or repositioned items automatically adhere to the nearest grid point. Also, when items are being resized or moved, the edge or corner being dragged aligns to the grid.

Select the command to enable the *Snap to Grid* feature (a tick in the menu indicates the feature is active); select the command again to disable this feature.

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Show Grid

The **Show Grid** command on the Settings menu displays or hides a grid of points. The grid is useful for aligning items in the selection set either manually or automatically (using the [Snap to Grid](#) feature).

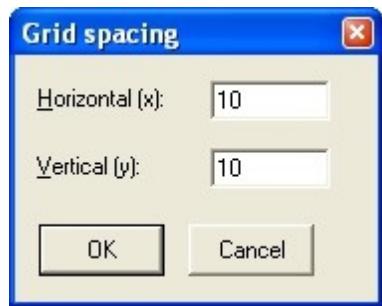
The spacing between the points can be specified using the [Grid Spacing](#) menu command. If the *Snap To Grid* feature is active and an item is created or moved, then its top left corner is automatically aligned to the nearest grid point; if the item is resized or moved, then the corner dragged is aligned to the nearest grid point.

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Grid Spacing

The **Grid Spacing** command on the Settings menu enables the horizontal and vertical grid spacing to be specified.

If the [Snap to Grid](#) feature is enabled, then the top left corner of new or repositioned items automatically adhere to the nearest grid point. Also, when items are being resized, the edge or corner being dragged aligns to the grid.



Horizontal (x) Type the horizontal grid spacing required

Vertical (y) Type the vertical grid spacing required.

Note: All measurements are in screen pixels and so the actual size on the screen will depend on the display resolution. We would recommend using spacings that are multiples of 4

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Group Order

shortcut + +

A **parent item** can contain one or more child items (See the [Add](#) Item menu commands). All parent items have a definable **group order** which determines the sequence in which the children are displayed, scanned, or filled.

The **Group Order** command on the Item menu enables the group order of the selected item to be altered (the item must be a group). If no item is selected, the group order of the SAW Window (top item) will be altered.

Example:



When the group is displayed, the first item in the group appears above all other items, and the last item in the group appears beneath all others. Similarly, the group is scanned or filled

from the first item in the group to the last item in the group (see the Tab number shown on each item).

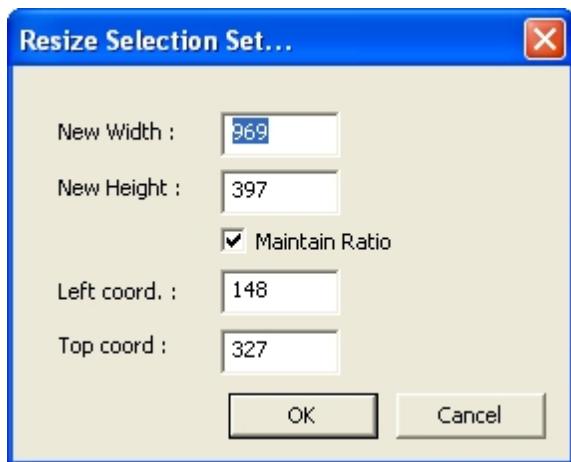
To Change the Group order:

Choose the Group order from the Format menu and set the order of the item movements by clicking on each item in the desired sequence.

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Resize Selection Set

This command has been enhanced in SAW 6 and now allows you to set the size of the SAW selection set window to both exact dimensions and position. The aspect ratio can be kept constant and the width or height will adjust automatically when the other is changed to keep the proportions the same. The position is set by defining the coordinates of the top-left corner of the window.



If the selection set contains a large number of images, this is the method recommended for resizing the selection set rather than by dragging the edge of the SAW window.

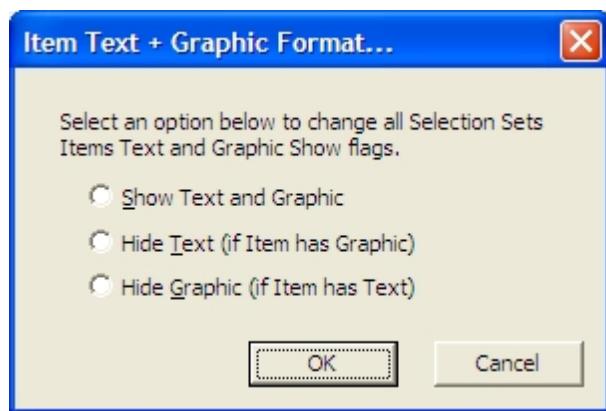
The position setting can be used to make sure that a number of linked selection sets are opened and displayed at exactly the same position based on the position of the top-left corner of the window.

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Text and Graphics

This command allows the whole of a selection set's display characteristics to be changed without changing the settings of any of the items.

A dialogue is opened which can change the selection set to show only text or only graphics in the set's items. If an item does not contain text the the graphic will always be shown and conversly if there is not graphic then text will always be shown.

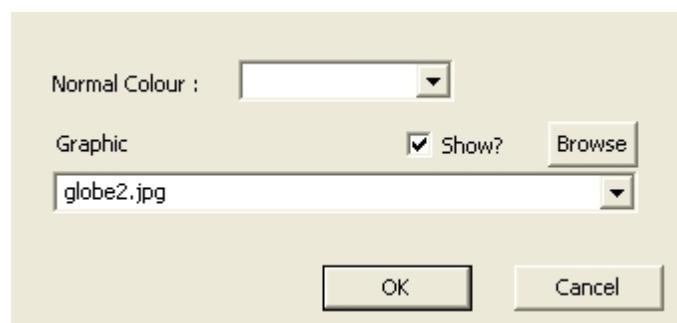


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Page background

With this command the background colour of the SAW window can be changed, and a background image can be selected.

The dialogue below is opened. There the background colour and image can be selected, and the display of the background image can be turned on and off.



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Settings Menu Commands

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Settings Menu Commands

The full Settings menu offers the following commands: The number of commands will depend on the user mode SAW is set to

Item	Description
Run	Runs the selection set in user mode, enabling the selection set and its scripts to be tested or used.
Auto Resize	Enables or disables the resizing of an item's contents and child items when enlarging or reducing the item size.
Show Status	Alternately reveals and hides a status window showing the ID number, Display Text, width and height of the selected item.

Auto-run Selection set

Default Directories	Set the location of graphic and sound files and where SAW will look for them (after looking in the local folder)
Use Item Styles	Apply the 7 item styles to all items in the selection set (other than custom items)
Edit Item Styles	Change any of the 7 styles' colour, shape etc.
Logs On	Switch the logging facility on
Log File Settings	Choose what events are logged.
Startup Script	Enables the Startup and Default Scripts of the current selection set to be specified.
Default Scripts	Enables the three Default Scripts of the current selection set to be specified.
Options	<p>Enables</p> <ul style="list-style-type: none"> • Input parameters to be specified (e.g. Selection method, Scan Time). • Text Output to an application, speech synthesiser, sound card, and/or printer to be specified. • Cursor and mouse movement options to be specified. • Speech Output parameters to be specified (e.g. baud rate, initialization string). • The user's switch interface to be specified.

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Run

shortcut  + 

The Run command on the Settings menu runs the selection set, enabling the selection set and its scripts to be tested or used.

To stop running the selection set so that changes can be made to scripts, settings, etc.:

1. Click on the title bar of the SAW window to make it the current application.
2. Either press Ctrl+R, or click on the system menu box (located at the top left corner of the SAW window) and select the Run item.

To stop a selection set running, either press Ctrl+R again, or click on the system menu box and deselect the Run option.

If a selection set is started by opening the document directly it will automatically run.

Auto Resize

See [Auto Resize](#)

Show Status

The **Status** command on the Settings menu alternately reveals and hides a status window showing the ID number, Display Text, width, and height of the selected item.



Item ID number The ID number of the selected item.

Display The display text of the selected item, or the graphic filename if there is no Display Text.

[x,y] The coordinate of the top left corner of the selected item.

[cx, cy] The width and height of the selected item.

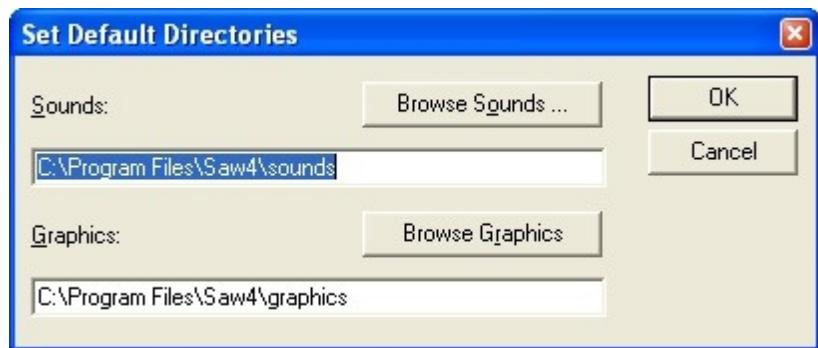
Select the *Status* command to reveal the status window, then click on an item to show its status information. Select the command again or select the close window control to hide the status window.

Default Directories

The default directories are the places that SAW looks in for sounds and graphic resources. If graphics are included from folders other than the local (folder that the selection set is saved in) or default folder and these resources will be copied to the local folder.

These default directories are part of the users set up and are loaded from the personal area of the current Windows user documents.

Note: SAW will first look in the local directory or folder for any sound or graphics resources.



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Use Item Styles

If this menu command is ticked then [the 7 item styles](#) are used for items that are not configured as 'custom style'. However, if this menu item is not selected (ticked) then the style configured by the designer in the item properties ([colours + styles](#)) will be used.

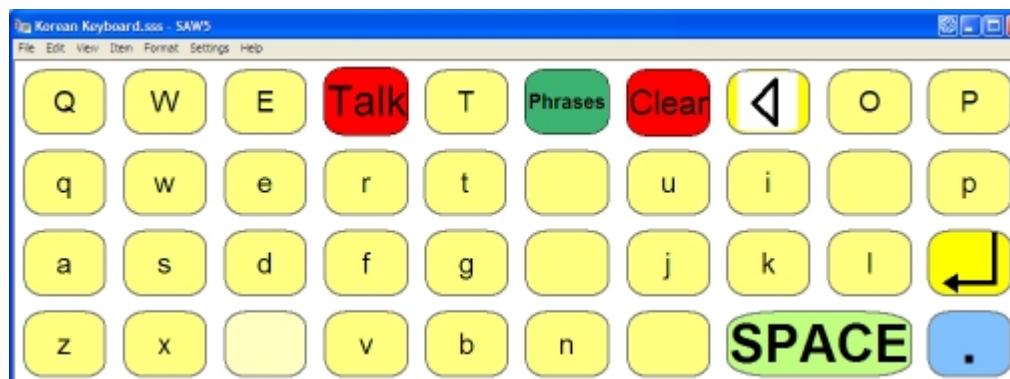
Example

Korean keyboard showing Roman keycaps only

With standard style applied (use styles ticked)



Using designer colours (use styles un-ticked)



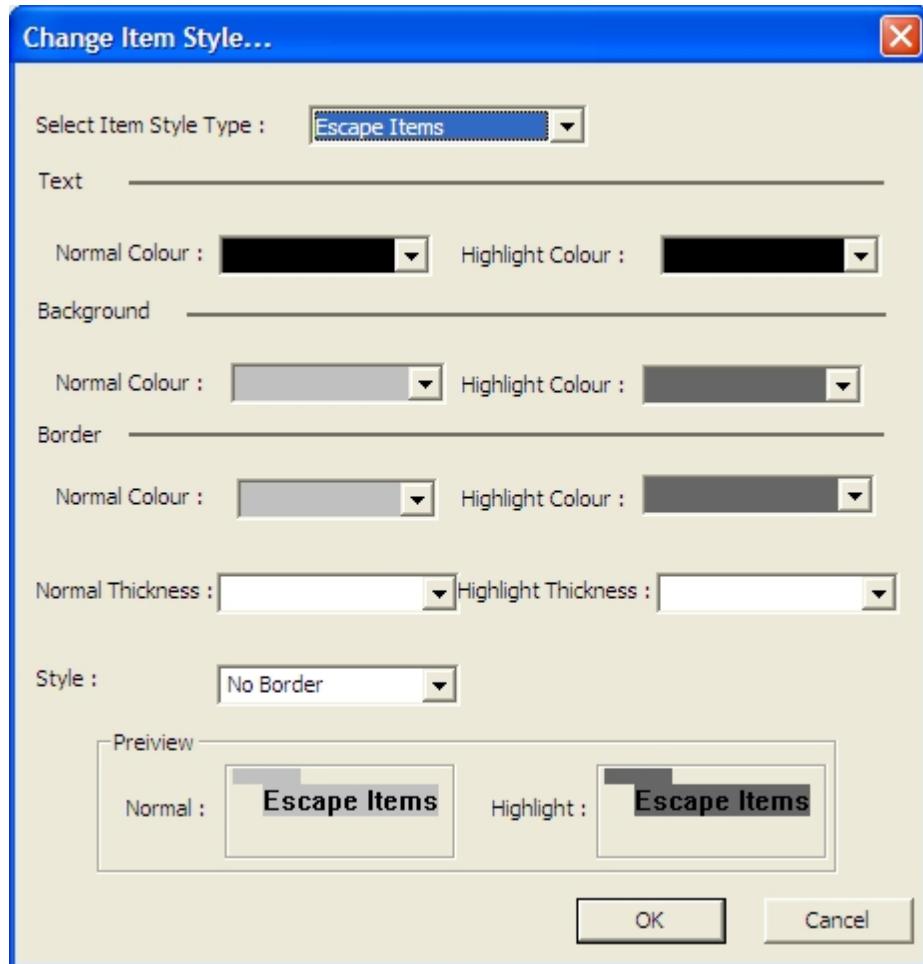
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Edit Item Styles

[The 7 item styles](#) can be changed in a similar way to standard colours + styles of an item.

When this option is selected a dialogue opens that enables you to change the normal and highlight colours of each style, the border thickness, and the border shape.

Choose the style you wish to add from the drop-down box top of this dialogue. You can then [change any of the colours and border shapes](#) and thickness in an identical way to that used in defining a single item.



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Logs on

Switches log recording to sawlog.txt on. (see [Event Logging](#))

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Log file Settings

See [Event Logging](#)

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Startup Script

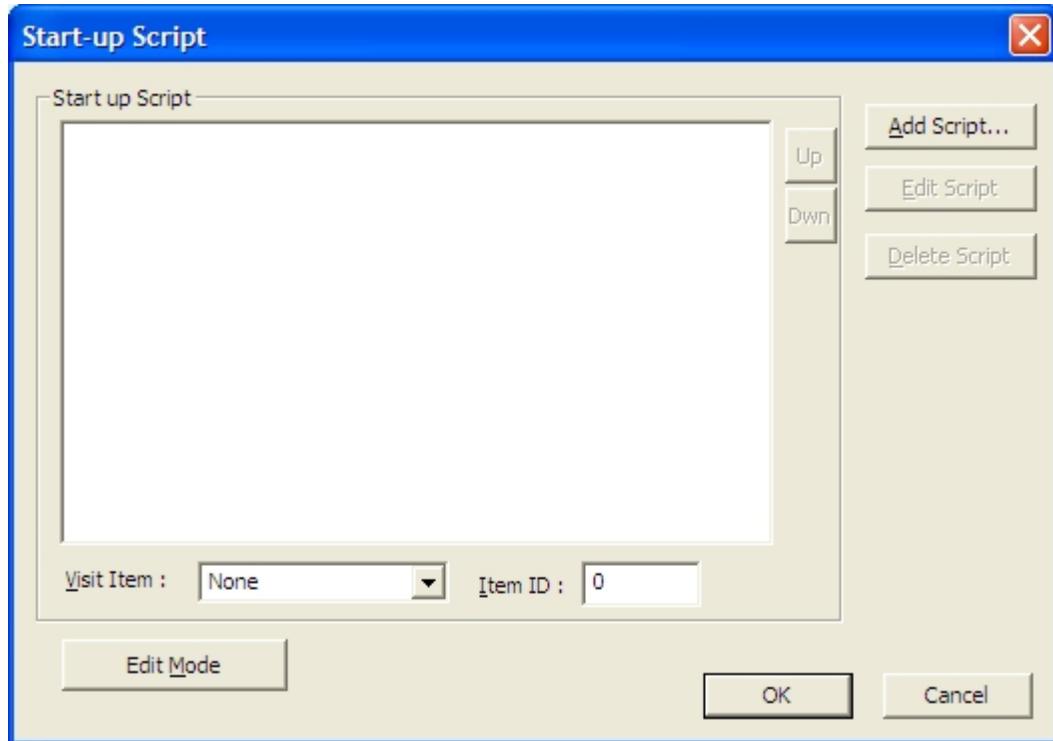
The Startup command on the Settings menu enables the [Startup script](#) of the current selection set to be specified. The Startup script is executed when the selection set is run and before any scanning or other activity starts.

Typically, this script can, for example, load the desired desktop and settings files, open any applications needed, establish the connection between any [wordlist container item of the selection set](#) and the [Blade](#) word prediction, or cause [popups](#) to appear. The script can be edited in the same way as an [Item Script](#), except there is no default script (and no Repeats

option for Environmental control scripts that are not relevant here).

Sometimes it can be a good idea to launch an environment, as hinted above, from a special "startup selection set", which main function is contained in the Startup script, and which then loads the selection set that the user will utilise for further actions.

Note: There is only one startup script for each selection set.

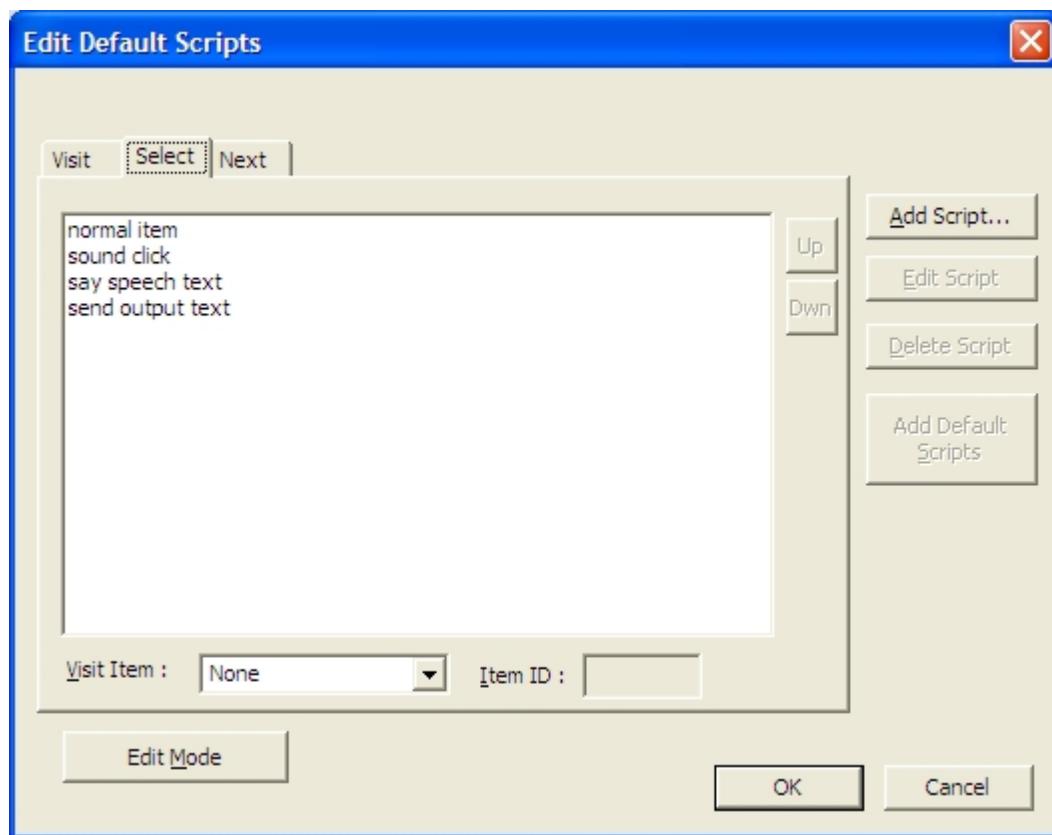


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Default Scripts

When a new item is created in SAW the program assumes that the item has certain basic commands. These sequences of commands are active in all items but not normally shown , unless the 'SAW Default' button is pressed.

In this dialogue you can edit the 'assumed' default scripts for this selection set. It will not alter the default scripts for SAW or any other selection sets.



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Options

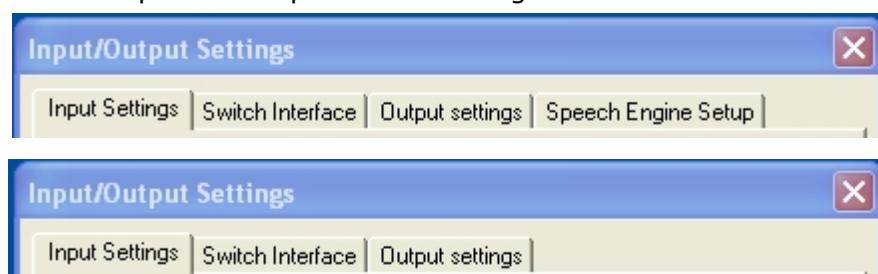
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Options

Shortcut +

SAW has a number of definable settings which can be saved on disk; different settings can be saved for different users. The settings may also be saved as a default loaded every time SAW is opened. Settings are grouped under the following four headings:

Note: If 'Use speech' is not enabled on the Output settings then the Speech Engine Setup tab will not appear. After enabling "Use speech" the settings dialogue has to be closed and re-opened before the Speech Setup tab is shown again.



Input Settings Selection method, scan time, etc

Switch Interface Select and configure the connected switch interface

Output Settings What is output to the application, mouse control speech synthesiser, sound card, or printer. It also has controls to hide

part or all of the SAW window at times

[Speech Engine Setup](#)

To setup the parameters of the SAPI speech engine and voice to be used.

The settings can be saved on disk in a settings file (with extension .set) in the current User folder. Use the [Save Settings](#) in the File menu to save the settings at any time. The settings as defined here will be loaded every time SAW starts.

Each setting can be modified with a script command, for example:

```
inc scan time ;increment by 0.1 sec  
save settings ;save the new setting in the same file
```

The save settings command can be used to save settings after modifying them with script commands.

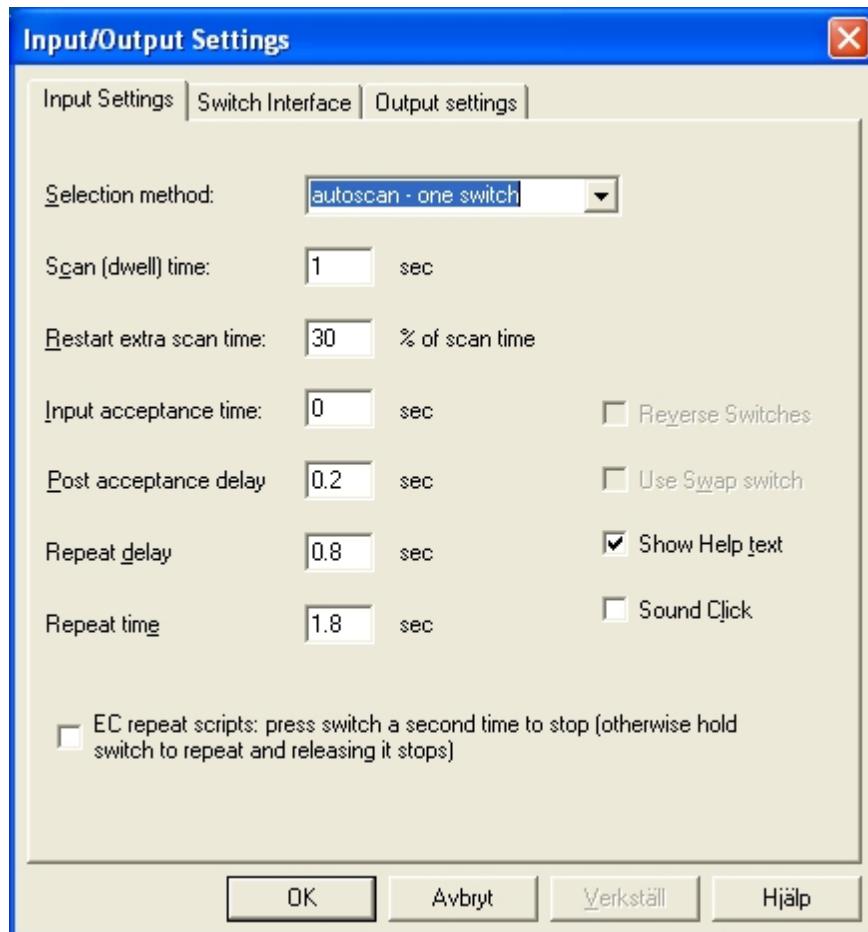
Warning - if a selection set is designed to enable the user to alter the settings, care should be taken to prevent the user losing control, for example by setting the scan time too short.

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Input Settings

The Input settings set the user access method and timings.

(Much of the terminology used here is reflected in, or derived from, the document [Switch access to technology - A comprehensive guide](#) by David Colven & Simon Judge, The ACE Centre 2006)



Selection method

Click on the **arrow** to show the drop-down list to

choose a switch method (e.g. single-step) or direct input method (e.g. mouse, trackball). The following Selection methods are available:

autoscan items are scanned while the switch is released, selections are made by pressing a switch (can be used with one or two switches)

userscan items are scanned while the switch is pressed, selections are made by releasing a switch (can be used with one or two switches)

single step - two switch items are scanned by successive press and release of the switch.

dwell select - mouse items are selected by moving the mouse cursor onto the item and waiting (can be used with a mouse, trackball, touch screen, mouse emulating head pointer, etc.)

dwell select with averaging items are selected as with dwell select, but a **Dwell accuracy** slider is presented in the settings dialogue. With this the amount of off-target inaccuracy allowed during the dwell count-down can be set.

direct input - mouse items are selected by moving the mouse cursor onto the item and clicking on it (can be used with a mouse, trackball, touch screen, mouse emulating head pointer, etc.)

Scan (dwell) time Enter the time (from 0.1 to 10 seconds for which an item is highlighted and available for selection or the time before selection with dwell select.

Restart extra scan time Enter the extra time (from 0% to 100% of the scan time) for which the first item of a group remains highlighted and available for selection compared with other items.

Input acceptance time Enter the time (from 0 to 10, in steps of 0.1 sec) for which the switch must be pressed or released before the switch action is accepted.

Post acceptance delay Enter the time (from 0 to 10, in steps of 0.1 sec) for which no further switch actions are accepted after a switch action has been accepted.

Repeat delay Enter the time (from 0 to 10, in steps of 0.1 sec) for which the switch must be held pressed before the last output is repeated; enter 0 to disable repeat.

Repeat time Enter the time interval (from 0 to 10, in steps of 0.1 sec) between successive repeats while the switch is held down.

Reverse Switches Swap the actions of switch 1 and 2 for two switch methods. The default is for switch 1 to be select.

Swap switch Check this box to swap the action of the two switches after a switch selection has been made. Initially switch 1 scans and switch 2 selects; after

switch 2 is pressed to select an item, switch switch 2 now scans, and switch 1 selects. Swap switch only applies to userscan and single-step two-switch methods.

Help text

Check this box to enable any Prompt text to be displayed as items are scanned.

Click

Check this box to enable a click sound to be generated when an item is scanned or selected (depending on the items script).

EC repeat scripts

This is a new special function for items with Environmental Control (EC) scripts. When checked, EC scripts are auto repeated after a first switch activation, and stopped after a second switch activation. Otherwise, as noted, repetition is performed as long as the select switch is pressed.

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autoscan

Autoscan

With this scan method the device automatically progresses the highlight and the user presses a switch to select an item or group of items. The highlight starts at the first item in the selection set and scans the items in order. Once the last item has been scanned the scan repeats from the first item. When the switch is activated the currently highlighted item is selected. Autoscan generally requires a single switch, but SAW also offers a two switch alternative.

(This description, as some of the following, is derived from the document [Switch access to technology - A comprehensive guide](#) by David Colven & Simon Judge, The ACE Centre 2006)

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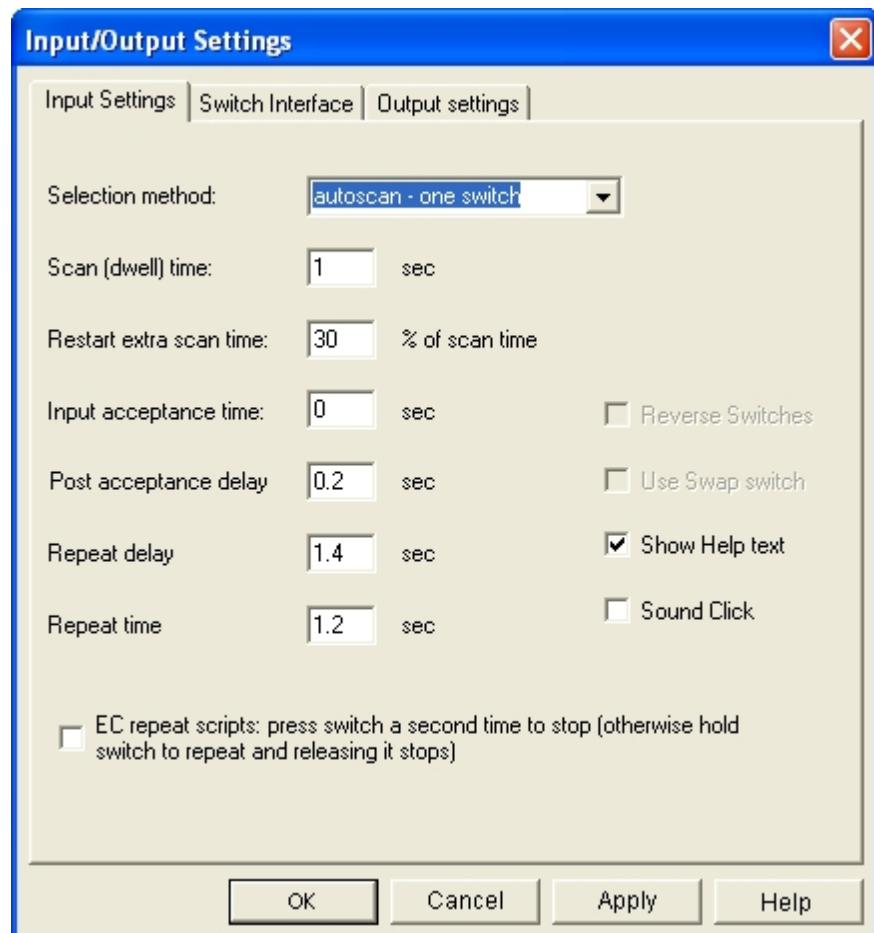
- one switch

Autoscan - one switch

This scanning mode requires least physical movement but the user must have relatively good timing for pressing the switch at the right moment, and have a good attention span, for it to be suitable.

With this scan method the device automatically progresses the highlight and the user presses a switch to select an item or group of items. The highlight starts at the first item in the selection set and scans the items in order. Once the last item has been scanned the scan repeats from the first item. When the switch is activated the currently highlighted item is selected.

It may be preferred for some activities to pause the scanning when it's not in active use. SAW lacks a special setting for pausing the scanning after a certain time without activation. A similar behaviour may instead be provided by adding a hidden (popup) item where the scanning is put away (with a "visit me" script) until a switch activation is made.

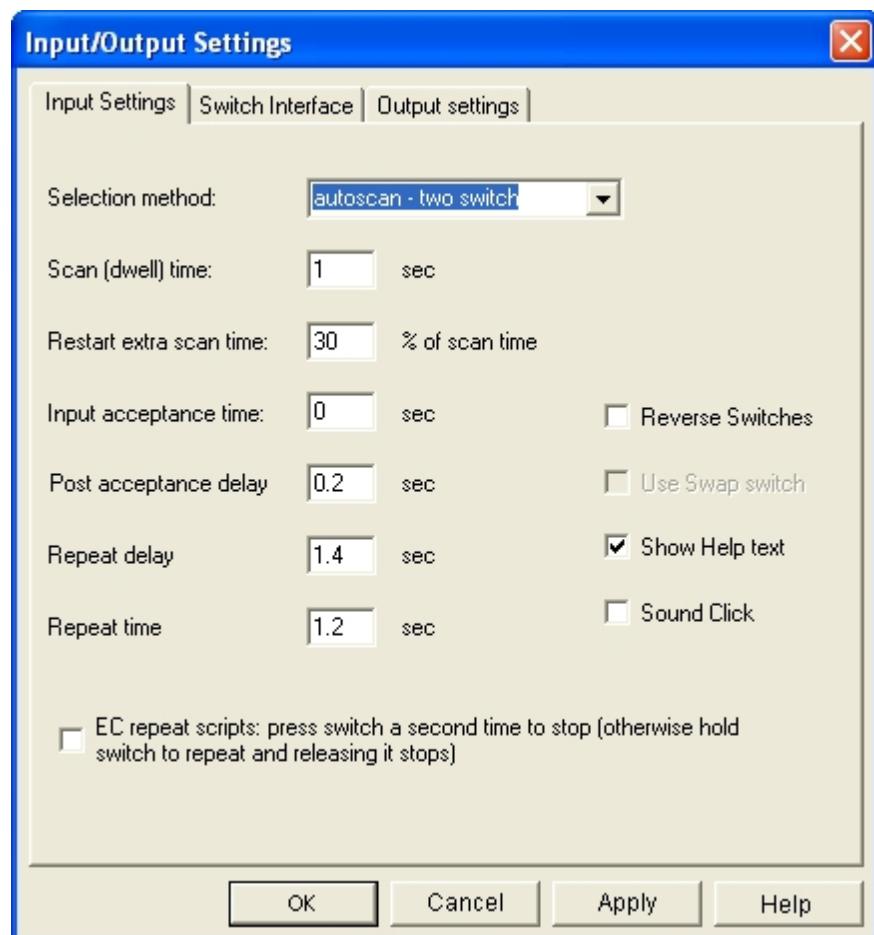


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- two switch

The two switch autoscan setting may be appropriate for a few users with limited timing control for switch presses and releases. It may then give a higher degree of control, at the cost of more labour and cognitive load. The behaviour is as follows:

- The first switch starts the automatic scanning when pressed and released. A second press (and release) stops the scanning at the position of the currently highlighted item. If pressed (and released) again, the scanning is resumed.
- When the scanning is halted, the second switch selects the currently highlighted item when pressed - with no further action until it is released. (If the second switch is pressed during ongoing scanning it should just temporarily halt the scanning until released. However we have experienced that the second switch may sometimes erroneously select a wordlist group item and trigger continued scan within it. This is due to some unresolved bug.)
- When a group item has been selected, switch one should be pressed to restart and stop the scan of items in the group. Switch two is again used to select the highlighted item when the scan is halted.



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userscan

With this scan method the machine progresses the highlight only whilst the user is activating the switch. User scan requires either a single switch, or two switches. In this mode the scan does not start until a switch press is detected. The machine then progresses the highlight at a predetermined rate (as in autoscan) until the user releases the switch.

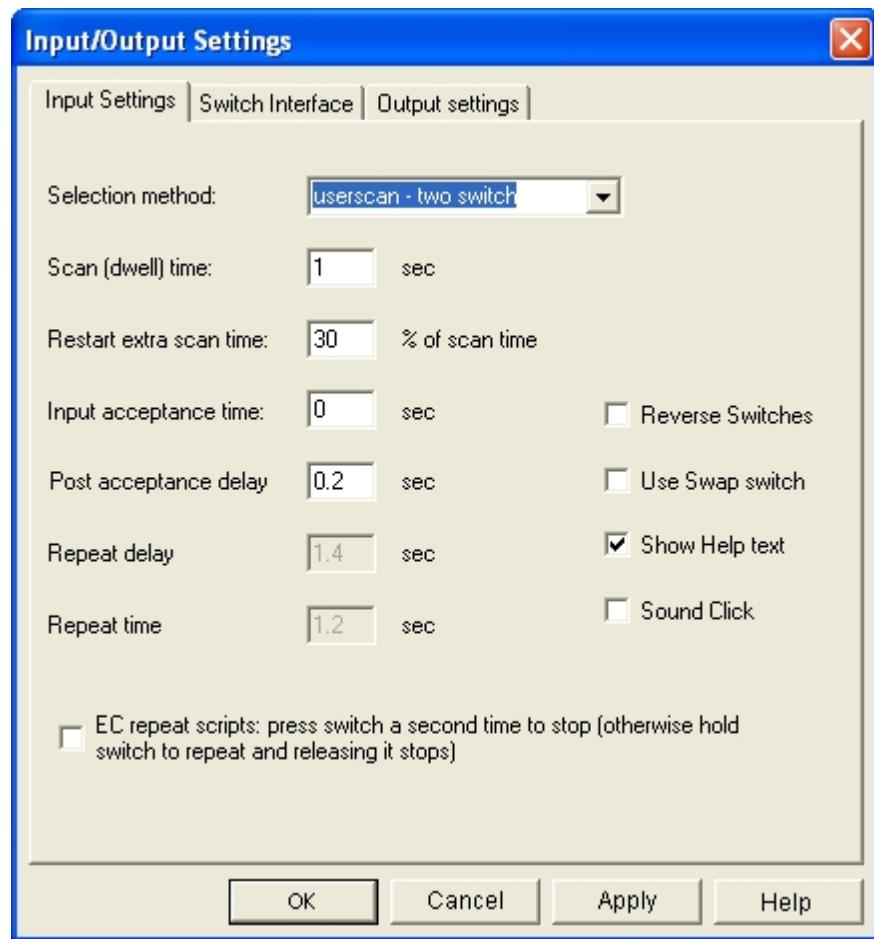
With a single switch the currently highlighted item is selected on switch release or after a dwell time. With two switches the second switch is used to activate the currently highlighted item and the first used to progress the scan.

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- one switch

With this scan method the machine progresses the highlight only whilst the user is activating the switch. With the one switch userscan in SAW the scan does not start until the switch press is detected. The machine then progresses the highlight at a predetermined rate (as in autoscan) until the user releases the switch. The currently highlighted item is selected on switch release. If the selected item is a group item (e.g. a row in a grid), the user presses the switch again to scan through the contained items. The desired item is again selected by releasing the switch when that item is highlighted. The sequence will in this case be:

- Press - hold - release (to scan to and select the desired row in a grid)
- Press - hold - release (to scan to and select the desired end item in the row)



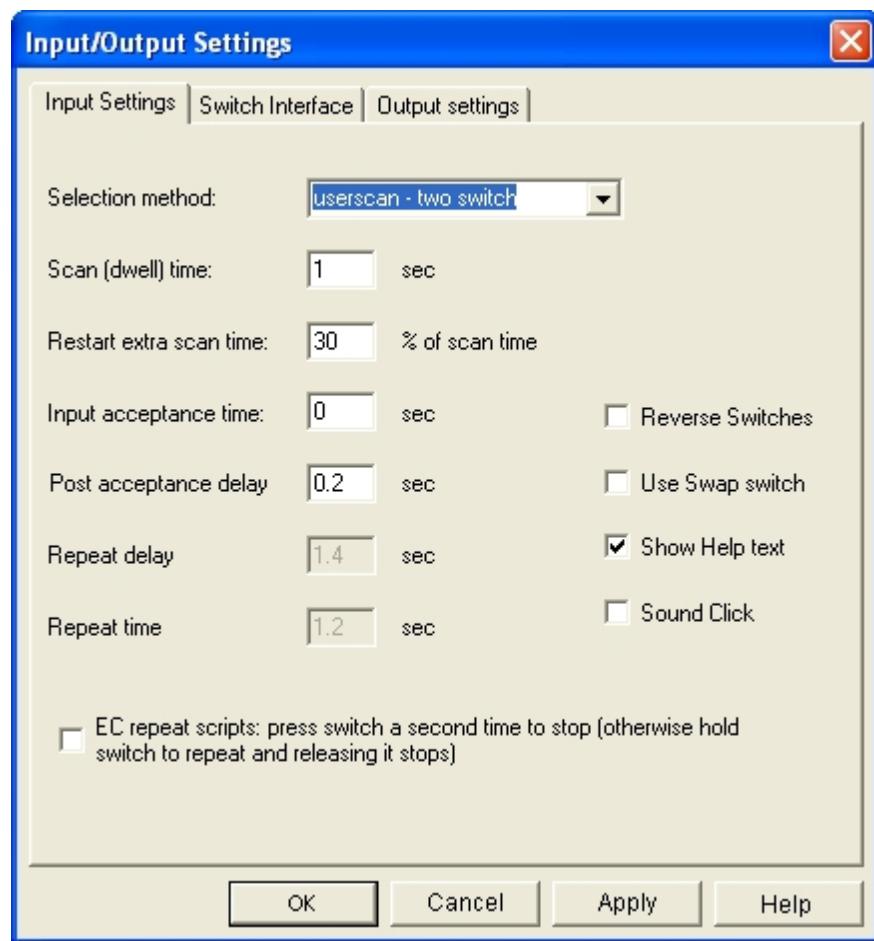
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- two switch

With this scan method the machine progresses the highlight only whilst the user is activating switch 1. The machine then progresses the highlight at a predetermined rate until the user releases the switch. The user releases switch 1 when the desired item is highlighted to stop the scan. If the scan stopped on the wanted item, it is then selected with a press and release of switch 2. If the selected item is a group item (e.g. a row in a grid), the user presses switch 1 again to scan through the contained items. The desired item is again selected by releasing switch 1 when that item is highlighted, and the selection is confirmed with a press and release of switch 2. The sequence will in this case be (for row-column scanning):

- Press - hold - release **switch 1** (to scan to the desired row in a grid)
- Press and release **switch 2** (to confirm the selection of the highlighted row)
- Press - hold - release **switch 1** (to scan to the desired end item in the row)
- Press and release **switch 2** (to confirm the selection of the highlighted end item)

This selection method requires medium timing skills (for switch release), resulting in good control at the cost of a medium investment of labour.

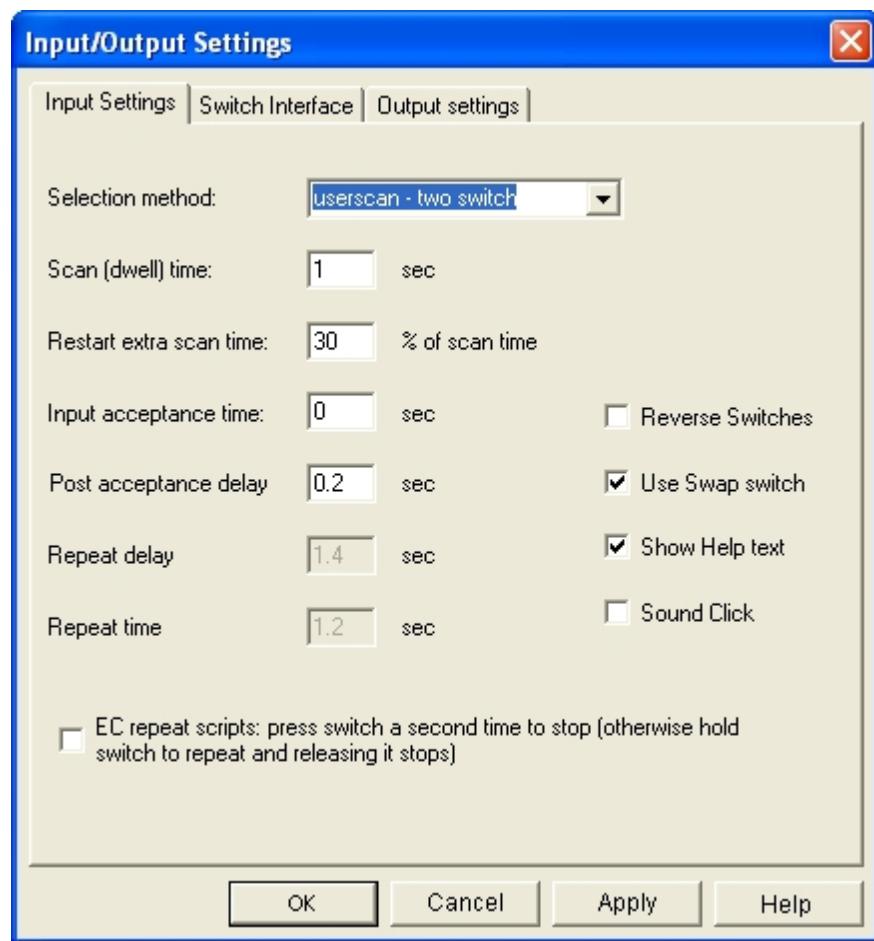


Use Swap switch

Instead of the above described typical **1-2-1-2** switch selection pattern, the Use Swap switch option offers an alternative and more effective **1-2-1** switch selection pattern. In this case we don't have a special "scan switch" (switch 1) and "select switch" (switch 2). Instead the switches are swapping functions between scan and select. This may seem conceptually more requiring, but doesn't have to be when learnt as a motor selection pattern.

The behaviour is as follows (for row-column scanning):

- Press - hold - release **switch 1** (to scan to the desired row in a grid)
- Press and release **switch 2** (to select the highlighted row)
- Press - hold - release **switch 2** (to scan to the desired end item in the row)
- Press and release **switch 1** (to confirm the selection of the highlighted end item in the row)



Note: For two switch user scanning it may be really important to design the selection sets so that the motor pattern for each selection sequence really is maintained for all typical selections (1-2-1-2 or 1-2-1 as described above). This may be achieved by introducing a (hidden) start item position for each new selection round, and by putting an escape item first in each row (instead of last, as is often the custom). In this way the selection pattern stays the same for all rows and all end items in the set - except for the escape items, which should be exceptions anyway. This will cause some decrease in the theoretical efficiency, but may pay off in less cognitive and physical load because of the stable motor pattern.

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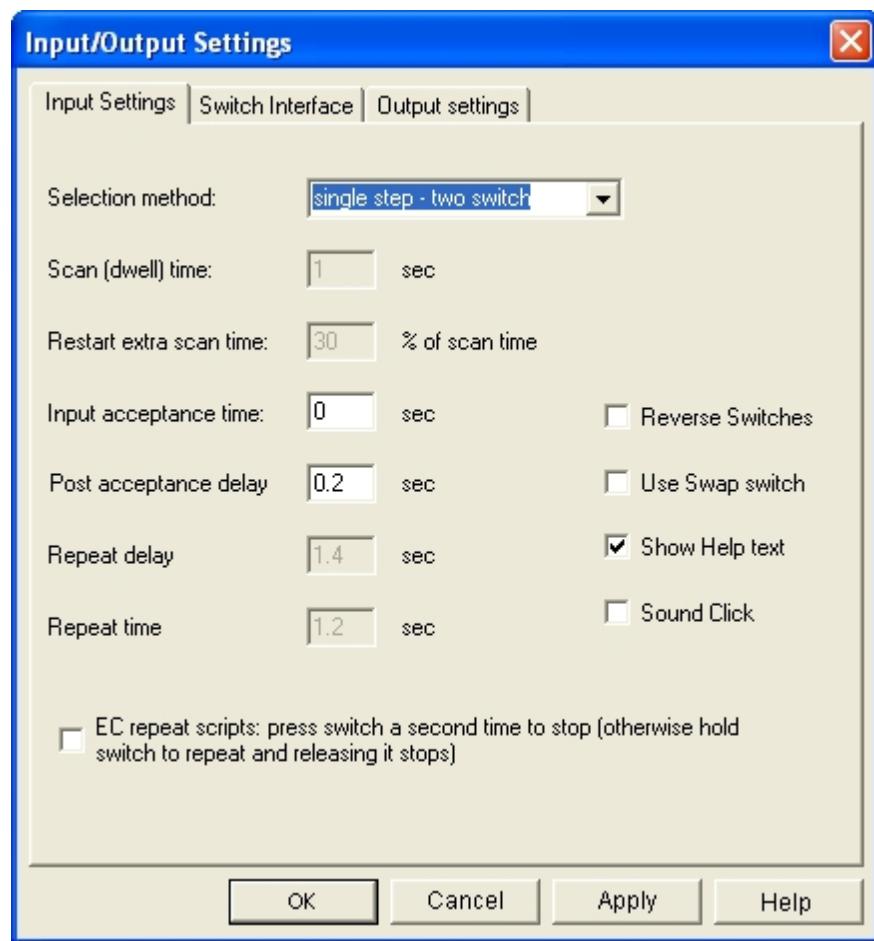
single step - two switch

With this scan method there is no timed progresses of the highlight. It is moved one step ahead for each press and release of switch 1. The highlighted item is selected with a press and release of switch 2. If the selected item is a group item (e.g. a row in a grid), the same procedure is repeated for the contained end items. The sequence will in this case be:

- Press and release **switch 1** repeatedly (to scan to the desired row in a grid)
- Press and release **switch 2** (to confirm the selection of the highlighted row)
- Press and release **switch 1** repeatedly (to scan to the desired end item in the row)
- Press and release **switch 2** (to confirm the selection of the highlighted end item)

This selection method requires no timing skills, with very good control, but a high investment of labour.

Note: The Use Swap switch option is available here too, but offers much less benefit in efficiency compared to the Userscan two switch case.



Use Swap switch

Instead of the above described typical **1-2-1-2** switch selection pattern, the Use Swap switch option offers an alternative and more effective **1-2-1** switch selection pattern. In this case we don't have a special "scan switch" (switch 1) and "select switch" (switch 2). Instead the switches are swapping functions between scan and select. This may seem conceptually more requiring, but doesn't have to be when learnt as a motor selection pattern.

The behaviour is as follows (for row-column scanning):

- Press and release **switch 1** repeatedly (to scan to the desired row in a grid)
- Press and release **switch 2** repeatedly (to select the highlighted row and scan to the desired end item in it)
- Press and release **switch 1** (to confirm the selection of the highlighted end item in the row)

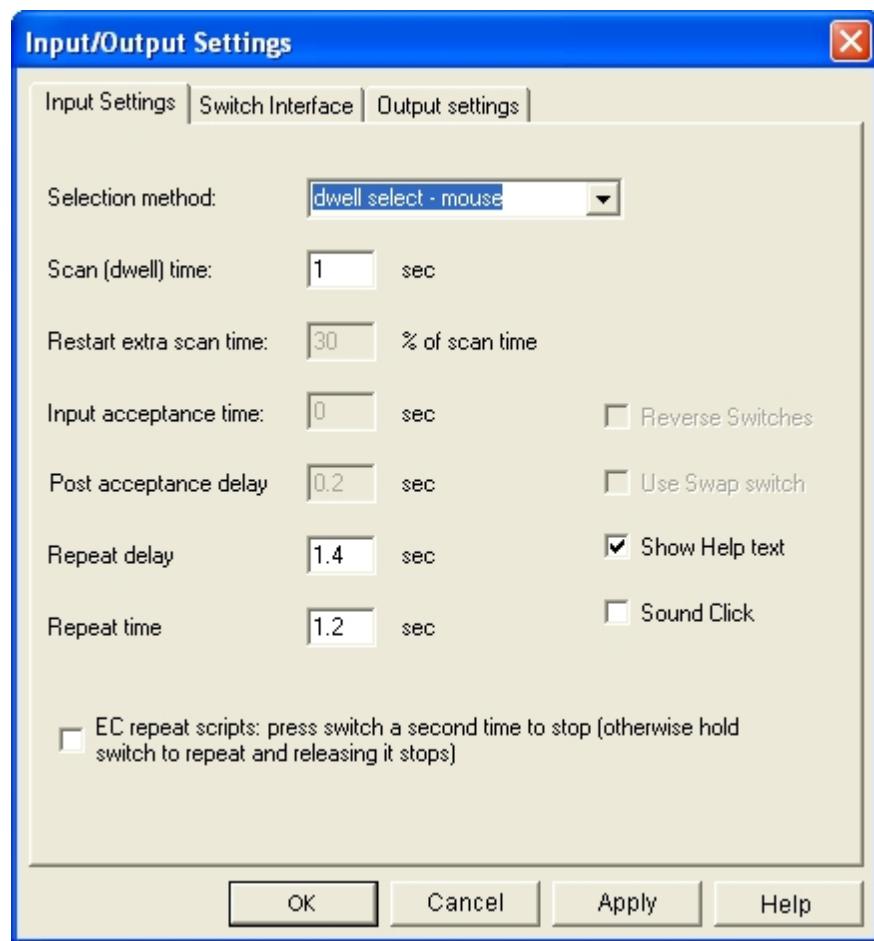
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dwell select - mouse

This selection mode requires the ability to control the mouse pointer relatively well, but removes the need to operate a switch function in parallel. Selections are made when the mouse cursor is pointing to the same item for the set Scan (dwell) time:

- Point to an item, and hold the mouse cursor there until the dwell time has passed to make a selection
- Repeat step one to make another selection. If another selection of the same item is desired, let the mouse cursor leave it and then point to it and hold steady again.

This selection method requires the ability to use a pointing device to accurately point to the target, and to hold it rather steadily there until the dwell time has elapsed to make the selection.



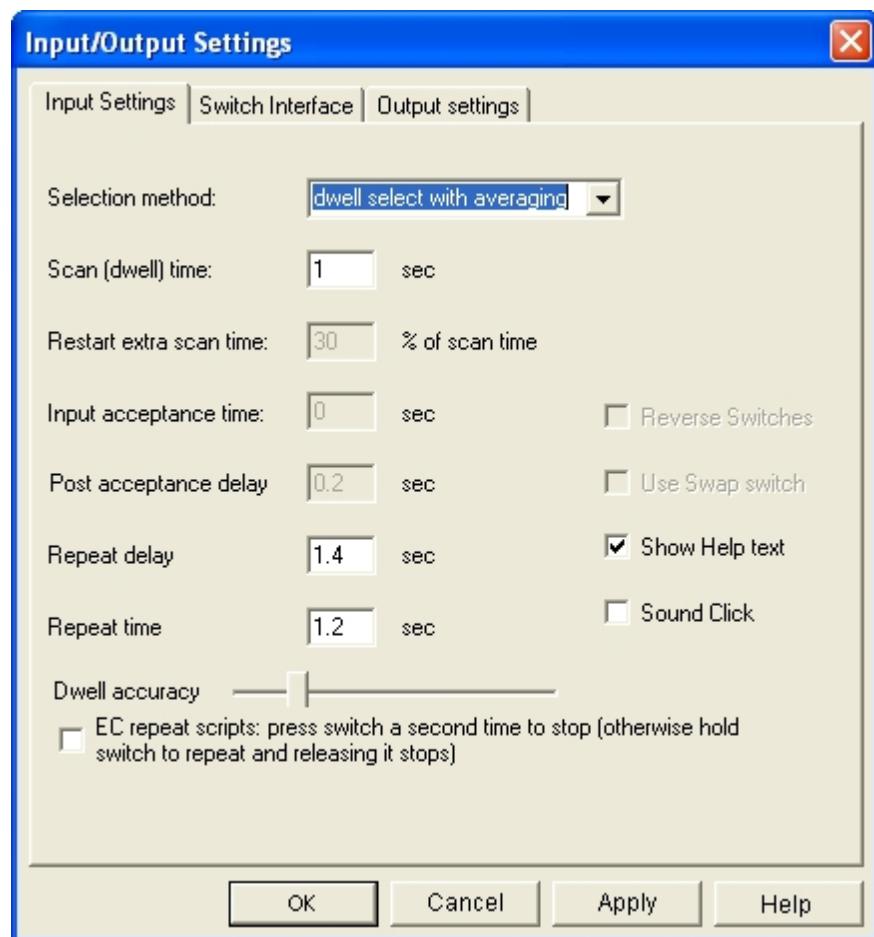
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dwell select with averaging

This selection mode requires the ability to control the mouse pointer to some degree, but removes the need to point steadily to the target to make a dwell selection. Selections are made when the mouse cursor is pointing to and in the proximity of the same item for the set Scan (dwell) time:

- Point to and around an item, with a precision set with the Dwell accuracy slider, until the dwell time has passed to make a selection
- Repeat step one to make another selection. If another selection of the same item is desired, let the mouse cursor leave it and then point to and around it again.

This selection method requires the ability to use a pointing device to point to the target with a set level of accuracy until the dwell time has elapsed to make the selection.



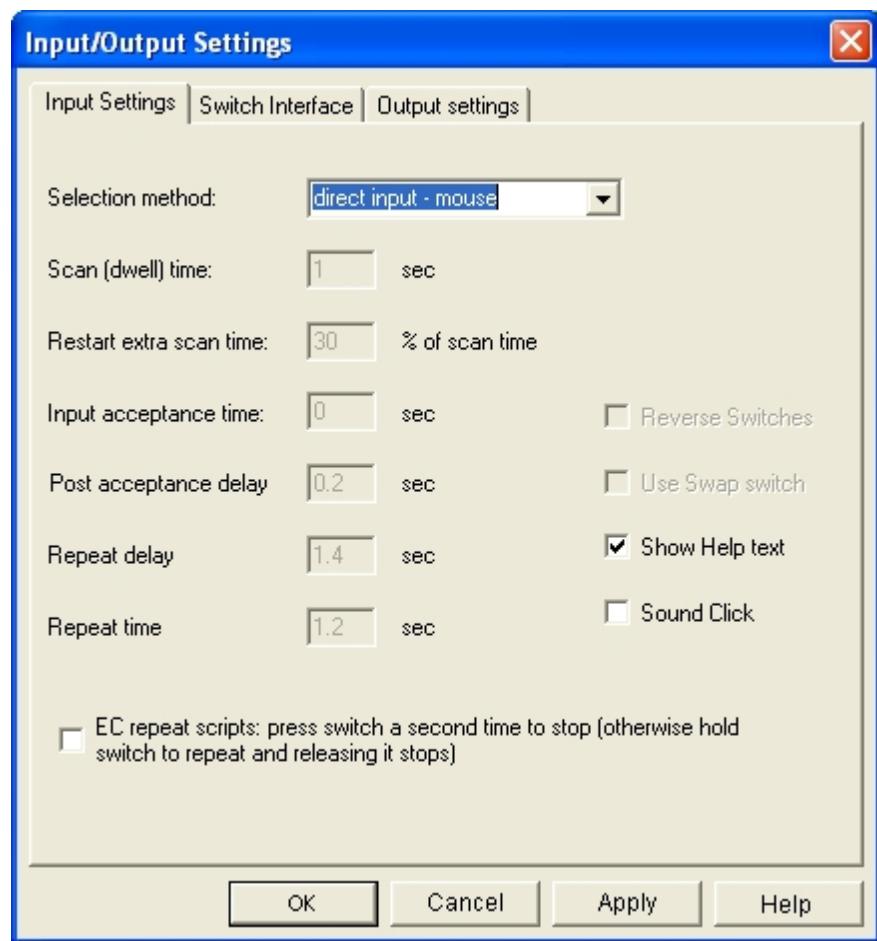
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direct input - mouse

This is the most standard selection mode using the mouse pointer and click functions:

- Point to and press the left mouse button to select an item
- Release the mouse button, and repeat the first step for another selection

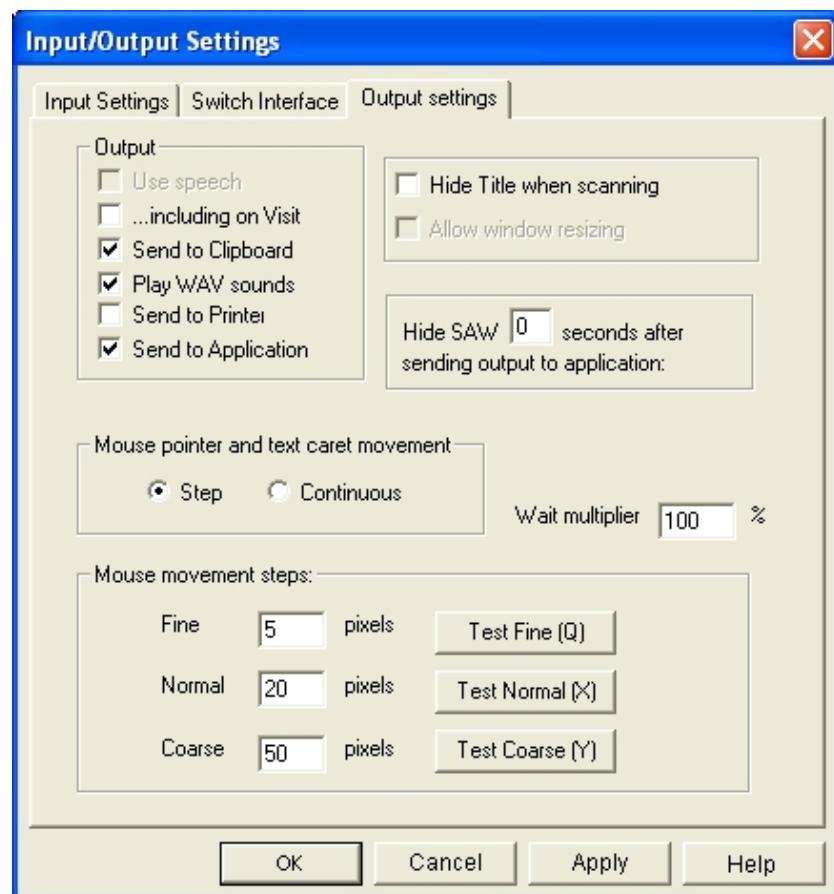
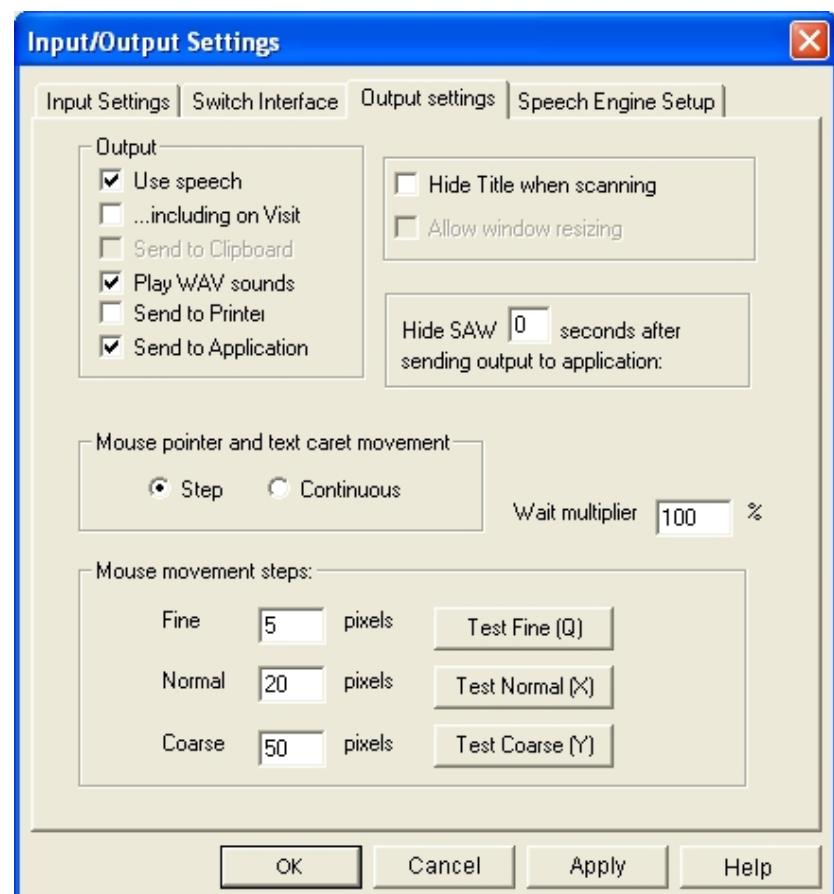
This selection method requires the ability to use a pointing device to accurately point to the target, and to hold it there while pressing a switch for the left mouse button action.



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Output Settings

Output settings



Use speech

Check this box to enable text to be sent to the Microsoft compatible

(SAPI) software speech synthesiser when an item is scanned or selected (depending on the item's script). When Use speech is activated, the Speech Engine Setup tab is displayed (after re-opening of the Options dialogue if this setting wasn't set when opened).

Note: In order to use Use speech, sending to clipboard must be set off (as shown in the above screenshots).

Send to Clipboard

An alternative to directly sending to a SAPI speech engine for speech support is to "Send to Clipboard". This option is useful if general speech support is provided via a separate speech utility with a "clipboard reader" function. Any output text can now be copied to the clipboard as well as, or instead of, being sent to a target application.

Note: In order to use sending to clipboard use speech must be set off.

At the moment if you wish to change the status of this setting when SAW is running you will have to load a new file of settings with the command:

[load settings](#)

... where the new settings have "Send to clipboard" on or off. [We hope to add a command](#) for this eventually.

Play WAV or MP3 sounds

Check this box to enable playing text as a WAV or MP3 file when an item is scanned or selected (depending on the item's script).

Send to Printer

Check this box to enable text to be sent to the printer when an item is scanned or selected (depending on the item's script).

Send to Application

Check this box to enable text to be sent to the current application when an item is scanned or selected (depending on the item's script).

Hide SAW after sending...

Enter the time (from 0 to 10 seconds) for which the SAW window is hidden after text has been output to the current application; enter 0 to disable this feature.

The cursor movement settings define the type and size of mouse and text cursor movement executed in response to a script direction command (e.g. N, E, left, down):

Step

Give a single movement (fine, normal, or coarse) in the direction defined by a script command.

Continuous

Gives a continuous movement (fine, normal, or coarse) in the direction defined by a script command; press the switch again to stop the movement. The interval between successive moves is the same as the Scan time setting.

Fine, Normal, Coarse

Enter the number of pixels for these three movement-sizes, Script commands enable the movement-size to be used for step or continuous cursor movement. The 'Test' buttons will move the pointer one step to the right with the corresponding size.

Hide Title when scanning

Check this if you want SAW to hide the window title bar (giving maximum screen space for applications) when scanning a selection set.

Allow window resizing

This setting can be set to allow window resizing when the Hide Title option is set. Note: Will typically require the [Auto Resize](#) option to be set to be meaningful.

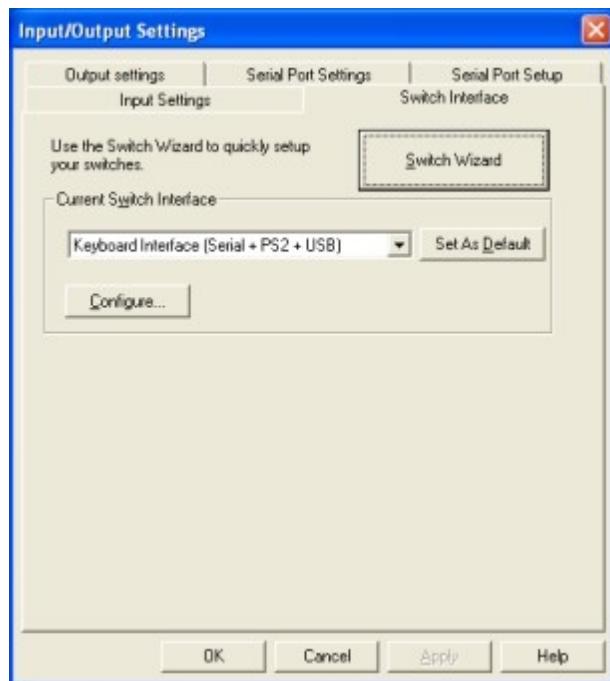
Wait multiplier

Percentage multiplier for the [wait](#) script command.

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Switch Interface

shortcut  + 

**Switch Wizard**

Automatically set up your switches and interfaces.

Current Switch Interface

Select a switch interface type from the list box. The options are:

Serial Interface (SEMERC, Clicker etc. compatible)

Games Port (Fire buttons on the games port)

Keyboard Interface (compatible with Don Johnston, Crick Software and Inclusive Technology interfaces)

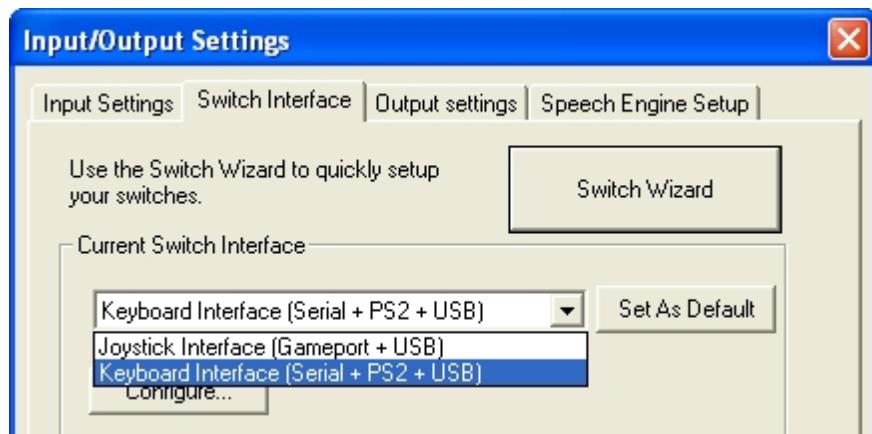
Configure

Configures the selected switch type - by assigning a port (for serial switches) or the keyboard keys and status (for keyboard interface). Different switch drivers may have different dialogue boxes; if the switch device cannot be configured, this button will be greyed.

Set As Default

Sets the currently selected switch type as the default, to be used next time SAW is run. This is in addition to the option on the Input settings tab and only applies to the interface.

SAW can currently set two different interfaces.

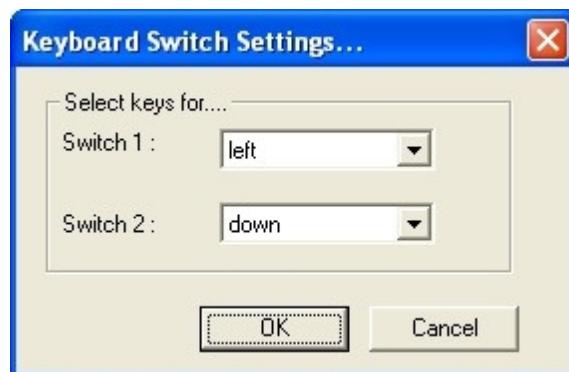


Joystick Interface (Gameport + USB)

The fire buttons of a standard or USB games joystick. This is compatible with the Sensory Software and AnyCom JoyCable and JoyBox or inputs 1 and 2 of the Crick USB interface (without Crick USB switch keyboard software loaded). This interface is not configurable.

Keyboard (Serial + PS2 + USB)

A number of keys can be assigned to be switches. These are compatible with the Don Johnston interfaces, Crick USB interface (with the software loaded), Inclusive Switch Box, the Swedish "Bläckfisken" and switch adapted keyboards etc..



Choose the keys you wish to use from the drop-down lists.

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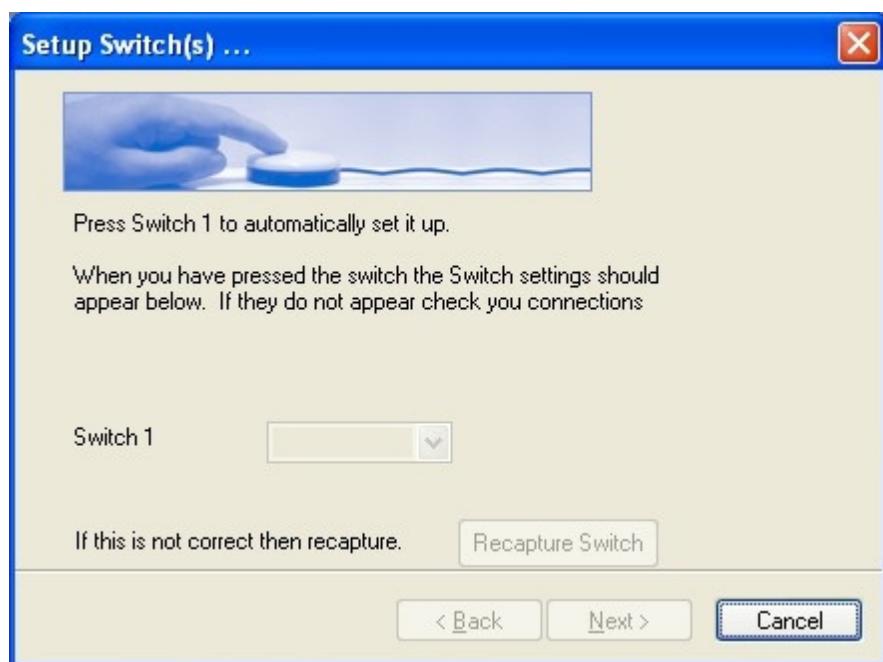
Switch Setup Wizard

The switch wizard is a way of setting up your switch interface without necessarily knowing which interface you are using. In the example here the keyboard keys 1 and 2 are being used for switch input.

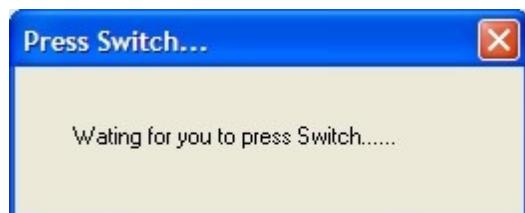
Note: At any time during the setup process you can retrace and change your settings.



The first option presented is whether you are using one or two switches to scan. In this case we have selected 2 switch scan. Press next....



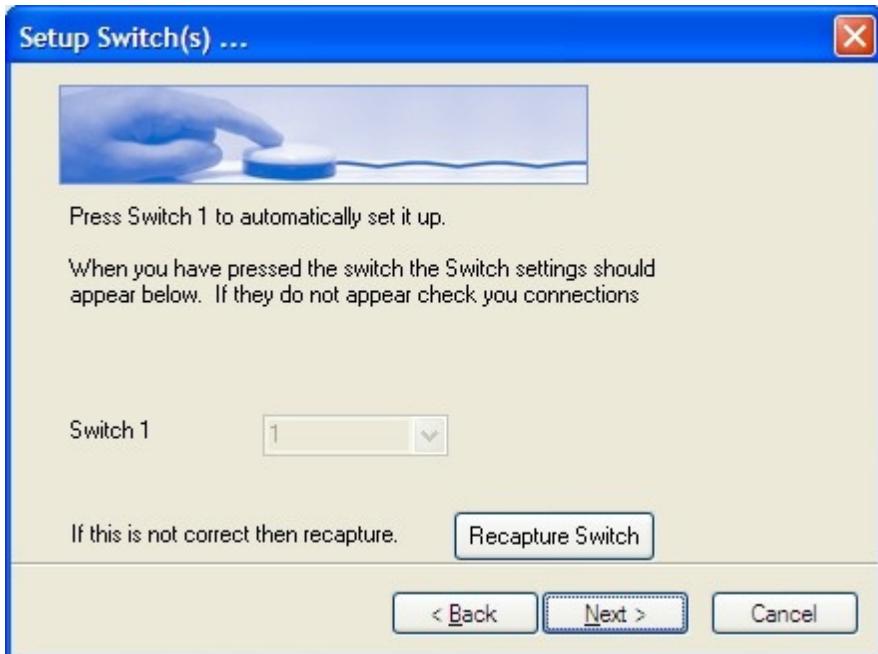
When the next window appears all you have to do is press your first switch.



Once the switch has been pressed SAW will confirm the interface in use.



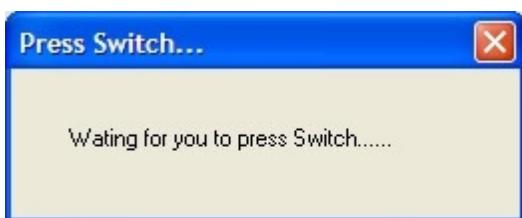
The switch actually used (in this case the '1'key) will be confirmed as switch 1.



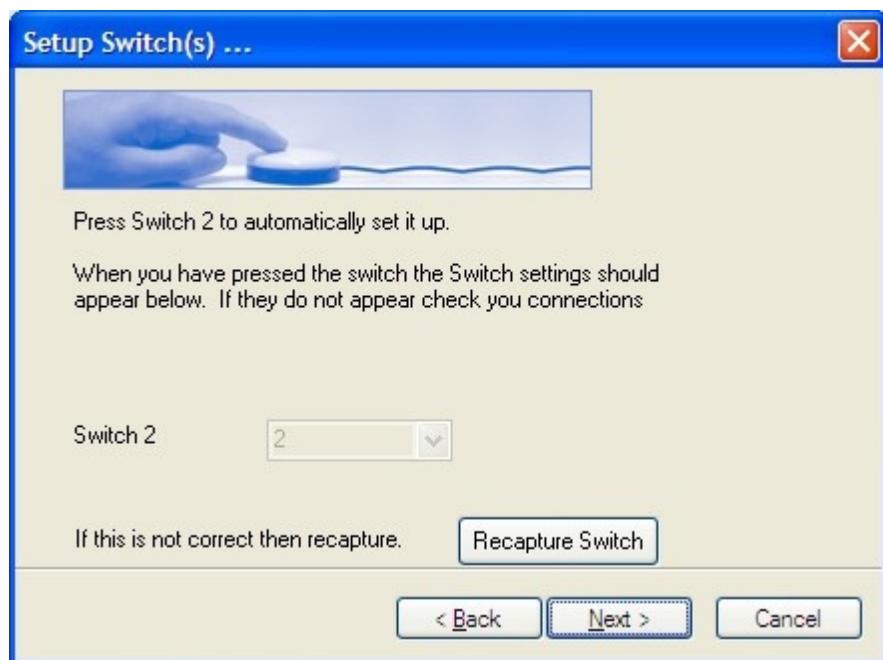
If you have chosen to use one switch, that will end the selection process.



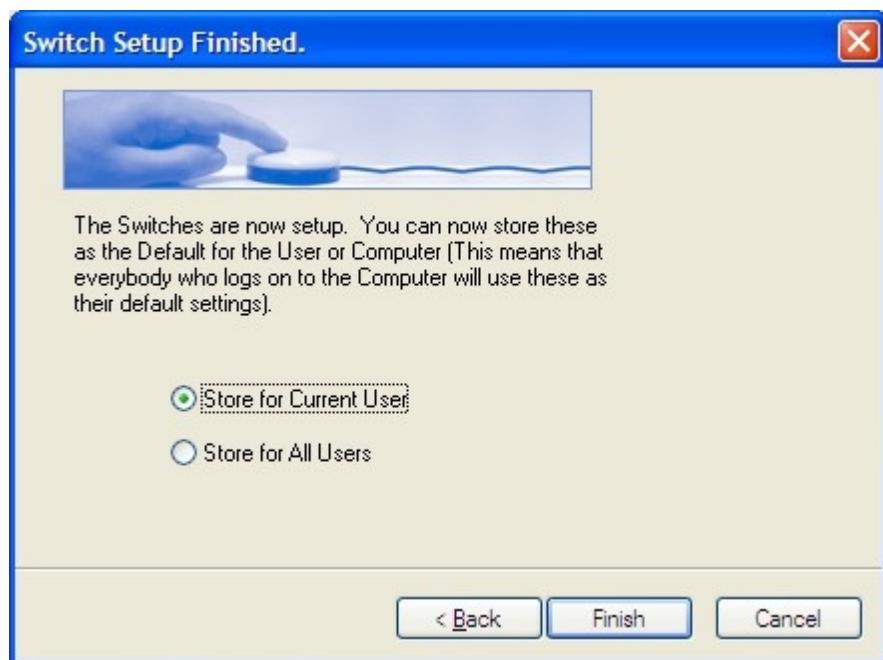
As we are setting up two switches we are now prompted to press the second switch, in this case the '2' key. SAW will wait until the switch is pressed.



Once the switch has been pressed the second switch connection will be confirmed, it will assume you are using the same interface type.



Finally the detected switch interface settings will be saved, either for the current logged in user, or for all users (as the default)



Finish will confirm the saving of the settings in the registry.

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Output Settings - Send to Clipboard

SAW 6 has two other outputs. Output to Speech engine and "Send to Clipboard". Any output text can now be copied to the clipboard as well or instead of being sent to an application.

Note: In order to use sending to clipboard use speech must be set off.

At the moment if you wish to change the status of this setting when SAW is running you will have to load a new file of settings with the command:

load settings <file>

Where the new settings have "Send to clipboard" on or off. We hope to add a command for this in a future version.

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Speech Engine Setup

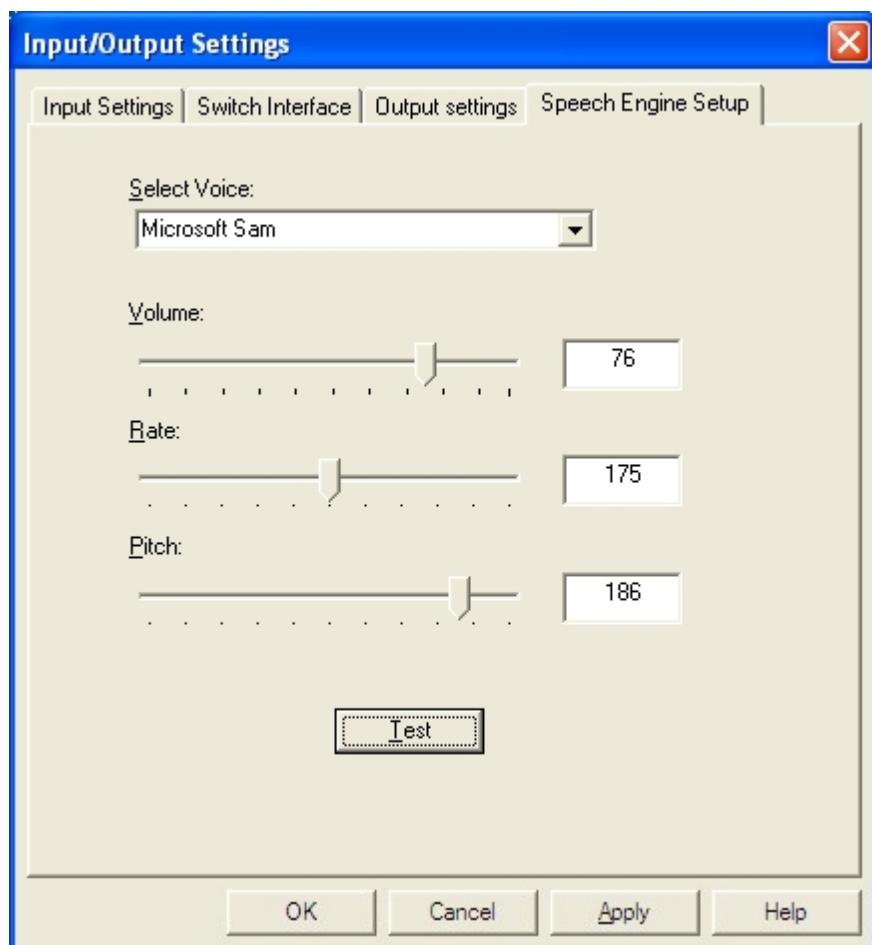
SAW can utilise SAPI 5 compatible speech systems. To do this it uses a utility called TextSpeaker, produced by Technosoft and original copyright of SIH Laromedel, Sweden, now updated and released under the free GPL license (with the consent of the copyright holders). The freely distributable SAPI 4 items provided with SAW 5 and 4 are no longer included as options in the SAW 6 installation.

Language settings for Text to Speech

Any speech engine that uses SAPI 5 should be possible to use with SAW. These and other TTS voices may also be accessed via the "[Send to Clipboard](#)" speech option.

The Speech Engine Settings tab allows you to define the voice (and hence language) to be used and the volume speech rate and pitch of the voice.

Note: These setting may not all be working with all speech engines.



The voice itself is stored in the registry but the other settings are stored in the SAW32.INI file and the settings file.

Note: You cannot change the voice by loading a different settings file but you can change the other parameters.

The utility itself is

TextSpeaker.ocx

that it is placed into a folder

ProgramFiles\SHDev\Textspeaker (or corresponding on other Windows versions)

Note: Only one copy of the TextSpeaker ActiveX component - TextSpeaker.ocx - can be registered on a machine, so it is recommended that the default location is used.

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Help Menu

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Help menu commands

The Help menu offers the following commands, which provide you assistance with this application:

Item	Description
Contents	Offers you an index to topics on which you can get help.
How to Use Help	Provides Microsoft's general instructions on using help.
Select Set Help...	Opens the help file called Selection_Set.hlp in the current selection set folder (if it exists).
About Saw	Displays the version number of SAW

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Contents

shortcut 

Use this command to display the opening screen of Help. From the opening screen, you can find step-by-step instructions for using SAW and various types of reference information.

Once you open Help, you can click the Contents button whenever you want to return to the main index.

The following is yet to be implemented

When you press Shift +F1, the mouse pointer will change to an arrow and question mark. Then click somewhere in the SAW window, such as Open in File Menu. The Help topic will be

shown for the item you clicked.

You also can click on any menu item, or open a dialog box, and press F1: help related to the current item will be shown.

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How to Use Help

shortcut + ,

Use this command for instructions about using Help.

Note: This will only work if the help system is fully installed on your computer.

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Selection Set Help

shortcut + ,

This opens the help file called Selection_Set.hlp in the current selection set folder (if it exists). This give on-line guidance to users of the selection set.

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About SAW

shortcut + ,

Use this command to display the copyright notice and version number.

Note: You will need the version number for reporting problems.

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Control, System or Window Menu

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Control Menu

Shortcut + (space)

The control, system or window menu can be accessed through the SAW icon on the left hand end of the title bar in the SAW Window.

Note: When SAW is running the menu will pull down on the first click on the Control menu icon. A second click (after a short interval) will stop SAW running. A double click will, as usual, close the application.

Item	Description	Menu
Restore	Restore the SAW window to its original size from	Both

	minimised or maximised.
Move	Move the SAW window with mouse or arrow keys. Both
Size	Re-size the SAW window with mouse or arrow keys. Both
Minimize	Shrink the SAW window to a button on the task bar
Maximize	Make the SAW window full screen. Both
Close	Close down SAW. Both
Run	Swap from Edit Mode to User Mode and vice-versa. Both
Logs <on off>	Switch the Logging On and Off. Both

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Restore

Shortcut  + , 

Use Control menu and select Restore. Use this command to return the active window to its size and position before you chose the Maximize or Minimize command.

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Move

Shortcut  + , 

Use Control menu and select Move. Use this command to display a four-headed arrow so you can move the active window or dialog box with the arrow keys.

Note: This command is unavailable if you maximize the window.

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Size

Shortcut  + , 

Use Control menu and select Size. This command to display a four-headed arrow so you can size the active window with the arrow keys.

After the pointer changes to the four-headed arrow:

1. Press one of the DIRECTION keys (left, right, up, or down arrow key) to select the border you want to move.
2. Press a DIRECTION key to move the border.
3. Press ENTER when the window is the size you want.

Note: This command is unavailable if you maximize the window.

Minimize

Shortcut  + , 

Use Control menu and select Minimise. Use this command to reduce the SAW window to an icon.

Maximize

Shortcut  + , 

Use Control menu and select Maximise. Use this command to enlarge the SAW window to fill the available space.

Close

Shortcut  + , 

Use Control menu and select Close. Use this command to close the active window or dialog box.

Run

Shortcut  + 

See [Settings Menu - Run](#)

Logs <On|Off>

shortcut  + , 

This switches the logging as set in the Log settings on and off. When the logging is on all selected events will be added to the names log file.

Technical Specifications

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Switch Interfaces

There are a number ways in which switches can be connected to operate SAW. The interface type being used is set up on the [Switch connections](#) tab of the [Options](#) command of the Settings menu

USB Switch Boxes

These are essentially games ports. SAW will work with the Crick interface and the Sensory Software and AnyCom JoyBox and JoyCable without need for the keyboard software. Just choose the Games Port interface.

Keyboard interfaces

These are supplied by Don Johnston (PS/2 and USB), Crick Software (USB), Sensory Software, Hargdata "Bläckfisken" (Sweden) and other switch interface boxes with or without setup software. Adapted keyboards like those supplied by Inclusive Technology can also be used. Keys can be assigned to one or two switches.

Note: SAW will still be able to use the key assigned to the switch even though the keyboard cannot.

Games fire buttons (conventional Games Port)

These connections can also be made to the buttons on an actual joystick.

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INI File Entries

The SAW32.INI file is used to store startup options, graphics and sound file paths, switch settings, information about sounds, and other things. These settings are stored in the current users Application Data - SAW folder (hidden). In Win XP this should be: " \Documents and Settings\<username>\Application Data\SAW\"; and in Win 7 and 8 it should be: " \Users \<username>\AppData\Roaming\SAW\".

Some of the entries in the INI file are described below, others are labelled in the example INI file.

[Startup]

Window=177, 536, 1164, 775

When SAW closes, the position of its window is saved here, so next time SAW runs the window is in the same place on the desktop.

Resize <0|1>

Resizing disabled|enabled

Grid=0, 0, 4, 4

Saves designer grid settings between SAW sessions. The first item is 1 if Show Grid is on; the second item is 1 if Snap to Grid is on; and the last 2 items are the x and y values for Grid Spacing .

Sounds=C:\program files\ACE Centre \SAW 6\sounds	Sound paths for shared selection set and error sounds.
Graphics=C:\program files\ACE Centre \SAW 6\graphics	Graphics paths for shared selection set graphics.
[Switches]	
Switch1=POLL	Serial switch for user input, selected by the Options : Switch menu command. Note: Currently not used
Switch2=GAMEPORT	Game port fire buttons switch for user input, selected by the Options - Switch menu command.
Switch3=DONJONSON	Keyboard switch for user input, selected by the Options - Switch menu command.
Default=Switch3	Keyboard is current default input
[POLL] Port=COM1	Setting for serial port switch input port Note: Currently not used
[GAMEPORT] Port="None"	Only 1 game fire button port can be enabled
[DONJONSON] Port=0 215 222	Keys used for switches
[Input] ScanMethod=direct input - mouse ScanTime=10 RestartExtraScanTime=30 InputAcceptanceTime=0 PostAcceptanceTime=0 RepeatDelay=14 RepeatTime=12 SwapSwitch=0 PromptText=1 Click=0 ReverseSwitch=0 DwellAverageReduce=100 ECRepeatUntilPress=0	The current default input method and timings.
[Output] SendToSpeech=1 PlayWaveFile=1 SendToPrinter=0 SendToApplication=1 HideSAW=0 SendToEngine=1 Volume=73 Rate=176 Pitch=320 =169 SendToClipboard=0 SpeakVisit=0	The current output settings including voice pitch and volume

[Speech]	Serial output to external speech synthesizer or other device controlled via a serial port. Here they are un-defined.
Model=	
Initialization=	
NormalPreamble=	
AuditoryScanPreamble=	
PostAmble=	
Handshake=	
 [Speech Port]	
Port=0	The serial output communication parameters concerning bit rate and pattern.
BaudRate=300	
ByteSize=8	
Parity=0	Note: Currently not used
StopBits=1	
FlowControl=0	
ShareSwitchPort=0	
 [Other]	
Continuous=1	Other SAW user characteristics for mouse speed, command wait percentage, and appearance (title, resize and styles) in user mode.
Fine=5	
Normal=20	
Coarse=50	
HideTitle=0	
Resize=0	
Wait=100	
Using Item Styles=0	
 [FolderHistory]	A record of the recent file use
Selection Set=C:\Documents and Settings\User\My Documents\My Selection Sets	
Selection Sets	
Graphic=C:\Program Files\ACE Centre \SAW 6\graphics\	
Sounds=C:\Program Files\ACE Centre \SAW 6\sounds\	
 ExportSets=C:\Documents and Settings \User\My Documents\My Selection Sets	
 [Toolbar State-Summary]	Toolbox characteristics (templates)
Bars=2	
ScreenCX=1280	
ScreenCY=800	
[Set Viewer]	
ToolboxPosX=0	
ToolboxPosY=0	
[Item Toolbox Pos]	
ToolboxPosX=735	
ToolboxPosY=174	
 [Toolbar State-Bar0]	Toolbar characteristics
BarID=59392	
Visible=0	
XPos=-2	
YPos=-2	
MRUWidth=337	
Docking=1	
MRUDockID=0	
MRUDockLeftPos=0	
MRUDockTopPos=0	

```

MRUDockRightPos=0
MRUDockBottomPos=0
MRUFloatStyle=8192
MRUFloatXPos=579
MRUFloatYPos=15
[Toolbar State-Bar1]
BarID=59423
Horz=1
Floating=1
XPos=583
YPos=37
Bars=3
Bar#0=0
Bar#1=59392
Bar#2=0
[Recent File List]           The recent sss files saved
File1=C:\Documents and Settings\User
\My Documents\My Selection Sets
\demo.sss
File2=C:\Documents and Settings\User
\My Documents\My Selection Sets
\RAATE.sss
File3=C:\Documents and Settings\User
\My Documents\SAW5\test-exec-
repeat.sss
File4=C:\Documents and Settings\User
\My Documents\My Selection Sets
\autorepeat exec.sss

```

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The setML.xml File

setML.xml File

Note: This is not currently in active use.

The setML.xml file is the file used to tell SAW what Default User Selection Sets exist.

SAW Designer

SAW Designer comes with a setML file that allows for all the switch and pointer selection sets to be used within selection sets.

This file install is installed in the ...*All Users\Application Data\SAW* folder

When SAW is run for the first time this is copied across to the *users application data folder (...User Name\Application Data\SAW)* so that each user can have their own default selection sets.

SAW Switch Lite and SAW Pointer Lite come with the exact same setML file. This is so that if a pointer or switch setset is run both will still work.

Example

```

<User_Selection_Sets>
  <set name="MainMenuSwitch" filename="menuswitch.sss"></set>
  <set name="KeyboardSwitch" filename="keyboardswitch.sss"></set>
  <set name="MouseSwitch" filename="mouseshow.sss"></set>

```

```
<set name="DialogSwithc" filename="dialogswithc.sss"></set>
<set name="MainMenuPointer" filename="menupointer.sss"></set>
<set name="KeyboardPointer" filename="keyboardpointer.sss"></set>
<set name="DialogPointer" filename="dialogpointer.sss"></set>
</User_Selection_Sets>
```

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Hints, Tips and Ideas

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Identifying items

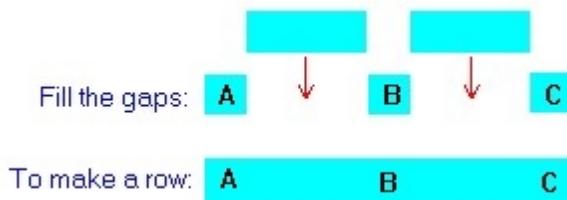
Even if an item's Display Text is not used, it may sometimes be useful to put an identifying name in the Display Text without setting it to 'Show'. Alternatively, type the name as its Graphic filename but without setting Graphics to Show. The name will then appear in the Status window and in the items list of certain dialogue boxes.

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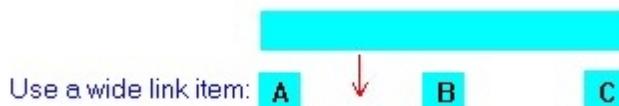
How to Fill Gaps Between Items

If you want to link together several items (which are spaced apart) to appear as a row or column, then **Non-Visitable** link items with the same normal background colour can be inserted in the gaps.

Example

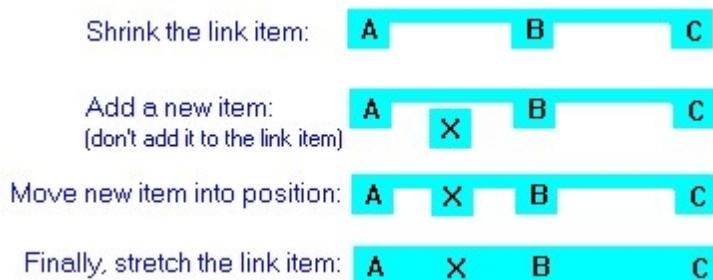


Alternatively, a single wide link item can be used to fill the gaps:



This link item needs to be below A, B, and C in the group order so that it appears behind these items.

Note that when adding or pasting a new item, you should shrink the link item to avoid making the new item its child:



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Screen Resolution

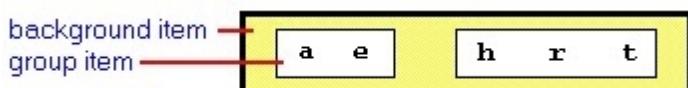
Users will have screens at different resolution. If you design a selection set for 640 x 480 screens it will appear roughly half-size on 1024 x 768. If you design on 1024 x 768 and transfer it the 640 x 480 or 800 x 600 some or all of the selection sets may well be off screen.

It may be useful to use the [Autosize](#) control to make selection sets fit into different resolutions. You should however be aware that the Autosize function may gradually cause slight distortion to the exact relative size and position of the contained items - which will become permanent if the selection set is edited and saved after resizing.

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Using Grandparent Items as a Background

Group items may well be children of a parent item which acts as a background as in the example below:



In this case, it is often useful to set the *Visit Item* script of the background (grandparent) item to be: visit down

This allows items to re-start scanning by visiting the grandparent rather than visiting the first item in the group. The advantage is that, if the groups get re-arranged, no script changes are needed (provided the grandparents item ID remains the same). The *Select Item* script of each of the letters should be:

```
normal item      ;display the normal colours
sound click      ;if the Click setting is on
say speech text  ;via speech synthesiser
send output text ;to current application
visit item 100   ;visit grandparent (background)
```

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How to make Flipcharts

An item can pop up a series of previously hidden Popup items (appearing and disappearing as in a flipchart) using the *visit item* command. In each Popup, the *Visit Item* script should display the Popup and the Next Item script should hide the Popup and direct the scan to the next Popup.

Example

A selection set contains five Popup items, each displaying a vowel: a, e, i, o, u. Selecting this item:



first causes the Popup a to be displayed for the duration of the Scan Time:



Then a is hidden and e appears, then e is hidden and i appears, and so on until one of the vowels is

selected.

In this case, the *Select Item* script of vowels must end with the command:

```
visit item <id>
```

where <id> is the ID number of the Popup a.

The *Visit Item* script of each vowel should begin with:

```
popup show
```

The *Next Item* script of each vowel should end with:

```
popup hide  
visit item <id>
```

where <id> is the ID number of the next vowel to appear (a should visit e, e should visit i, and so on; note that u should visit a to restart the cycle).

The *Select Item* script of each vowel should end with:

```
popup hide  
visit item <id>
```

where <id> is the ID number of the next item to be scanned after a vowel has been selected.

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Linking Selection Sets

A user might have several selection sets to choose from, such as:

- Upper case
- Lower case
- Punctuation marks
- Numbers

These can be implemented either as four Popups in a single selection set file, or as four separate selection set files.

The multiple Popup method is faster because disk access is minimized, although with modern computers this is not such a problem; also, there are useful script commands for backtracking: [popup last](#) , [popup save](#) , [popup restore](#) . However, this method makes great demands on Windows memory management and can cause programs to misbehave.

The new command previous set is useful for common selection sets like letters, numbers, arrow keys, mouse etc.

We recommend that a selection set should have a maximum of two or three Popups each of about 25 items.

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Designing for Direct Selection Method

Direct selection selection sets do not need a hierarchy except if popup groups are required.

To appear and function optimally, election sets need to be specially designed for use with the direct selection method.

With direct selection, *Visit Item* and *Next Item* scripts are triggered by mouse enter and

mouse exit events. *Select Item* scripts need to give visual confirmation of selection. This can be done by setting the following **User Default** script for Select Item

```
flash item
sound click
say speech text
send output text
```

The next script does not need to visit next

Note: that the mouse button can be held down to auto-repeat an item.

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Designing for Swap Switch Selection Methods

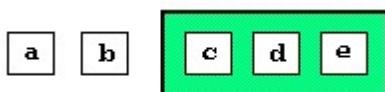
When the selection method involves two switches, a Swap Switch setting is available which swaps the action of the two switches after a switch has been pressed. The Swap Switch method is designed for use with group items (row/column scanning). With Swap Switch, switch 1 scans the groups until the desired one is highlighted; Switch 2 selects the group and then swaps into scanning the contained items; Finally switch 1 is pressed to select the desired item. This results in a 1-2-1 switch activation motor pattern (compared to the typical 1-2-1-2 switch activation pattern). Especially if the 2 switch user scan method can be used, this may result in a relatively effort effective 2 switch scanning method with good control.

To avoid conflicts between the Swap Switch action and certain designs of selection sets, follow these rules:

- 1 Set the Reset Swap attribute of any single (non-group) items that are scanned along with group items.

Example

Set Reset Swap attribute for items a and b:



- 2 In a group which contains items with a visit first or visit me command in their Select Item script, set the Reset Swap attribute of:

- any item which directs the scanning sequence out of the group using, for example, a visit item command
- any item with its Auto-repeatable attribute set

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Changing the look of multiple items quickly

There are two ways that a change can be applied to the appearance (presentation) of large numbers of items quickly:

Copying the presentation

To make items identical in every aspect of their appearance, including size, colour, text and

graphic layout and font, use Edit menu - Copy Presentation ($\text{Ctrl} + \text{Shift} + \text{P}$) you can then select other items and Paste the presentation ($\text{Ctrl} + \text{V}$) into each item in turn.

Applying the last change

This is useful when you only want to change one or two aspects of the presentation. Make the change in one item and then click on other items in turn and Edit menu - Apply ($\text{Ctrl} + \text{L}$) the change made in the first item to the others.

Note: If the result was not what you wanted and expected of the copied or applied presentation, you can always try the Undo ($\text{Ctrl} + \text{Z}$) command to revert the action.

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Trouble Shooting

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My scan has stopped working

This can have a number of causes

- The scan may have been sent to an invisible group popup. The scan is working but you can't see it.
- The switch interface has been incorrectly set up or the interface box is not connected correctly.
- The switches may be not plugged into the correct sockets.
- The switch connection cable or plug may be broken.

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My selection sets load in the wrong place

This may be the top left hand corner of the screen, or in the middle of the screen (interfering with the target application windows). [You can re-locate the selection set on the screen permanently.](#)

The selection sets have been created on a higher resolution screen and are automatically re-locating so that remain on screen, or on a lower resolution screen. The solutions are:

1. Stop the selection sets running ($\text{Ctrl} + \text{R}$) then re-position them on the screen and then Save them in the new position (File - Save, $\text{Ctrl} + \text{S}$). **Note:** You will have to do this to all the selection sets linked in the SAW set-up used.
2. Alternatively (but probably less likely), change your resolution to the original one.

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Known Bugs and Issues

To get help with, or share ideas about, SAW 6, please visit <https://groups.google.com/forum/#!forum/sawatsupport>.

You can also visit the SAW 6 pages at [OATSoft](#) to find information and resources, or to ask questions or make comments:

<http://www.oatsoft.org/Software/SpecialAccessToWindows>

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