Differences between STA V7 readers and STAx readers

Enhanced Barcode Reading

The barcode algorithms in the STAx series readers are more agressive than those in the STA series, allowing you to read difficult-to-read barcodes. STAx series readers can also read barcodes which are in close proximity to other writing on cards.

Magnetic Stripe Reading

STAx readers support track 1 magnetic stripe data or track 2 magnetic stripe data. Track 3 is not supported at this time. Track 1 and Track 2 data cannot be concatenated to form one data item.

Multiple Memory Banks

STAx supports 2 memory banks. The reader can validate card reads against one bank of memory, while the reader is being downloaded with new data into the other memory bank. Full downloads into the reader can be achieved without the need to take the reader offline while downloading.

Barcode Reading

STAx readers do not support the reading of code 93.

Schedules

STAx schedules cannot cross the midnight boundary.

Mulidrop(protocol) Mode

STAx readers do not support protocol mode.

Proximity Card Reading

STAx readers contain updated electronics enabling reading of the following types of cards: IBC, Hid, EM, Casi, Awid, and Farpointe. Indala cards are no longer supported.

Enrolling at Reader

STAx readers do not support the enrolling or deletion of cards at the reader. All additions and deletions must be made through software.

Upload Commands

The STA reader contained an upload command "u" which could be used to upload ID records stored in the reader. STAx readers do not support this feature.

Circular Log Buffer

The STAx reader contains a circular buffer for log data, therefore the cl command is no longer needed. It is however still supported.

Commands

Command for stand alone functionality (downloading ID's, etc) are the same as older STA readers, however commands which are used to program symbologies and other parameters have changed. Those commands are similar to the newer "JX" style commands. STAx readers cannot be programmed using barcodes or magstripes.

Flash Memory

The STAx reader uses flash style memory, therefore data in the reader cannot be modified without clearing it first.

For example, STA readers allowed you to change a particular schedule without first deleting it. That cannot be done with the STAx reader. All schedules need to be cleared first, then the updated schedule information can be downloaded.

The same applies to access ID numbers. If an ID number is deleted, that space is not re-claimed. This should not be an issue since the STAx readers have more memory than older STA readers, and ID number changes are easily accomplished by using the background down-loading techniques.

There is no background downloading capability for schedules, so schedules need to be cleared first prior to downloading. Once downloaded, additional (unused) schedules can be added at any time.

Software developers should take this into consideration when designing or modifying their code to support the STAx readers.

It also takes more time to clear (erase) flash memory. Older STA readers used ram rather than flash, which was very quick to clear. Software developers should not assume that whenever they send a command to reset the reader, or clear all the IDs, etc... that the command will finish immediately. Some commands can take up to 4 to 5 seconds to execute.

Add Employee ID Command

The STA reader had two commands to add an employee id number into the STA. These commands were AN.... and AC.... The AN command did not check for duplicate ID numbers and simply added the ID into the list. The AC command would first check to see if the ID was i the list and return an error if it was found. The STAx reader supports the AC command, however AC can only be used for adding to the active bank, not to the background bank. If you are downloading into the background bank, use the AN command always.

Modifying Current Software to support STAx readers.

Some STA V7 commands do not have a natural response. Software developers would simply assume that the command had been executed.

Those commands are:

/xx	reset record size and clear memory
|x	set mode
"ss	set relay/green led time
'ss	set bad ID led blinking
:x	bad id logging
cl	clear log
cd	clear downloaded list

The same assumptions could be used when writing software to control STAx readers except that those commands which modify memory (in this case flash memory) will take longer to complete. The Reset Recordsize command could take up to 5 seconds.

STAx readers feature an option named "full response" to handle this scenario. If "full response" is turned on, then the reader will always respond with "OK" or "NOK" to every command which does not have a natural response.

Software developers can modify their software to first send a version command to the reader to see if the reader is a STA reader or STAx reader. If it is an STAx reader, then they can look for the OK or NOK response from the reader in their code. This is the suggested way to modify code. IBC can insert custom version responses for those VARS that request it.

Alternatively, since the first 5 command listed above are typically done only once before installation, they can be sent manually using one of IBCs terminal programs, followed by a V command immediately. The V command will be queued by the reader and when the response is seen by software, it will know that the prior command had completed.

The Stax reader now allows ID data to be downloaded in the background, into a separate memory bank, while the reader is operational. Developers may want to take advantage of this option. The method of download would be as follows:

1) Send BACK command to tell the reader you want to download to the background
2) Send the cd command to clear the downloaded list and wait for the OK
3) Download records exactly as you would with the STA reader but use only the AN command, not the AC command.
4) When done, send the SWAP command which "swaps" the memory banks. The latest data which you have downloaded becomes the active data for the reader.

Note that there is no facility for downloading schedule information in the background. The same schedule information is used for both banks of memory.

If any schedule needs to be changed, the only way to do that is to send the new SC (schedule clear) command which will clear the schedules, and then you can download the new schedule information. This command however is very quick and should have minimal impact on users.

The Remove/Delete command "R" will delete an ID in the current working bank only. It will not delete an ID in the background bank.

The Find command "F" will search for an ID in the current bank only, not in the background bank.

A new command X100y has been added which instructs the reader to emulate the same returns for commands as the STA reader X1001 sets the emulation on, X1000 turns it off.

If you will not be using the newer features, such as background downloading, then no changes should be required to your code to use the newer STAx readers, except that the u command can no longer be used. For complete STA emulation send the commands X1070 to turn the fullresponse OFF and send X1001 to enable full STA emulation mode.