DTX Simple ASCII Manager Interface (SAMI)

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1   Purpose

The purpose of this document is to describe the Black Box Simple ASCII Management Interface (SAMI). This API describes how a Third party (non-Black Box) manager that is connected to the same LAN can have limited management control of the DTX appliances. The level of control allowed by this API is limited, and in general is a subset of the management capabilities allowed from the Serial Port of a DTX receiver and/or from the DTX Manager.

2   Definitions

- *Supervisor* mode - The name of the mode of operation that the DTX Appliances will be setup in to allow partial management by a third party.
- *Supervisor* – The name of the Third Party hardware (running software) that is allowed to partially manage the DTX Appliances when the appliances are configured for Supervise mode .

3   Required Mode of DTX Appliance Operation

The DTX appliances operate in two basic modes, desktop and extender. The default mode is extender which means that a Transmitter and Receiver connect via IP and communicate with each other. Desktop mode allows the Transmitter and Receiver to be switchable between several Transmitter and Receiver systems using the DTX-Manager. Today the DTX-Manager is the only method of remotely managing DTX Appliances. This document describes a new method of management called Simple ASCII Management Interface. SAMI uses a simple ASCII based protocol delivered via TCP. The remainder of this document provides details of the protocol.

4   Implementation

4.1   Implementation

SAMI will be disabled by default on DTX appliances. The user will have to enable the SAMI mode using the serial port. It will have to be enabled separately on both Transmitter and Receiver.
The client application will use a password to start a session with the appliance. This password will be transmitted clear text.
The TCP port number will be selectable by the user. The default port number of 16951 will be used.
The ASCII protocol (SAMI) will be encapsulated in a TCP packet using the above TCP port number.

The ASCII protocol will respond with the new parameter value after the command is processed.   For the password command the response will be connect to indicate a session is active. The reset command will not have a response.

4.2   Configuration

Enable / disable. The default is disabled.

Supervisor session password – The password used to initiate a SAMI session with an appliance.

TCP Port number – The TCP port number used in the TCP session. It must be greater than 1024 and less than 65535.

Session timeout – Amount of time (in minutes) the session can remain inactive before it is closed. The default timeout value is 60 minutes. The valid range is 1 to 1440 (24 hours).

5   Protocol

SAMI will use a simple ASCII protocol encapsulated and delivered via TCP. The format of the ASCII protocol will be "command parameter value". For example if the user wants to set the IP address of the receiver the command would be: "set ipaddr 192.168.13.1". The command and parameter are not case sensitive so he could also use "set IpAddr 192.168.13.1".

Spaces are not allowed in the parameter field. If spaces are needed in the value field, then the value will be enclosed in double quotes. While there is no "maximum" length for the message, each field has a defined limit. The command field is 3 bytes. The max size of the parameter field is 13 bytes and the max size of the value field is 65 bytes. If a message is received with a field length longer than these maximums, then the message will be discarded and an error returned.

Each message must terminated by an ASCII linefeed character (0x0a). It is optional to include the ASCII carriage return (0x0d). The appliance will return both carriage return and line feed at the end of each message.

5.1   Commands

The following commands will be supported.

5.1.1   set

The set command will be used to set a parameter to a specified value.

5.1.2   get

The get command will be used to retrieve the value of a parameter.

5.1.3   use

The use command will be used to perform an action which does not change the value of a parameter. For example, to initiate a session, the user must send the password with the use command ("use password sessionpassword").

5.1.4   resp

The resp command will be used to respond to a request from the client.   For example in response to a get IpAddr, the appliance would return "resp ipaddr 192.168.13.1".

5.1.5   error

The appliance will respond with the error command when an invalid message is received. The format of the error response is "error command parameter failure".   If a specific error can be identified, the appliance will return that error. For example the message "set ipaddr 292.168.13.5" would return (error set ipaddr "invalid ip address").

5.2   Parameters

There are three groups of SAMI commands.

5.2.1   SAMI session

The first group of commands setup and handle the SAMI session. The user must send a password to the SAMI port to initiate a SAMI session. For any other commands to be accepted a valid SAMI session MUST be established.

Parameter	Description	Type	Example
password	The password used to initiate a SAMI session. Once the session is initiated, any other commands may be used. The session will close when the timeout expires. The password can only be set using the serial port.	use	use password sessionpassword resp connect
disconnect	The disconnect parameter will be used to disconnect the SAMI session from the appliance. There is no response to this message.	use	use disconnect
reset	The reset parameter will be used to reset an appliance. There are certain cases where the appliance must be reset for the parameter to take effect.	use	use reset

5.2.2   Data commands

The second group of commands is used to set or get values of various configuration parameters in the Transmitter or Receiver. There must be an active SAMI session for these commands to be accepted.

Parameter	Description	Type	Example
ipaddr	IP address of the managed device. Changing ipaddr requires a reset to be active.	set, get	set IpAddr 192.168.13.1 resp IpAddr 192.168.13.1 get IpAddr resp IpAddr 192.168.13.1
netmask	Netmask of the managed device. Changing netmask requires a reset to be active.	set, get	set netmask 255.255.255.0 resp netmask 255.255.255.0 get netmask resp netmask 255.255.255.0
gateway	Default gateway of the managed device. Changing gateway requires a reset to be active.	set, get	set gateway 192.168.13.1 resp gateway 192.168.13.1 get gateway resp gateway 192.168.13.1
partneripaddr	The IP address of the partner. This parameter only applies to the Receiver. It is the IP address of the Transmitter that the user wants to connect to. There is a slight delay to switch partners, but no reset is needed.	set, get	set partnerIpAddr 192.168.13.2 resp partnerIpAddr 192.168.13.2 get partnerIpAddr resp partnerIpAddr 192.168.13.2
name	The appliance name of the device. No reset is needed.	set, get	get name resp name "DTX2050-1" set name "DTX2050-1" resp name "DTX2050-1"
eid	The appliance EID of the device.	get	get eid resp eid 510150-00032D-000 set eid 510150-00032D-000 resp eid 510150-00032D-000
mac	The mac address of the device.	get	get mac resp mac 00:E0:86:0E:31:73

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5.2.3   Desktop Commands

The last group of commands is used to initiate interactions between the Receiver and the DTX Manager. There must be an active SAMI session for these commands to be accepted.

Parameter	Description	Type	Example
desktop-login	This parameter is used to login to the receiver.	use	use desktop-login "username password"
desktop-connect	This parameter is used to connect to the specified target transmitter using the target name.	use	use desktop-connect target-name
desktop-disconnect	This parameter is used to disconnect the receiver from the current target.	use	use desktop-disconnect
desktop-logout	This parameter is used to log out the current user.	use	use desktop-logout

6 Usage

The following are some sample SAMI sessions with each command fully explained. The Receiver's IP address is 192.168.13.3. We are using the default SAMI port 16951. The first step is to start a TCP connection to the SAMI port. One way of doing this is to open a "telnet" session to the SAMI port. The SAMI password by default is "password".   Each command must be terminated with a linefeed (0x0a). For Crestron use \n.

6.1   Extended Mode Connect

This example initiates a SAMI session and connects in extended mode to Transmitter 192.168.13.4. The first step is to create a TCP connection to the Receiver using the SAMI port. (telnet 192.168.13.3:16951). After the TCP connection is active, the SAMI commands can be sent.

Description	Command	Response
Initiate the SAMI session.	use password password	resp connect
Connect to the Transmitter at 192.168.13.4.	set partneripaddr 192.168.13.4	resp partneripaddr 192.168.13.4

6.2   Desktop Mode Connect

This example initiates a SAMI session, connects in desktop mode to the Transmitter 192.168.13.4 (named "My-Transmitter") and closes the SAMI session.

The first step is to create a TCP connection to the Receiver using the SAMI port. (telnet 192.168.13.3:16951). After the TCP connection is active, the SAMI commands can be sent.

Description	Command	Response
Initiate the SAMI session.	use password password	resp connect
Log-in the user to the DTX manager with the desktop login command.	use desktop-login "q qqq"	resp desktop-login q
Connect to a Transmitter using the name. Note: The name is case sensitive!	use desktop-connect "My-Transmitter"	resp desktop-connect My-Transmitter resp connect successful
Disconnect the Receiver from the Transmitter.	use desktop-disconnect	resp desktop-disconnect
Logout of the DTX manager	use desktop-logout	resp desktop-logout

The TCP connection can now be terminated.

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