

Introduction

It is possible to connect a Sarian cellular router to a Pharos LPC to enable the LPC to send and receive SMS text messages. This allows for both remote triggering and status reporting via SMS messaging.

Possible applications include:

- Triggering of timelines by members of the public sending SMS text messages.
- Administrative control (such as rebooting) by SMS from authorised telephone numbers.
- Reporting 'system running' on a daily or weekly basis.
- Reporting error conditions (such as security breaches, environmental conditions or external equipment failure) using sensors connected to the LPC.





Hardware Requirements

The following items will be required:

LPC

A single LPC 1 or LPC 2 is required. Either the serial port or the ethernet port may be used to connect to the Sarian router.

Sarian Router

At the time of writing, a number of different cellular routers are available from Sarian. Each router is differentiated by the number of cellular protocols supported (GPRS, EDGE, UMTS (3G) and HSDPA) and the number of ethernet and serial ports.

The following procedure has been tested with an HR4110 router featuring GPRS/EDGE/UMTS (3G)/HSDPA, one serial port and one ethernet port. It is believed that other Sarian routers should also be compatible, but this has not been tested.

SIM Card

A suitable SIM card must be installed in the router. If the sole aim is to send and receive SMS text messages, any standard SIM and tariff will suffice. If there is also a requirement to use the router to provide a connection to the internet, the SIM may need to be set up by the network operator to provide this functionality.

In some circumstances, it may be desirable to use a 'pre-paid' SIM card to limit the maximum expenditure, should the LPC send a large number of SMS text messages.

Ethernet Switch

During programming, it is advisable to connect the Sarian router, the LPC and a computer on the same network. If necessary, this switch can later be replaced with a crossover cable between the router and the LPC, but it is strongly advised to use a switch to facilitate easy access should further programming be required.

Once installed, the Sarian router and the LPC may be connected by a serial cable instead of via ethernet if desired.



Functional Overview

Before starting an installation, it is useful to understand how the system will operate when completed.

Sarian Routers can be loaded with firmware that enables them to run ScriptBasic scripts. These scripts are relatively simple computer programs that can extend the router's standard functionality as required for different applications.

Pharos Architectural Controls has written a script dedicated to interfacing the router to an LPC for the purpose of sending and receiving SMS text messages. This script is available on request from Pharos technical support. The script must be loaded onto the Sarian router and configured with the necessary information to enable it to contact the LPC. Communication may be either network-based, or using a serial cable.

Once the initial configuration of the router has been completed, sending and receiving SMS text messages is as simple as setting up triggers in the show running on the LPC.

Incoming SMS text messages will be sent to the LPC as a text string which includes the message text and the source phone number. An RS232 Input trigger or Ethernet Input trigger in the show running on the LPC can match against all or part of this string and perform the required action.

Triggers in the show may also be set up to send SMS text messages by adding an RS232 Output action or an Ethernet Output action to send a command to the Sarian router which includes the destination phone number and the message text.



Installation

Testing the Sarian Router

If the router has not previously been used, it is advisable to verify it is operating correctly before attempting to update the firmware.

• Install and run the 'Sarian Connection Wizard' (from the CD that accompanies the router).



- Select the second option ("Configure a Sarian's Ethernet port and also a connection to a GPRS / EDGE / 3G / HSDPA network") and click Next.
- Follow the instructions displayed by the wizard to connect up the router:





Using a Sarian Systems cellular router with a Pharos LPC





Confirm the router has been detected:

Sarian Connection Wizard					
	One GP	RS / EDGE	/ 3G / HSDPA S	Sarian wa	as located!
	Serial No	Model	Ethernet IP	Unit ID	Pingable
	00001	HR4110	192.168.42.186	ss59704>	Yes
4					
-					
	1) Wait for	the search to	complete		
	1) Wait for 2) Select th	the search to le Sarian in th	complete. e above list that you	i want to cor	nfiaure.
	1) Wait for 2) Select th 3) Click <u>N</u> e	the search to le Sarian in th xt.	complete. e above list that you	i want to cor	nfigure.
	1) Wait for 2) Select th 3) Click <u>N</u> e	the search to le Sarian in th xt.	complete. e above list that you	i want to cor	nfigure.

Select the router and click Next. •

Sarian Connection Wizard				
2	Do you want to reset the Sarian to the factory default configuration before continuing with the Wizard?			
	<u>Yes</u> <u>N</u> o			

Click 'Yes' to reset the router to the factory default configuration. It may take a short time for this • to complete and for the router to reboot.

🚰 Sarian Connection Wizard 🛛 🔀				
Choose Your Configuration Option				
T	DHCP server is present on network. ne PC is NOT configured to use a DHCP server. This PC can NOT ping the Sarian now.			
Configu	ure the Sarian to serve an IP address to the PC using DHCP. Optionally rre the PC to obtain an IP address from the Sarian.			
Assign gatewa	a new IP address to the Sarian. Optionally al <mark>so assign an IP address,</mark> ay and DNS server to the PC statically. (RECOMMENDED)			
Assign existin the PC	a free IP address to the Sarian from the same subnet as the PC's g IP address. Optionally change the default gateway and DNS server of to be the Sarian's IP address.			
	Cancel Back Next			

Select the option 'Assign a new IP address to the Sarian'. (This may or may not be the ٠ recommended option, depending on your network configuration.)



Using a Sarian Systems cellular router with a Pharos LPC

🕈 Sarian Connection Wizard 🛛 🔀				
	Enter your APN and PIN			
	Enter the APN:			
	Enter the PIN:			
	Enter username:			
	Enter password:			
1) IN 2) Fi 3) C	MPORTANT Read the help page for this screen ! Fill out the APN and optionally, PIN code, user name and passw Click <u>N</u> ext.	vord.		
Ŀ	Help Cancel Back	Next		

- If you only wish to use the router to send and receive SMS text messages:
 - o Leave the APN, username and password fields blank.
 - o If the SIM card has a PIN code set, enter it here.
 - o Click 'Next'.
- If you also wish to use the router for internet access (for example, for email and web access while working on-site, or to allow the LPC to connect to an external time server):
 - NOTE: Before entering the following information, it is strongly recommended you contact your network operator to determine what charges will be levied for internet access. Some operators offer 'unlimited access' data tariffs for a monthly fee, while others only offer 'per megabyte' data tariffs. The cost of these tariffs can range from fairly reasonable to extortionate, so make absolutely sure you understand the charges that are applicable to your tariff before proceeding. If unsure, do not enter the following information. You will still be able to send and receive SMS text messages if you leave the APN, username and password fields blank.
 - Enter the APN, username and password for your internet connection. This information will be available from your network operator. Further information is available by clicking the 'Help' button. Alternatively, a list of common APN, username and password settings for networks around the world can be found at <u>http://www.taniwha.org.uk/gprs.html</u>
 - o If the SIM card has a PIN code set, enter it here.
 - Click 'Next'.



Using a Sarian Systems cellular router with a Pharos LPC

• The router will now attempt to connect to the internet:

🌮 Sarian Connection Wizard	\mathbf{X}
Configuring and testing the GPRS connection	
Attempting to activate the GPRS connection	
0.0.0	
 Please wait while the GPRS connection is tested. Follow any instuctions or read any help that may appear above. Click <u>Next</u> to continue with the configuration process. 	
Earcel Back Next	

• It may take more than 1 minute to connect to the internet. In this case, the following message will be displayed:

Keep wa	aiting?
(į)	We have been waiting for more than 1 minute to connect. Under some circumstances it can take up to 5 minutes, click 'Yes' to wait another minute or 'No' to try something else?
	<u>[Yes</u>] <u>N</u> o

- If you have entered an APN, click 'Yes' to wait for another minute. If you have not entered an APN, click 'No' (as the test will never succeed).
- Depending on whether the router is able to connect to the internet, the wizard will display one of the following screens:

券 Sar	ian Connection Wizard	X
	Configuring and testing the GPRS connection	
	The GPRS test has failed!	
	The signal strength is currently: -103 dBm This is a poor signal! Please try re-positioning the Sarian. If you are in a building using an external antenna may help. Click 'Retry', to reboot the Sarian and try again or Click 'Back' to change the APN, PIN, username or password. <u>Bev</u> 1) Please wait while the GPRS connection is tested. 2) Follow any instuctions or read any help that may appear above. 3) Click Next to continue with the continuation process	
	Circk Next to continue with the conligutation process. Cancel Back	



Application Note: SMS Text Messaging Using a Sarian Systems cellular router with a Pharos LPC

🌮 Sar	ian Connection Wizard	×
	Configuring and testing the GPRS connection	
	The GPRS test was successful! GPRS IP address = 10.32.12.45	
	The signal strength is currently: -103 dBm This is a poor signal!	
	As the GPRS test was successful, you can now click ' <u>N</u> ext' to continue.	
	<u>C</u> ancel <u>B</u> ack	

- If the test fails, you will still be able to send and receive SMS text messages, but the router will • not be able to connect to the internet.
- Click Next.

券 Sarian Co	nnection Wizard		×
	Configure the Sa	rian's Ethernet IP Addres	55
	Sarian IP address:	192.168.42.186	
	Sarian Mask:	255.255.255.0	
1) 2)	Advanced users may ma Then click <u>N</u> ext	ke changes to the above fields. <u>C</u> ancel <u>B</u> ack	Next

Enter the desired IP address and network mask for the router. (The router, LPC and PC should ٠ all be on the same network.) Make a note of the IP address as it will be required later.

券 Sari	an Connection Wizard	X
	Configure Your PC's IP Address	
	WARNING	
	This page is optional as it involves making changes to the network settings on your PC. You MUST have the permission of your system administrator before continuing. To configure your PC's IP address statically click on the 'Configure PC' button.	
	<u>Skip</u> Configure PC	



Application Note: SMS Text Messaging Using a Sarian Systems cellular router with a Pharos LPC

• Click 'Skip' to leave the PC's IP address unchanged.

券 Sar	ian Connection Wizard Completed	×
	Sarian Connection Wizard Completed	
	The wizard is now complete. The Sarian did NOT connect succesfully to the Internet or other WAN.	
	The PC is not now using the Sarian as either its default gateway or DNS server.	
	This means that you will NOT be able to route through the Sarian to the Internet or other WAN right now.	
	You can configure the Sarian further by clicking the 'Browse Sarian' button below.	
	<u>B</u> rowse Sarian	
	<u>B</u> ack <u>F</u> inish	

Click the 'Browse Sarian' button. •

🕹 Sarian Device ID: ss%s> Serial #: 00001 - Mozilla Firefox					
<u>Eile E</u> dit <u>V</u> iew Hi <u>s</u> tory <u>B</u> ookmarks <u>T</u> ools	Help				
- 🔶 - 💽 💿 🏠 🗋 http://19	2.168.42.186/default.asp	Gr Google			
Operations Configure Statistics Status Save Reboot Display Mode	HR4110 HSDPA/3G - EDGE/GPR Click to load Applet graphics (GPRS data saver) Serial Number: 00001 Unit ID: ss%s>	3 Router			
<					
Applet LEDPanel6 started		🌒 🕲 🔡			

- Confirm the router's web interface loads and displays correctly. (If asked for login details, the ٠ defaults are 'username' and 'password'.)
- Select Operations : Configure : SMS Edit. ٠



Using a Sarian Systems cellular router with a Pharos LPC

🥙 Sarian Device ID: ss%s> Serial #: 00001 - Mozilla Firefox 📃 🗖				
Eile Edit Yiew History Bookmarks Iools Help				
	Q)			
Intervirjusz. tes. 42. tes. decideratur. asp Implicit a subsection of the				
SMTP SMTP SNTP SSH server				
SSL client				
Done	I 🚳 🙂 🔡			

• Enter a test message and a suitable phone number, including the country dialling code prefix, and click Send. Confirm the message is sent and received correctly.

Note: Phone numbers **must** include the country dialling code prefix. The local dialling format (which does not include the country dialling code prefix) will not work, even if the router is in the same country as the phone to which the SMS text message is being sent. For example:

447712345678Correct – Includes UK country dialling code of '44'.07712345678Incorrect – No country dialling code specified.

• If the SMS test fails, it may be necessary to enter an SMS message centre number (available from your network operator). This can be set under *Configure : GPRS Module : SIM 1* in the 'SMS message centre' field.



Updating the Sarian Router's Firmware

Before the router can be used with an LPC, it is necessary to update the router's firmware to add support for ScriptBasic.

The 'Sarian Connection Wizard' and 'FlashWriter' programs will be required. The 'Sarian Connection Wizard' is supplied on the CD that accompanies the router, while 'FlashWriter' can be downloaded from the Sarian website.

• Download the latest version of firmware with support for ScriptBasic.

At the time of writing, firmware updates can be downloaded from <u>http://www.sarian.co.uk/flashwriter.htm</u>.

When downloading firmware from the Sarian website:

- Carefully read the instructions regarding FlashWriter and downloading firmware. If discrepancies exist between instructions on the Sarian website and instructions in this document, follow the instructions from the Sarian website.
- Ensure the filename exactly matches the router model number.
 Eg. Firmware files for the HR4110 router **must** start with HR4110, or the router will be damaged.
- Select the latest build of firmware (indicated by a number in the filename) that has ScriptBasic support enabled (indicated by '+Basic' in the filename).
- Extract both the .all and the .ini files from the downloaded zip file to a new directory.
- Connect the router to a spare serial port on the PC.
- Run the FlashWriter application.

IMPORTANT NOTICE - PLEASE READ !!					
1	This is the first time you have run FlashWriter. It is highly recommended that you use TFTP mode as it is more reliable and much faster than xmodem. To use TFTP mode you must program FlashWriter with an IP address on your network that is free. This IP address will be assigned to the Sarian whilst it is loaded. Choose 'Set remote TFTP IP address' from the 'Advanced' menu now! NB FlashWriter requires both a serial and an Ethernet connection to your PC.				
	[ОК]]				

• Read the message and click 'OK'.

🕉 Sarian FlashWriter (v1.0.325)	
<u>A</u> dvanced Audit	
Communications port number:	1 💌
Configure only (do not re-load firmware):	
Use event driven mode	•
Use Xmodem 1K	
Use TFTP	v
	Load

• Select 'Advanced', 'Set remote TFTP IP address'.



Application Note: SMS Text Messaging Using a Sarian Systems cellular router with a Pharos LPC

Enter IP address	×
Enter IP address to use for Sarian unit:	OK
	Cancel
192.168.42.186	

- Enter the Sarian's IP address and click 'OK'. •
- Click the 'Load' button.

WARNIN	G!
1	WARNING: If this program is interrupted whilst loading or if a wrong (or corrupt) file is selected, the device could be damaged and may have to be returned for repair. A charge is usually made for this service. Are you sure you want to continue?

Read the warning and click 'Yes'. •

Enter the location of the .all file.						
Look jn:	🚞 Sarian firmwar	e	•	🗢 🗈 💣 💷]+	
My Recent Documents Cost top	BHR4110-4938+	Basic.all				
My Documents						
My Computer						
	File <u>n</u> ame:	HR4110-4938+Basic.all		•	<u>O</u> pen	
My Network Places	Files of <u>type</u> :	All file (.all) Open as read-only		•	Cancel	

Select the .all file that was extracted from the downloaded zip file. ٠



Switch off the router, click OK and then immediately switch the router on. .

莎 Sarian FlashWriter (v1.0.325)					
<u>A</u> dvanced Audit					
Communications port number:	1 💌				
Configure only (do not re-load firmware):					
Use event driven mode					
Use Xmodem 1K					
Use TFTP					
TFTP all.all 192.168.42.7 192.168.42.186	Load				
File TX in progress(C:\Documents and Settings\chrisd\Desktop\Sarian firmware\HR4110-4938+Basic.all)					



Using a Sarian Systems cellular router with a Pharos LPC

• The firmware upgrade will start. This may take a few minutes.

첄 Sarian FlashWriter (v1.0.325)	
<u>A</u> dvanced Audit	
Communications port number:	1 💌
Configure only (do not re-load firmware):	
Use event driven mode	
Use Xmodem 1K	
Use TFTP	v
TFTP all.all 192.168.42.7 192.168.42.186	Load
Device upgraded succesfully.	

- Wait until FlashWriter reports 'Device upgraded successfully'.
- Close FlashWriter.
- Re-run the Sarian Connection Wizard.

Uploading new firmware resets some of the configuration options, such as IP address. Therefore, it is necessary to re-run the Sarian Connection Wizard to correctly configure the router. The correct procedure is listed above in the 'Testing the Sarian Router' section.

The SMS sending test should be repeated to confirm the unit is still operating correctly with the ScriptBasic firmware.



Configuring the Sarian Router's Security Settings

The router should be configured to ensure it is protected against unauthorised access:

- Display the router's web interface and log in. (The defaults are 'username' and 'password'.)
- Select Operations : Configure : Users : User 0 9

🕹 Sarian Device ID: ss%s > Serial #: 00001 - Mozilla Firefox							
<u>File E</u> dit <u>V</u> iew Hi <u>s</u> tory <u>B</u> ookmarks <u>T</u> oo	ols	Help					
< • 🔶 • 🥑 💿 🏠 🗈 http:	//19	2.168.42.186/default.asp	5		• • • C •	Google	Q
SARIAN SYSTEMS	•	Configure: User () - 9				
Protocol Bindings		# Name	Password	Confirm Password	New Password	Confirm New Password	Access Level
SMTP		0 Sarian					Super 👔
SNTP		1 username					Super 👔
i SSH server		2					Super 👔
SSL client		3					Super 👔
Static Multicast Routes		4					Super 👔
Static NAT Mappings		5					Super 👔
System Messages		6					Super 🚹
) Time		7					Super 👔
🕂 🧰 Time Bands		8					Super 👔
🕂 🧰 TPAD		9					Super 👔
⊕ ☐ Tunnel (GRE) ⊕ ☐ UDP Echo Client/Server		OK	Cancel				
🖹 🔁 Users							
User 0 - 9							
0 05er 10 - 14	~						
< · · · · · · · · · · · · · · · · · · ·		<	Ш				>
Done							🌚 🥴 🔡

- Delete the existing users, enter a new username and password and click OK. Make a note of the username and password as they will be required later.
- Click 'save to flash'.
- Select '0 (power up)' and click OK.

Uploading the Script to the Router

The 'pharos.sb' script (available from Pharos technical support) must be uploaded to the router via FTP. To perform this upload on windows:

- Open a Windows Explorer window.
- Type 'ftp://192.168.0.10' into the address bar (substituting the correct IP address for the router) and press enter.
- When prompted, enter the login details you set earlier.
- Drag and drop the pharos.sb file from your hard disk into the FTP window and wait for the copy to complete.
- Close the Explorer window.

Configuring the Router's SMS Options

The Sarian router must be configured using the web interface as follows:

- Open a web browser and enter the router's IP address.
- When prompted, enter the login details you set earlier.
- Set the following configuration options:

Operations : Configure : GPRS Module : SIM 1

Set the 'SMS message centre' number (available from your network operator).

Set the 'SMS polling interval' to '0'.

Confirm the 'SMS command caller ID' entries are all blank.

Click 'OK'.

Operations : Configure : Event Handler

Set the 'Max SMS/day' to the desired maximum number of messages that should be sent in a day. This is a protection against programming errors to ensure the system does not run up a large bill by sending too many SMS text messages.

Click 'OK'.

Operations : Configure : Basic

Set the 'User parameter 1' as follows:

If using a serial connection between the LPC and router, enter:

PHAROS: COMMS=SERIAL

If using an ethernet connection between the LPC and router, enter:

PHAROS: COMMS=NETWORK, LPC_IP=192.168.0.5, LPC_PORT=5000, ROUTER_PORT=5000

(Substitute the correct IP address for the LPC.)

If necessary, you may change the LPC_PORT and ROUTER_PORT options to other values to suit your network environment. In most cases however, the above will work.

Click 'OK'.

Note: These options may be changed at any time and will take immediate effect. It is not necessary to reboot the router, although it is necessary to save any changes (see below).

Operations : Configure : General

Set the 'Auto start macro' to 'bas pharos.sb'.

Click 'OK'.

Operations : Save

Select '0 (power up)' and click 'OK'.

Wait for confirmation that the configuration has been saved successfully.

Operations : Reboot

Click 'REBOOT' and wait for the system to restart.

- Once the system has restarted, log in again and re-visit the above pages to confirm the configuration options have successfully been stored.
- Select *Operations : Status : Event Log* and confirm the log contains the messages similar to the following (which may not be at the top):

PHAROS: Listening for commands on port 5000. PHAROS: Received text messages will be sent to 192.168.0.5 PHAROS: Pharos script starting up...

If any error messages are displayed, re-check the configuration options above.



Configuring the Communication Method

The project to be used with the LPC must be set up within Pharos Designer as follows:

If the LPC and router are to communicate via ethernet:

- In Designer, display the Network tab and select the desired LPC.
- On the 'Controller Properties' pane, set the Ethernet options for Bus 1 as follows:

Type: TCP Port: 5000 (to match the LPC_PORT configuration set on the router).

Alternatively, if the LPC and router are connected by a serial cable:

- In Designer, display the Network tab and select the desired LPC.
- On the 'Controller Properties' pane, set the Serial Port options as follows:

Baud Rate: 38400 Data Bits: 8 Stop Bits: 1 Parity: None



Creating a Trigger to Receive SMS Text Messages

When the Sarian router receives an SMS text message, a string is sent from the router to the LPC is in the following format:

SMSFROM: [number]SMSTEXT: [message] r n

[number] is the phone number from which the message was sent, including the country dialling code. It has a fixed length of 20 characters. Numbers shorter than 20 characters are padded with spaces.

[message] is the contents of the received message, converted to upper case.

The $\r \$ be $\r \$ be the line' sequence, which indicates the end of the message.

For example, a message of 'Hello, world!' sent from telephone number 07712345678 in the UK (country dialling code 44) would produce the string:

SMSFROM:447712345678 SMSTEXT:HELLO, WORLD!\r\n

If it is desired to only respond to messages from a single telephone number, the trigger should use the full string (including both SMSFROM and SMSTEXT parts). The correct number of 'space' characters must be inserted between the telephone number and 'SMSTEXT' to ensure that the total length of the telephone number and the spaces is 20 characters.

If it is desired to respond to messages from any telephone number, only the SMSTEXT part of the string should be matched against. For example:

 $SMSTEXT:RED\r\n$

As messages are converted to upper case, the above string will match to messages "red", "RED" and "Red", amongst others.

The $r \in n$ may be omitted from the string to match for if it is desired to match to all incoming messages that start with a specific word. For example:

SMSTEXT:RED

This will match to messages "Red", "Red On" and "Reduce", amongst others.

Once the desired string to match to has been determined, it should be entered as part of a trigger using Pharos Designer, as follows:

If the LPC and router are to communicate via ethernet:

- In Designer, display the Triggers tab.
- Create a new Ethernet Input trigger with the following options:

Absorb on match: Yes Source: Bus 1 Message Type: ASCII Message: SMSTEXT:RED\r\n

Alternatively, if the LPC and router are connected by a serial cable:

- In Designer, display the Triggers tab.
- Create a new RS232 Input trigger with the following options:

Absorb on match: Yes String Type: ASCII String: SMSTEXT:RED\r\n



To send a message, a string must be sent from the LPC to the Sarian router in the following format:

SENDSMS [number] [message]\r\n

[number] is the phone number to which the message should be sent, including the country dialling code. It may be any length (padding is not required).

[message] is the contents of the message to send.

The $\r \$ is a 'new line' sequence, which indicates the end of the message.

For example, to send a message of 'System running.' to telephone number 07712345678 in the UK (country dialling code 44), the following string is required:

SENDSMS 447712345678 System running.\r\n

This string should be entered as part of an Action, as follows:

If the LPC and router are to communicate via ethernet:

- In Designer, display the Triggers tab and select the desired trigger.
- Create a new Ethernet Output action with the following options:

Controller: 1 IP Address: (the correct IP address for the Sarian router) Port: 5000 (to match the ROUTER_PORT set on the router). Protocol: TCP Message Type: ASCII Message: SENDSMS 447712345678 System running.\r\n

Alternatively, if the LPC and router are connected by a serial cable:

- In Designer, display the Triggers tab and select the desired trigger.
- Create a new RS232 Output action with the following options:

Controller: 1 String Type: ASCII String: SENDSMS 447712345678 System running.\r\n



Quick Reference

Sample script configuration options:

PHAROS: COMMS=NETWORK, LPC_IP=192.168.0.5, LPC_PORT=5000, ROUTER_PORT=5000

Network comms: TCP on ports specified by configuration options.

Serial comms: 38400, 8, N, 1 (must set COMMS=SERIAL)

To verify communication: Send 'ping\r\n'. A response of 'pong' should be received.

Sample incoming message string:

SMSFROM:447712345678 SMSTEXT:HELLO, WORLD!\r\n

(20 characters for number and padding, message converted to upper case.)

Sample outgoing message string:

SENDSMS 447712345678 System running. $r\n$