

# unique automation

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Project number:

Project name: **BOM2 Protocol**

Doc type: **Design process**

Author:	Patryk Grzesiak
Version:	1.0.0.2
Data:	04/06/2009

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Unique Automation 2009

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## Changes

<b>Date</b>	<b>Author</b>	<b>Description</b>
Revision 1.0.0.1		
03/12/2008	Patryk Grzesiak	START

## BOM2 Protocol

# Communication parameters

Parameter name	Value
Protocol	TCP
Ports	23, 24

## Frame structure

### Frames without parameters

Command	BOM2_	XXX	!	<0x0d>
Query			?	
	<b>Header</b>	<b>Frame Number</b>	<b>Type identification</b>	<b>End character</b>

### Frames with parameters

Command	BOM2_	XXX	“_”	PPPPP...	!	<0x0d>
Query					?	
	<b>Header</b>	<b>Frame Number</b>	<b>Parameters indicator</b>	<b>Parameters</b>	<b>Type identification</b>	<b>End character</b>

### Response without parameters

Command	OK_	XXX	<0x0d>
Query			
	<b>Header</b>	<b>Frame Number</b>	<b>End character</b>

### Frames with parameters

Command	OK_	XXX	“_”	PPPPP...	<0x0d>
Query					
	<b>Header</b>	<b>Frame Number</b>	<b>Parameters indicator</b>	<b>Parameters</b>	<b>End character</b>

## Security rules

Commands used by the Bathomatic protocol were secured by short-term session mechanism. Depend of command type opened session has to have specific level access.

## Access Level

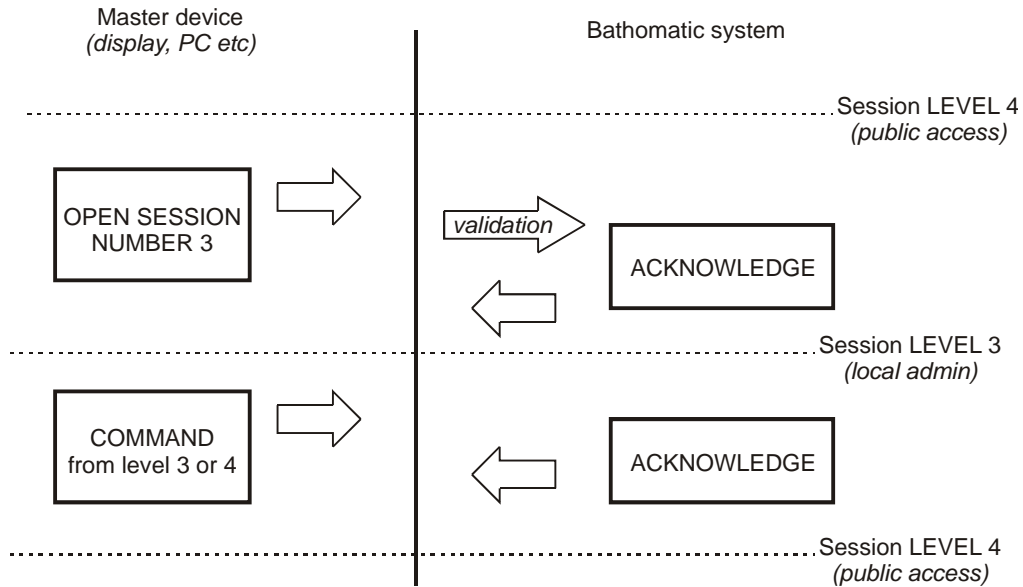
Access level was divided on 5 stages.

*Table 2.1 Access level types*

<b>Level</b>	<b>User type</b>	<b>Description</b>
0	Super Admin	Give an access to functions like firmware uploading, password changing for level 0 to 4. Access to all commands from level 1 to 4.
1	Service Engineer	Give an access to functions like calibration, password changing for level 1 to 4. Access to all commands from level 2 to 4.
2	Reserved	Not used in this release.
3	Local Admin	Give an access to functions like changing dispensers name. Access to all commands from level 3 to 4.
4	Public	General session, opened as a default, doesn't need any additional command to open it. It is opened until other session will be started.

# Session Life Cycle

The session for access level 4 is opened continually. To open the session for other level – highest priority - special command has to be sent (BOM2\_800). Once opened session is available only for one command sent just after opening session command. After that session automatically changes level to 4.



# Queries List

Num	Name	Description																																																																																																																																																																																													
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# Commands List

Num	Name	Description
001	Current Values	Response

Desired temp		Desired level			Shower temp		Shower flow
0	1	2	3	4	7	8	9

If you want to leave one of the numeric parameter w/o changes you can send non-digit value in place of data and the parameter will be ignored (e.g. BOM2\_001\_10AAAAAA! In this case only desired temperature will be changed)

002	Set Dispensers Value	
-----	----------------------	--

Dispen 1			Dispen 2			Dispen 3			Dispen 4			Dispen 5			Dispen 6			Dispen 7			Dispen 8		
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

If you want to leave one of the numeric parameter w/o changes you can send non-digit value in place of data and the parameter will be ignored.

101	Preset Values	Change Preset Values, to change preset values session number 3 has to be activated
-----	---------------	--

Preset number													
0													
Preset name													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Preset name													
15	16	17	18	19	20	21	22	23	24	25	26	27	28
Desired Temp							Desired level						
29			30				31			32		33	
Dispen 1			Dispen 2			Dispen 3			Dispen 4				
34	35	36	37	38	39	40	41	42	43	44	45		
Dispen 5			Dispen 6			Dispen 7			Dispen 8				
46	47	48	49	50	51	52	53	54	55	56	57		

Preset number – preset number that will be saved in 1-9 range.

If you want to leave one of the numeric parameter w/o changes you can send non-digit value in place of data and the parameter will be ignored. In case of preset name field value from 1 to 31 can be sent to mask the characters that should stay w/o changes. NOTE that preset number can't be masked.

300	Fill bath	Start filling process
301	Pause Bath	Pause system
302	Empty Bath	Start emptying process
305	Load Preset	Load preset

Preset number
0

Preset number has to be in 1-9 range.

600	Raw Rako	Send text message directly to Rako Card (up to 16 characters)										
601	Load Rako Scene	Load static scene										
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="2" style="padding: 2px;">Static preset</td> </tr> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> </tr> </table> </div> <p>Value in 01-09 range.</p>			Static preset		0	1						
Static preset												
0	1											
800	Open session	Change session level for next frame.										
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="4" style="padding: 2px;">Password</td> <td style="padding: 2px;">Session level</td> </tr> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> </table> </div> <p>Open secured session.</p>			Password				Session level	0	1	2	3	4
Password				Session level								
0	1	2	3	4								
801	Auto Update	Activate/deactivate auto update process										
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="padding: 2px;">Auto Update Enable</td> </tr> <tr> <td style="padding: 2px;">0</td> </tr> </table> </div> <p>Where 1 – enables auto update, 0 – disables auto update.                      The feature is default disabled, every time host connects to BOM the option has to be enabled if needed. Refer to Auto Update process description for more information.</p>			Auto Update Enable	0								
Auto Update Enable												
0												
999	Close connection	Close current TCP connection										

## Examples

### 1. Check current state of the system

→ *BOM2\_001?<0x0d>*  
← *OK2\_001\_290001032011029075<0x0d>*

### 2. Pause the system

→ *BOM2\_301!<0x0d>*  
← *OK2\_301<0x0d>*

### 3. Read preset number 2 values

→ *BOM2\_101\_2?<0x0d>*  
← *OK2\_101\_2Fredy's bath 340740020010090000000000000000!<0x0d>*

### 4. Set preset number 4 values

Set proper session number

→ *BOM2\_801\_34563!<0x0d>*  
← *OK2\_801\_1<0x0d>*

Change preset values

→ *BOM2\_101\_4Joe's bath 35078004000AAA0000000000000000!<0x0d>*  
← *OK2\_101<0x0d>*

## Unique Automation Discovery Device Service (UADDS)

The UADDS works over UDP on fix port (30303) and broadcast the messages over the LAN as a response on the discovery query.

System that implements the service has to response for basic UADDS query although it can provide extended version of the frame. Extended messages have to be implemented on different port than the basic frame.

Bathomatic implements one extended UADDS messages.

### Basic UADDS Message

<b>IP Address</b>	Broadcast
<b>Protocol</b>	UDP
<b>Port</b>	30303
<b>Query message</b>	<i>uadisc</i>
<b>Response</b>	<p><i>HHHvvvvvvMMMMMMMMMMMM&lt;hostnamestring\0&gt;</i></p> <p>HHH – device ID          BOM – Bathomatic          BOV – Bathovision          BOR – Rako Converter</p> <p>vvvvvvv – firmware version          MMMMMMMMMMMMMMMM – mac address (hex)          &lt;hostnamestring\0&gt; - host name finished with 0x00</p>

Example:

<b>PC send</b> UDP(255.255.255.255:30303)	“uadisc”
<b>Bathomatic send</b> UDP(255.255.255.255:30303)	“BOM0100020004A300001ABath1stfloor”

