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FAQ-DBL-02: U How to set up				•	ata Logger ?	? (Use DL-3	.02)
Local Data Logger I/O status at the s generate and div The Modbus / Lo as the setting sam	scheduled time ide on the local cal Data Logger	. Furtherm side.	nore, users can	set the ti	ime interval of	f which CSV f	file to
Modbus TCF	P / Local Data L	ogger					
	ſ	Modbu	us TCP / Local [Data Logg	ger		
LAN: E	UA Series thernet Port	19532 44322 2 3 8 1000000000000000000000000000000000000	Ethernet		Modbus TCP Modu (Ex; DL-30 thernet Port	le	
<u>Note:</u> The I	nardware/netw	ork conn	ection method	ls please	e see the UA	Manual <u>Ch</u>	apter 2.
When UA series data logger record Logger] of the "D	rd to the micro ata Log" in the Da	SD card in Function V ta Log Master) M Master) M Master) M Master) M Master) M Master) M	the UA, user of Wizard. Iodbus RTU / L Iodbus TCP / L Iodbus RTU / I Iodbus TCP / N	Local Da Local Da Local Da MS SQL MS SQL MS SQL MySQL(N	ta Logger ta Logger ta Logger		
[Step Box]: The Step Box of t enters the first st just needs to follo	tep setting page	e (The ste	p with a bold u	nderline	means it is th	e current ste	ep.). The user
Module Setting	≽ Local Data L	ogger ≽	Module Data Log	ıger 📏	Save Project 🔰	Run the pro	oject
	IC	CP DAS Co.	, Ltd. Technical	Docume	ent		

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• Step 1. Mod	ule Setting						
Module Se	tting > Local Da	ata Logger	> Module Data	a Logger	Save Proje	ct 🔰 Run th	ne project

It auto-enter the first step, Step 1 [Module Setting] of the UI setting.

This page is for setting the communication values with the connected modules. First check the LAN port that connected with the module. If you use the module in the ICP DAS module list, you can select it and system will auto add and set up the module. Or you can give a name (Default name: Name). Click [🖤] button to add a new module, and then click [Edit] button to configure the module content and the Modbus mapping table.

System Setting Module	e Setting lo	oT Platform Setting	Convert Setting	Advanced Setting	Logger Setting
I/O Status File Setting Module Setting TCP Module (I	Master)	1. The LAN	port link the TCP	module	
Modbus RTU Module (Master) TCP Module (Master)	Modbus	TCP Module Li LAN	LAN	from the lis Mo	n be selected t of ICP DAS dule.
ASCII Module (Master)	Lo Select All	ad ICPDAS Module	Select The Modul	✓ Updat	e ICPDAS Module List
MQTT MQTT Module		No.	*Module Name / Nic	kname	Edit
EtherNet/IP					

Add a module (No.: 1, Name: DL-302) as below, and then click [Edit] button to enter the "Module Content Setting" page.

Modbus T	CP Mod	lule List	
		LAN V	
Select All	No.	*Module Name / Nickname	3 Edit
2	•	DL-302	
	1	DL-302	Edit
	Сору	Remove	< 1 / 1 >
Remove all		Save	

the [Remove] button to delete the module.

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[Module Content Setting] can set up the module and the Modbus mapping table:

Module Content Setting	
No.	1
Module Name	DL-302
IP	192 . 168 . 81 . 251
Port	502
Slave ID	1
Timeout(ms)	500
Polling Rate(ms)	500
Modbus Mapping Table	Setting
Data Model	04 Input Registers(3x)
Start Address	0
Data Number	3
Туре	16-bit Short
Create Tables	Add Success.

This Example: DL-302

[IP] 192.168.81.251 (by user case)

DL-302 is in the ICP DAS Module list, when select it from the list the system will autoadd module and set up its Modbus Mapping Table. If not in the list, user has to set up the [Modbus Mapping Table] as below:

Data Model: 04 Input Registers(3x) Start Address: 0 Data Number: 6 Type: 16-bit Short → Click [Add]

No.	The module number in the module list (Not edita	ble here)
Module Name	Give a name, e.g. model number or name. Defaul	t: Name.
IP	The IP address of the connected module. Default	: 0.0.0.0
Port	The port number for Modbus TCP. Default: 502	
Slave ID	Set the Slave ID of the UA. (Range: 1 ~ 247)	
Timeout(ms)	Set the timeout value for the module. Default: 50	0 ms
Polling Rate	Set a time interval for the command. Default: 500) ms
Modbus Mappir	g Table Setting	
Data Model	System provides 4 Modbus data models "01" ~ "04" for mapping to address of DO, DI, AO and AI. (ex. 01: DO channels, 02: DI, 03: AO, 04: AI)	01 Coil Status(0x) 02 Input Status(1x) 03 Holding Registers(4x) 04 Input Registers(3x)
Start Address	The start address of the Modbus command. Note bass on 0, even if some modules are bass on 1, he set bass on 0.	
Data Number	The number of the Modbus address. Need to give DI, AO, AI channels of the module. Default: 1.	e enough number for the DO,
Туре	This item only when the data model is 03 or 04. C 16-bit Short, 16-bit Unsigned Short, 32-bit Long, 3 Float, 64-bit Double.	<i>,</i> ,
Create Tables	Click [Add] button, it will add a table in the Modb	us mapping table.

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The finished Modbus Mapping Table as below.

Address:

Display and edit the Modbus Mapping Table (in the order of mapping DO, DI, AO & AI).

Modbus Mapping T	able	Address	Nickname	Scaling	Bitwise
Coil Status(0x)	Input Status(1x) Hold	ing Registers(4x)	Input Reg	gisters(3x)
				Address	0
				Number	6
				Type	Short
					Edit
		OK Cano	el		

Modbus Mapping	Table – Address Setting
Address Setting	The "Address Setting" page of the Modbus Mapping Table
Nickname Setting	Click can switch to the The "Nickname Setting" page of the Modbus
	Mapping Table. (Next page)
Modbus Mapping	Coil Status(0x): Mapping to DO Modbus address
Table	Input Status(1x): Mapping to DI Modbus address
	Holding Registers(4x): Mapping to AO Modbus address
	Input Registers(3x): Mapping to AI Modbus address
Address	The start address of the Modbus command. Default: 0. Note: the Start
	Address of UA is bass on 0, even if some modules are bass on 1, here it
	needs to follow UA to set bass on 0.
Number	The number of the Modbus address. Need to give enough number for
	the DO, DI, AO, AI channels of the module. At least 1.
Туре	DO/DI type: Bool (Boolean)
	AO/AI type: depend on setting of [Modbus Mapping Table Setting]
Edit	Click to change the address and Number.
Delete	Click to delete this address table.
Save	Click to save and exit this table editing.
Cancel	Click to exit without saving and back to the module list page.
ОК	Click to save this page settings and back to the module list page.

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Nickname: Setting the v	/ariable	e nickname and	d descript	ion.					
	Mo	dbus Mapping	Table	Addre	ess Nie	ckname So	aling B	itwise	
	01 C	01 Coil Status(0x)							
		Table [)isplay St	now Hide					
	Add	Address Variable name Data Type Description							
	02 Ir	nput Status(1x)	•						
		Table [Display St	now Hide					
	Add	Address Variable name Data Type Description							
	03 H	lolding Registe	rs(4x)						
		Table [)isplay Sł	now Hide					
	Addr	ess Variable	name	Data Type	Swap	D	escription		
	04 Ir	nput Registers(3x)						
		Table [)isplay St	Hide					
	Addr	ess Variable	name	Data Type	Swap	D	escription		
	0	CO2		Short		room1			
	1	Relative_hum	nidity	Short					
	2	Temperature	Celsius	Short					
	3	Temperature	Fahrenheit	Short					
	4	Dew_point_te	emperature_	Short					

Modbus Mapping Table – Nickname Setting					
Modbus	Coil Status(0x): Mapping to DO Modbus address				
Mapping Table	Input Status(1x): Mapping to DI Modbus address				
	Holding Registers(4x): Mapping to AO Modbus address				
	Input Registers(3x): Mapping to AI Modbus address				
Table Display	Click [Show] to display all fields, click [Hide] to hide some fields.				
Address	Modbus address. System auto arrange.				
Variable name	The variable name of the mapping address. Default: Tag0 and auto				
	arrange the number. User can define the name.				
Data Type	Display data type of the variable. (Not editable)				
Swap	Check to swap the byte order (Lo-Hi/Hi-Lo) for 4-byte or 8-byte.				
Description	Write a note for this variable.				
ОК	Click to save this page settings and back to the module list page.				

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Scaling:

Scaling is only available in the AI/AO settings of Modbus RTU/TCP. When the variable value needs to be scaled or converted before output, click the "Advanced Setting" button of the variable on the Scaling page, input the Min./Max./Offset of the Reference/Output items, add a description, and check "Enable" box, The Scaling conversion function will be activated.

Note: this setting page is only displayed for AI/AO of the Modbus RTU/TCP.

Modbus Mapping Table			Addre	ess Nickr	name	Scaling	Bitwise	
03 Hold		gisters(4x able Display) Show Hid	40				
Address		able Display	Outpu		Scaling E	Enabled	Desc	ription
04 Inpu	t Regist	ters(3x)						
	т	able Display	Show	de				
Address	Ref	erence	Outp	ut	Scaling	Enabled	Des	cription
0	CO2 Min. Max.	0 10000	Scale_CO2Min.0Max.1Offset0	0000	Hide Detail	•	CO2	
1	Relative_	humidity	Scale_Relativ	e_humidity	Show Detail	~	Relative_hu	midity
2	Temperat	ure_Celsius	Scale_Temper	ature_Cels	Show Detail	*	Temperature	e_Celsius
3	Temperat Min. Max.	ure_Fahrent 0 10000	Scale_TemperMin.0Max.1Offset0	00	Hide Detail	•	Temperature	e_Fahrenheit
4	Dew_poin	nt_temperatu	Scale_Dew_p	oint_tempe	Show Detail			
5	Dew_poir	nt_temperatu	Scale_Dew_p	oint_tempe	Show Detail			
				OK	Cancel			

MOODIS	olding Registers(4x): Mapping to AO Modbus address
Manning Table	put Registers(3x): Mapping to Al Modbus address aling do not support 01 Coil Status(0x):DO & 02 Input Status(1x):DI
Table Display Cli	ck [Show] to display all fields, click [Hide] to hide some fields.
Address Mo	odbus address. System auto arrange.
Reference Th	e I/O variable of the Modbus address.
Output Th	e scaling variable for scaling output. User can define the variable name.
Scaling Fill Mi	ick [Show Detail] to set up the Scaling parameters, and click [Hide Detail] to hide e parameters. I in the Min/Max range values of the source in the Reference column. Fill in the in/Max range values after scaling in the Output column. If needs offset, fill the fset value in the Offset item. Remember check "Enable" box.
Enable Ch	neck the box of the variable can enable just that variable for scaling.
Description Wi	rite a note for this variable.
OK Cli	ick to save this page settings and back to the module list page.

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itwise: itwise is only av ne value of the s ne value of the b lote: this setting	pecified bit, fill i it can be output	n the vari to the fil	able name in tl led variable.	he specif	fied Bit# of the			
	Mapping Table		Address	Nicl	kname Sc	aling	Bitwise	
	Table Display	Show	Hide					
Add	ress		Reference			Bitwise	•	
04 Input F	Registers(3x)							
	Table Display	Show	Hide					
Addre	SS		ference			Twise		
0					Bit1 Bit3 Bit5 Bit7 Bit7 Bit9 Bit11 Bit13 Bit15	Detail		
Modbus Mappi	ing Table – Bitw							
Modbus Mapping Table	Input Regist Bitwise do r	ers(3x): N lot suppo	: Mapping to A lapping to Al M rt 01 Coil Statu rts 32-bit Float	lodbus a Is(0x):D(iddress D & 02 Input S	-	x):DI	
Table Display		· · ·	y all fields, click		o hide some f	ields.		
Address			em auto arran	-				
Reference			he Modbus ad			1.		
BitwiseSet up the variables for Bitwise. Click [Advanced Settings] to set up the Bitwise parameters, and click [Hide] to hide the parameters. Fill in the variable names to the Bit# that wanted to do the Bitwise. The value i the fixed bit number will be assigned into the variable.OKClick to save this page settings and back to the module list page.								
		1990				<u>17 ~ 0 ~ 1</u>		
	ICF	P DAS Co.	, Ltd. Technical	Docume	ent			

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	•				•		

• Step 2. Local Data Logger

Module Setting 📏	Local Data Logger	>	Module Data Logger	>	Save Project	>	Run the pro

Click the next step, and enter the **Step 2** [Local Data Logger] of the UI setting. This page is for setting the saving microSD card, e.g. the folder name, file length, log interval, card usage rate, and mount/unmount.

We select the "Modbus TCP / Local Data Logger" conversion at the beginning, so this step will auto enter the [**Data Logger > Local Data Logger**] page of Advanced Setting. The "Step Box" will prevent the user from selecting the wrong platform.

Before setting the parameters, user can refer to the "Example of the Log file and fields for the local data log file" that after the step 5.

I/O Status File Setting		[EX] Folder Name: [D Save I/O data per 10 sec to Divide file per 1 hr to the into the file [log-Y-M-D-H-	o the file [log.csv].② folder of [Y-M-folder] ③		
PID Operation	Local Data Logger	linto the file [log-1-lwi-D-H-	-101-5.050] 🕁		
IFTTT Condition Trigger	Folder Name	Datalog	Datalog 🔱		
Data Logger Local Data Logger	File Length	1 hour	2020-12		
Remote Database	Log Interval	10 seconds File Name	Datalog		
	Max SD Card Usage Rate(%)	90 3020-12	2020-12 3		
	SD Card Currently Usage Rate	0%	File Name		
	SD Card	⊛ Mount ○ Unmount	log-2020-12-19-16-03-27.csv		
		Save	log-2020-12-19-17-03-37.cs		

Advanced Setting >	Advanced Setting > Data Logger > Local Data Logger					
Folder Name	The folder name in microSD card of UA, user definable. The I/O data will					
	save into the file "log.csv" under this folder.					
File Length	Unit: hour. User can select per 1, 2, 3, 8, 12, or 24 hours to divide the					
	log.csv into the file "log-Y-M-D-H-M-S.csv" under the folder "Y-M".					
Log Interval	The interval to save I/O data per seconds, minutes or hours.					
Max SD Card	Set up the maximum usage rate (Unit: %) of UA microSD card. If the data					
Usage Rate (%)	current rate meet the max rate, the oldest data will be removed first.					
SD Card Currently	Display the current usage rate of UA microSD card (show %).					
Usage Rate						
SD Card	Mount: Click to mount microSD card and begin to record data.					
	Unmount: Click to unmount microSD card and stop record data.					
Save	Click to save the settings of this item.					

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 Step 3. Module Data logger 							

I	Module Setting 📏 Local Data Logger 📏 Module Data Logger 📏 Save Project 📏 Run the project
I	

Click the next step, and enter the **Step 3 [Module Data logger]** UI setting. This step is for enabling the Modbus TCP module for Local Data Logger.

We select the "Modbus TCP / Local data logger" of Data Log at the beginning, so this step will auto enter the [Local Data Logger > TCP Module (Master)] page of Logger Setting. The "Step Box" will prevent the user from selecting the wrong platform.

Please check the box of the module user wants to do the data logger, e.g. DL-302.

System Setting Modu	le Setting	IoT Platform Setting	Convert Setting	Advanced Setting	Logger Setting
I/O Status File Setting)				
Logger Setting TCP Mod	ule (Master)				
Local Data Logger RTU Module (Master)	Modbu	us TCP Module Lis	st		
TCP Module (Master)	No.	*Module Na	me / Nickname	Edit	All Enabled
Remote Database RTU Module (Master)	1	DI	L-302	Edit	
TCP Module (Master)				< 1	/1>
			Save		

Logger Setting > I	Local Data Logger > TCP Module – Modbus TCP Module List
No.	The module number in the module list (Not editable here)
*Module Name	The module name set in the module list (Not editable here)
/ Nickname	
All Enabled	Check [All Enabled] box to enable all modules in list for conversion.
	Default: Uncheck.
	Check the box of each module can enable just that module for
	conversion.
Edit	If user wants to enable some I/O channels for data logger, click [Edit]
	of that module to enter the "Content Setting". It is normal to set all
	channels as enabled, and the function will not affect the unconnected
	channels.
< 1 /1>	The page number of the module list: Current page / Total pages. Click <
	or > to go to the previous or next page.
Save	Click to save the settings of this page.

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_	<mark>e Project</mark> his example is fi elow picture, tha					-	
is saved comple	•						
Module Settin	g 📏 Local Data	Logger 🔰	Module Dat	ta Logger	> Save Proje	ct 📏 F	Run the project
		>	Save Pr	oject			
The project, aft	the Project er saving, needs Setting > Contr						•
	g 🔪 Local Data		_		 Save Proje 		an the project
L	- •					Succes	
	Run the projec	rt Pleas	se wait.	Turi un	e project	Oucces	5.
ontroller is run	ls " Please wait " ning new projec screen view of th	t successf	ully. Then the		= =		
ne Data Logger	now completes function. Users please refer to t	can see th	ne I/O status	from the	-		•
I/O Status	File Setting						
Modbus RTU (Master)	T C	lated Setti	_	10	() Indator	d 10 pointo p	or accord)
No. Nar 1 M-7055				1000	(Opdated	1 10 points p	
< 1		O Status				1/0) Scaling
Modbus TCF (Master) No. Nar	DI	Variable Name Data Type DI0 Bool		•		Description	
1 DL-302		1	Воо	l			
	IC	P DAS Co.,	Ltd. Technic	al Docume	ent		

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• Get the Log	File of the Local	Data Log	ger:				
1. Enter the men		-	-	the folde	er name, ex: [2	2020-12].	
I/O Status	File Setting					_	
File Setting Log	File Download						
Project File	$\longrightarrow $	DataLog					
OPC UA Certific	ate	File Name			File	Size	Download
MQTT Certificat	e	2021-01					
Log File Downlo	ad		2020-12				
Firmware Updat	e		2000.04				
			2008-01				
			2020-11				
			2020-10				

 Download the Log file you need. The relationship of file name and the time is as below: The log file is divided according to the "File Length" set by the user and stored in the file under the "year-month" folder. The file name/example is as follows:

"log-20xx(year)-xx(month)-xx(day)-xx(hour)-xx(minute)- xx(seconds).csv"

[Example]: Set "File Length" as 1 hr., "Log interval" as 10 Sec., and data recording will be performed every 10 seconds, and the file generation time is every 1 hour + 10 seconds. When the system time comes to these specific times, the file will automatically end and save the file to the storage. The system will generate a new file to continue recording the log data of the next 1 hour + 10 seconds, and so on. When all files are saved to over the setting of "Max SD Card Usage Rate(%)", the oldest file will be overwritten.

		Log 🕨 2020-12		
		File Name	File Size	Download
		log-2020-12-31-23-38-36.csv	164.7K	Downloa
		log-2020-12-31-22-38-26.csv	164.7K	Downloa
Local Data Logger		log-2020-12-31-21-38-16.csv	164.7K	Downloa
Folder Name	Datalog	log-2020-12-31-20-38-06.csv	164.7K	Downloa
File Length	1 hour 🗸	log-2020-12-31-19-37-56.csv	164.7K	Downloa
Log Interval	10 seconds 🗸	log-2020-12-31-18-37-46.csv	164.7K	Downloa
Max SD Card Usage Rate(%)	90	log-2020-12-31-17-37-36.csv	164.7K	Downloa
		log-2020-12-31-16-37-26.csv	164.7K	Downloa
SD Card Currently Usage Rate	7%	log-2020-12-31-15-37-16.csv	164.7K	Downloa
SD Card	Mount O Unmount	log-2020-12-31-14-37-06.csv	164.7K	Downloa
	Save	<	1 / 26 >	

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• Example of the CVS file and fields for the local data log file:

- The Log record will be stored to the microSD card in the UA PAC, and the default name is the folder "Datalog" which can be customized by the user.
- \diamond I/O data records will be stored in the **file** "**log.csv**" under this folder.
- The log data file is divided every 1, 2, 3... 8, 12 or 24 hours according to user settings, and saved to the file "log-YYYY-MM-DD-HH-MM-SS.csv" under the folder "YYYY-MM".
- ♦ Each tag data and status are recorded in each separate row, the row is added down for each interval, and the tag data is recorded in time sequence.

The example file is shown as the following.

	A	B	C	D	
1	# Log file created/rotated Wednesday	9 Dec 20 04:46:29 GMT			
2	Timestamp	Name	Value	Status	
3	2020-12-09-12-46-29-619	MRTU_No.1_tM-AD4P2C2_AO.Vin0	2278	Good	
4	2020-12-09-12-46-29-619	MRTU_No.1_tM-AD4P2C2_AO.Vin1	1133	Good	
5	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.CO2	699	Good	
6	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.RH	7089	Good	
7	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.TC	2225	Good	
8	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.TF	7205	Good	
9	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.DC	1671	Good	
10	2020-12-09-12-46-29-619	MRTU_No.2_DL-302_AO.DF	6207	Good	
11	2020-12-09-12-46-39-619	MRTU_No.1_tM-AD4P2C2_AO.Vin0	2278	Good	
12	2020-12-09-12-46-39-619	MRTU_No.1_tM-AD4P2C2_AO.Vin1	1152	Good	
13	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.CO2	699	Good	
14	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.RH	7089	Good	
15	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.TC	2225	Good	
16	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.TF	7205	Good	
17	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.DC	1671	Good	
18	2020-12-09-12-46-39-619	MRTU_No.2_DL-302_AO.DF	6207	Good	
19	2020-12-09-12-46-49-619	MRTU_No.1_tM-AD4P2C2_AO.Vin0	2278	Good	
20	2020-12-09-12-46-49-619	MRTU_No.1_tM-AD4P2C2_AO.Vin1	1172	Good	
21	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.CO2	699	Good	
22	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.RH	7085	Good	
23	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.TC	2225	Good	
24	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.TF	7205	Good	
25	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.DC	1670	Good	
26	2020-12-09-12-46-49-619	MRTU_No.2_DL-302_AO.DF	6206	Good	
27	2020-12-09-12-46-59-619	MRTU_No.1_tM-AD4P2C2_AO.Vin0	2278	Good	
28	2020-12-09-12-46-59-619	MRTU_No.1_tM-AD4P2C2_AO.Vin1	1193	Good	
29	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.CO2	698	Good	
30	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.RH	7089	Good	
31	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.TC	2223	Good	
32	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.TF	7201	Good	
33	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.DC	1668	Good	
34	2020-12-09-12-46-59-619	MRTU_No.2_DL-302_AO.DF	6202	Good	
35	2020-12-09-12-47-09-619	MRTU_No.1_tM-AD4P2C2_AO.Vin0	2278	Good	
36	2020-12-09-12-47-09-619	MRTU_No.1_tM-AD4P2C2_AO.Vin1	1213	Good	
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