# The module of subsystem "Data acquisition"<DCON>

| | |
|---|---|
| *Module:* | DCON |
| *Name:* | DCON client |
| *Type:* | DAQ |
| *Source:* | daq_DCON.so |
| *Version:* | 0.2.0 |
| *Author:* | Almaz Kharimov |
| *Translated:* | Maxim Lysenko |
| *Description:* | Provides an implementation of DCON-client protocol. Supports I-7000 DCON protocol. |
| *License:* | GPL |

## Contents table

## Introduction

DCON – the protocol of controllers' family ADAM( http://www.advantech.com/, http://ipc2u.ru/ ), ICP DAS( http://www.icpdas.com/, http://ipc2u.ru/ ), RealLab( http://www.RLDA.ru/ ) and the like ones. It uses serial lines RS-485 to transfer data.

This module provides the ability of input/output of information from various devices on the protocol DCON. Also, the module implements the functions of the horizontal reservation, namely, working in conjunction with the remote station of the same level.

## 1. General description of the protocol DCON

DCON protocol requires one lead(requesting) device in the line (master), which can send commands to one or more driven devices (slave), referring to them by a unique address in the line. Syntax of the commands of the protocol allows the address 255 devices at one line of standard RS-485.

Initiative to exchange always comes from the leading device. Slave devices listen the line. Master request (package, the sequence of bytes) in the line and turns into a listening the line. Slave device responds to the request, which came to him.

# 2. Module

This module provides the ability of clear interrogation and record of input-output ports of devices that are compatible with ICP DAS I-7000. On the settings tabs of DCON module the necessary settings are inserted, and on the attributes tabs the corresponding to the given parameters variables of input-output appear.

## 2.1. Data controller

For addition of the DCON data source the controller is created and configured in the system OpenSCADA. Example of the configuration tab of the controller of the type is depicted in Figure 1.
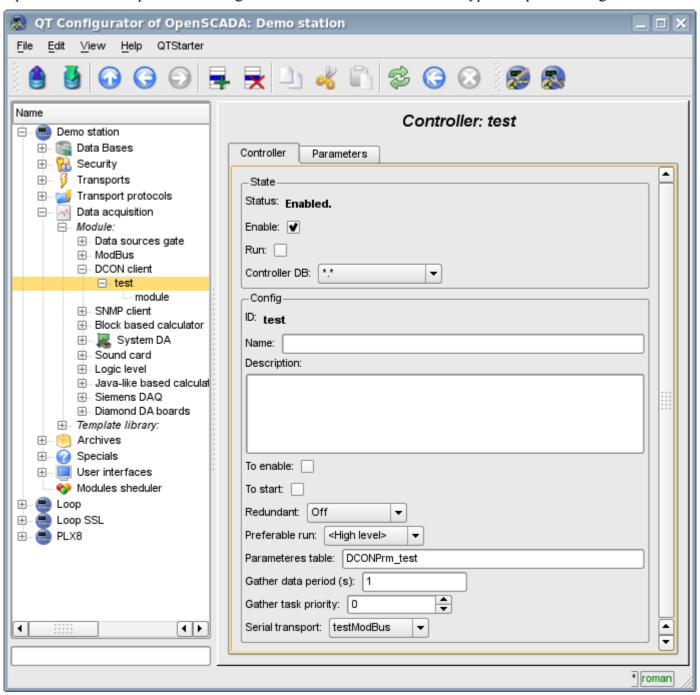


Fig.1. Configuration tab of the controller.

From this tab you can set:
  • The state of the controller, as follows: Status, «Enabled», «Running» and the name of the database containing the configuration.

- Id, name and description of the controller.
- The state, in which the controller must be translated at boot: «Enabled» and «Running».
- Horizontal mode of redundancy and performance preference of the controller.
- Name of table to store the configuration of the parameters of the controller.
- The period and the priority of the task of data acquisition.
- Name of the outgoing transport of serial interface configured in the module of transport "Serial".

## 2.2. Parameters

Module *DCON* provides only one type of parameters – "Standard". On the parameters tab you can set:
- The state of the parameter "Enabled": requires disabling-enabling for the changes on this tab take effect.
- Id, name and description of the prameter.
- The state, in which the parameter must be translated at boot: "Enabled".
- Type of the input-output module I-7000.
- Address of I-7000 device in the network RS-485. In decimal form from 0 to 255.
- Flag of checking the checksum. Must correspond to the one of the input/output module I-7000.
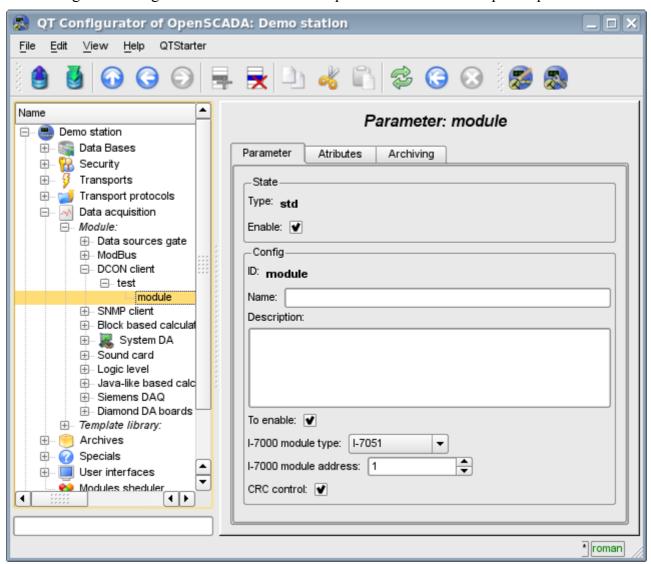


Fig.2. Configuration tab of the parameter.

In accordance with the settings of the parameter and the interrogation and creation of the attributes is carried out(Fig. 3).
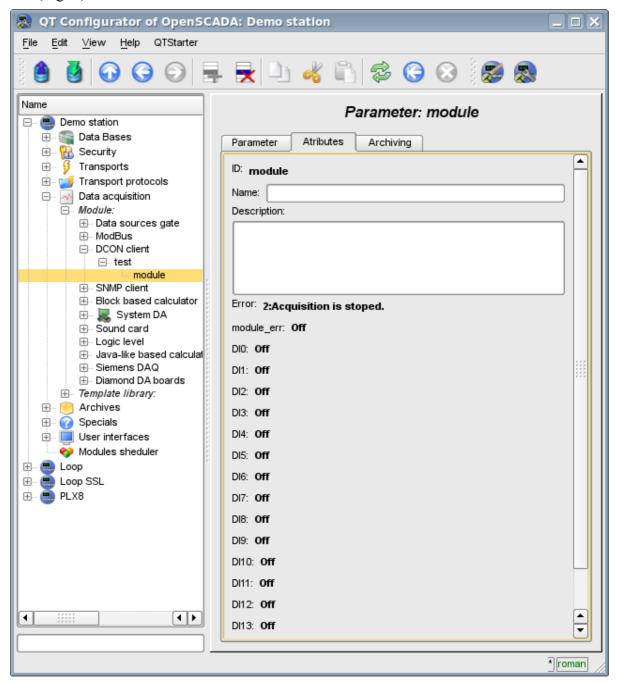


Fig.3. Tab of the attributes of the parameter.

## 3. Compatibility table of input/output modules of different manufacturers

| №№ | Module | ICP DAS | ADAM | RealLab |
|---|---|---|---|---|
| 1 | I-7051 | I-7051, I-7053* | ADAM-4051*, ADAM-4053* | NL-16DI*, NL-16HV* |
| 2 | I-7045 | I-7045, I-7043* | | NL-16DO* |
| 3 | I-7063 | I-7063 | | |
| 4 | I-7017 | I-7017, I-7018*, I-7019*, I-7005* | ADAM-4017*, ADAM-4018*, ADAM-4019* | NL-8TI*, NL-8AI* |
| 5 | I-7024 | I-7024 | ADAM-4024* | NL-4AO* |

\* – not tested.