GENERAL INFORMATION

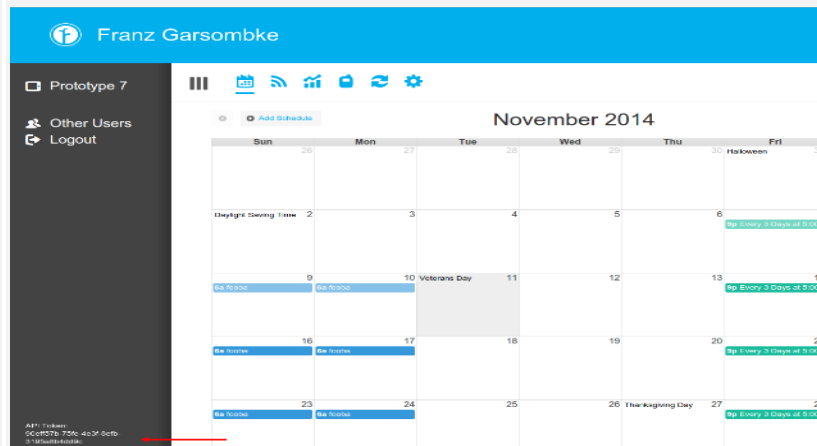|	
SIMPLWINDOWS NAME:	Rachio IRO v2.0
CATEGORY:	Device Interface
VERSION:	V 2.0
SUMMARY:	This module controls the Rachio irrigation system via TCP/IP.
GENERAL NOTES:	NOTE: Requires Crestron Database and Crestron Device Database v200 or later.
	This module controls the Rachio irrigation system via TCP/IP.
	The module offers controls to start zones, schedule rules and to set rain delays. Device, schedule, zone, schedule rule, weather and event information can be retrieved and displayed by the module.
	To setup the module an API token needs to be provided for authentication. This token can be found via the web app (https://app.rach.io/#login) by opening the user menu.
	This will open the user menu and on the bottom of that menu you can find the API Token
	To receive notifications you need to set your Domain name/public IP on the "Notification IP Address" parameter and configure your network so that TCP port defined by the "Notification port" parameter is forwarded to the Crestron processor.
CRESTRON HARDWARE REQUIRED:	3-Series processor
SETUP OF CRESTRON HARDWARE:	Connect the Crestron processor with the internet.

Partner: Rachio
Model: 8ZULW/16ZULW
Device Type: Device Interface

VENDOR FIRMWARE:	N/A
VENDOR SETUP:	Connect the Rachio IRO with the internet. Setup the Rachio IRO as explained in the Rachio manual. Create a Rachio account and log in to the web app. Here you can find the API Token to setup the Crestron module (see General Notes section).
CABLE DIAGRAM:	Standard CAT5 cable

CONTROL:

Initialize	D	Pulse to initialize the module.
Request_Device_List	D	Pulse to retrieve the device list.
Device_List_Item_Clicked	A	Sets the selected item of the scrolling device list.
[Select_Default_Device]	D	Selects the default device which is defined by the parameter **Default Device Name.** To select the default device the device list needs to be retrieved and it should contain a device with the name **Default Device Name.** No action is taken if the device is not present in the device list.
[Enable_Default_Device_Selection_in_List]	D	Set high to automatically select the default device when the **Request_Device_List** input is triggered. No action is taken if the device is not present in the device list.
Refresh_Selected_Device_Info	D	Pulse to retrieve the device information. The device information includes zone list information and schedule rule information.
Turn_[On/Off]	D	Pulse to turn [On/Off] all features of the device (schedules, weather intelligence, water budget, etc.)
Stop_Water	D	Pulse to stop all watering on the selected device.
Change_Rain_Delay_Duration	A	Change the rain delay duration (in minutes).
Set_Rain_Delay	D	Set the inputted rain delay. The duration is set by the **Change_Rain_Delay_Duration** input.
Zone_List_Item_Clicked	A	Sets the selected item of the scrolling zone list.
Start_Selected_Zone	D	Pulse to start the selected zone. The duration is set by the **Change_Selected_Zone_Duration input.**
Change_Selected_Zone_Duration	A	Change the duration for the selected zone to be active. This is used in combination with the **Start_Selected_Zone** input.

CRESTRON

Certified Module

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CRESTRON CERTIFIED **INTEGRATED** PARTNER

Schedule_Rule_List_Item_Clicked	A	Sets the selected item of the scrolling schedule rule list.
Start_Selected_Schedule_Rule	D	Pulse to start the selected schedule rule.
Skip_Selected_Schedule_Rule	D	Pulse to skip the selected schedule rule.
Get_Current_Schedule	D	Pulse to retrieve the current running schedule, if any.
Get_Weather_Information	D	Pulse to retrieve weather information.
Enable_Metric_Units	D	Set high to enable metric units for the weather information.
Retrieve_Event_List	D	Pulse to retrieve the event list.
Change_Event_Start_Time_Minutes	A	Change the start time minutes for the event list.
Change_Event_Start_Time_Hours	A	Change the start time hours for the event list.
Change_Event_Start_Time_Day	A	Change the start time day for the event list.
Change_Event_Start_Time_Month	A	Change the start time month for the event list.
Change_Event_Start_Time_Year	A	Change the start time year for the event list.
Change_Event_End_Time_Minutes	A	Change the End time minutes for the event list.
Change_Event_End_Time_Hours	A	Change the End time hours for the event list.
Change_Event_End_Time_Day	A	Change the End time day for the event list.
Change_Event_End_Time_Month	A	Change the End time month for the event list.
Change_Event_End_Time_Year	A	Change the End time year for the event list.
[Refresh_History_List]	D	Pulse to refresh the event history list. Refreshing the event history can be heavy on the module. Please use with care. We advise to use a minimum pulse interval of one minute.

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FEEDBACK:		
Initialization_is_Complete	D	Latches high to indicate that the module is initialized. The module is now ready to be used.
DeviceList_Item_[1-20]_Name	S	The name of the device that should be displayed on line [1-20] of the scrolling device list.
Device_List_Item_Count	A	The number of lines used to display the scrolling device list.
Selected_Device_Name	S	The name of the selected device.
Selected_Device_Status	S	The status of the selected device (Online, Offline)
Selected_Device_is_On	D	Latches high to indicate that the selected device is active.
Selected_Device_is_Paused	D	Latches high to indicate that the current activity is paused for the selected device.
Selected_Device_Rain_Delay_Start_Date	S	The start time of the rain delay.
Selected_Device_Rain_Delay_Expiration_Date	S	The end time of the rain delay.
Selected_Device_Elevation	S	The elevation of the selected device.
Selected_Devcie_ZIP_Code	S	The configured ZIP code for the selected device.
Selected_Device_Time_Zone	S	The configured time zone for the selected device.
Selected_Device_Latitude	S	The configured Latitude for the selected device.
Selected_Device_Longitude	S	The configured longitude for the selected device.
Selected_Device_Serial_Number	S	The serial number of the selected device.
Selected_Device_MAC_Address	S	The MAC address of the selected device.
Zone_List_Item_[1-20]_Name	S	The name of the zone that should be displayed on line [1-20] of the scrolling zone list.
[Zone_List_Item_[1-20]_Icon_State]	S	The icon state used for zone list item [1-20]. This icon state is defined by the **Zone Active Icon State** parameter.
[Zone_List_Item_[1-20]_is_Active]	D	High to indicate that zone list item [1-20] is active.
Zone_List_Item_Count	A	The number of lines used to display the zone list.
Selected_Zone_Name	S	The name of the selected zone.

Selected_Zone_Number	A	The zone number of the selected zone.
Selected_Zone_is_Enabled	D	Latches high if the selected zone is enabled.
Selected_Zone_has_Custom_Nozzle	D	Latches high if the selected zone has a custom nozzle.
Selected_Zone_Custom_Nozzle_Name	S	The name for the custom nozzle of the selected zone.
Selected_Zone_Custom_Nozzle_Image_URL	S	The image URL for the custom nozzle of the selected zone.
Selected_Zone_Custom_Nozzle_Category	S	The category for the custom nozzle of the selected zone.
Selected_Zone_Custom_Nozzle_Inches_Per_Hour	S	The inches per hour value of the custom nozzle for the selected zone.
Selected_Zone_Inches_Per_Hour	S	The inches per hour value for the selected zone.
Selected_Zone_Available_Water	S	The available water for the selected zone.
Selected_Zone_Root_Depth	S	The root depth for the selected zone.
Selected_Zone_Management_Allowed_Depletion	S	The allowed depletion for the selected zone.
Selected_Zone_Efficiency	S	The efficiency value for the selected zone.
Selected_Zone_Yard_Area_Square_Feet	S	The yard area square feet value for the selected zone.
Selected_Zone_Irrigation_Amount	S	The irrigation amount for the selected zone.
Selected_Zone_Depth_Of_Water	S	The water depth for the selected zone.
Selected_Zone_Runtime	S	The runtime for the selected zone.
Schedule_Rule_List_Item_[1-20]_Name	S	The name of the schedule rule item that should be displayed on line [1-20] of the scrolling schedule rule list.
Schedule_Rule_List_Item_Count	A	The number of lines that are needed to display the scrolling schedule rule list.
Selected_Schedule_Rule_Name	S	The name of the selected schedule rule.
Selected_Schedule_Rule_Summary	S	Summary for the selected schedule rule.
Selected_Schedule_Rule_External_Name	S	The external name of the selected schedule rule.
Selected_Schedule_Rule_Cycle_Soak_is_Enabled	D	Latches high if cycle soak is enabled for the selected schedule rule.
Current_Schedule_Type	S	The type of the current schedule.

Current_Schedule_Status	S	The status of the current schedule.
Current_Schedule_Start_Date	S	The start time for the current schedule
Current_Schedule_Duration	A	The duration of the current schedule.
Current_Schedule_Zone_Name	S	The name of the zone in the current schedule.
Current_Schedule_Zone_Start_Date	S	The start time for the zone in the current schedule
Current_Schedule_Zone_Duration	A	The duration for which the zone is active in the current schedule.
Current_Schedule_Cycle_Count	A	The cycle count for the current schedule.
Current_Schedule_Total_Cycle_Count	A	The total cycle count.
Current_Schedule_Cycling_is_Enabled	D	Latches high if cycling is enabled for the current schedule.
Current_Schedule_No_Cycle	A	The time that there's no cycle in the current schedule.
Show_Current_Schedule_Button	D	High to indicate that the Current Schedule button should be displayed.
Weather_Current_Time	S	The time for which the current weather information was retrieved.
Weather_Current_Precip_Intensity	S	The current precipitation intensity.
Weather_Current_Precip_Probability	S	The current precipitation probability.
Weather_Current_Wind_Speed	S	The current wind speed.
Weather_Current_Humidity	S	The current humidity.
Weather_Current_Cloud_Cover	S	The current cloud cover percentage.
Weather_Current_Dew_Point	S	The current dew point.
Weather_Current_Weather_Type	S	The current weather type.
Weather_Current_Unit_Type	S	The used unit type for the current weather information (US/Metric)
Weather_Current_Temperature	S	The current temperature.
Weather_Current_Weather_Summary	S	A summary for the current weather
Weather_Current_Daily_Weather_Type	S	The current daily weather type
Weather_Current_Pretty_Time	S	The time for which the current weather information was retrieved. (long version)

Weather_Forecast_Time	S	The time for which the forecast weather information was retrieved.
Weather_Forecast_Precip_Intensity	S	The forecast precipitation intensity.
Weather_Forecast_Precip_Probability	S	The forecast precipitation probability.
Weather_Forecast_Temperature_Min	S	The forecast minimum temperature.
Weather_Forecast_Temperature_Max	S	The forecast maximum temperature.
Weather_Forecast_Wind_Speed	S	The forecast wind speed.
Weather_Forecast_Humidity	S	The forecast humidity.
Weather_Forecast_Cloud_Cover	S	The forecast cloud cover percentage.
Weather_Forecast_Dew_Point	S	The forecast dew point.
Weather_Forecast_Weather_Type	S	The forecast weather type.
Weather_Forecast_Unit_Type	S	The used unit type for the current weather information (US/Metric)
Weather_Forecast_Weather_Summary	S	A summary for the forecast weather
Weather_Forecast_Daily_Weather_Type	S	The forecast daily weather type
Weather_Forecast_Pretty_Time	S	The time for which the forecast weather information was retrieved. (long version)
Event_List_Item_[1-100]_Description	S	The event description for the event that should be displayed on line [1-100] of the scrolling event list.
Event_List_Item_Count	A	The number of lines that are needed to display the scrolling event list.
[History_List_Item_[1-100]_Description]	S	The event description for the event that should be displayed on line [1-100] of the scrolling event history list.
[History_List_Item_Count]	A	The number of lines that are needed to display the scrolling event history list.
Show_Notification_Page	D	Pulses to indicate that a new notification was received.
Notification_Timestamp	S	The timestamp of the received notification.
Notification_Type	S	The Type of the received notification.
[Notification_Icon_URL]	S	The icon URL for the received notification type.
Notification_Item_[1-10]_Label	S	The label of notification item [1-10].

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Notification_Item_[1-10]_Value	S	The value of notification item [1-10].

PARAMETER:

API Token	S	The API token that can be found on the Rachio web interface. (see general notes)
Notification IP Address	S	This is used to receive notifications from the Rachio service. We recommend using the domain name of the Crestron processor (provided by the Crestron domain service). The public IP address of the Crestron processor can also be used.
Notification Port	A	The TCP port used to receive notification from the Rachio service. The Rachio notifications are received from a Rachio service and from the device itself. This means that the firewall needs to be configured to forward data for the notification port to the Crestron processor.
Notification Display Interval	A	The minimum number of seconds that a Rachio notification needs to be displayed. This is used in case the Crestron processor receives multiple notifications at the same time.
Zone Active Icon State	S	The icon state that is used to portray an active zone in the zone list.
Default Device Name	S	The name of the default Rachio device.
Event History Time Interval	Days	The time interval that is used to retrieve the event history list. The event history list is cutoff at a 100 events so depending on the activity of your Rachio system, you want to adjust the time interval so it corresponds with the last 100 events.

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TESTING:

OPS USED FOR TESTING:	V 1.11.0023
SIMPL WINDOWS USED FOR TESTING:	4.14.20
DEVICE DB USED FOR TESTING:	200.00.015.00
CRES DB USED FOR TESTING:	200.00.004.00
SYMBOL LIBRARY USED FOR TESTING:	1112
SAMPLE PROGRAM:	Rachio IRO v2.0 MC3 Demo
REVISION HISTORY:	V 1.0 V 1.1 updated the device/zone/schedule rule lists to be sorted alphabetically or by zone number. updated the module to use host names for notifications and to set the used port. updated the custom nozzle url to use http instead of https. updated the zone list to not display disabled zones. updated the device list to select a device automatically if there's only one device in the list. added **Show_Current_Schedule_Button** output added serials and digital outputs for the zone list to portray zone activity. added notification display interval parameter added event history list. added default device name parameter and inputs to select the default device. V 2.0 – Recompiled with Newtonsoft v4.0.8.0 for Crestron Database v200

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