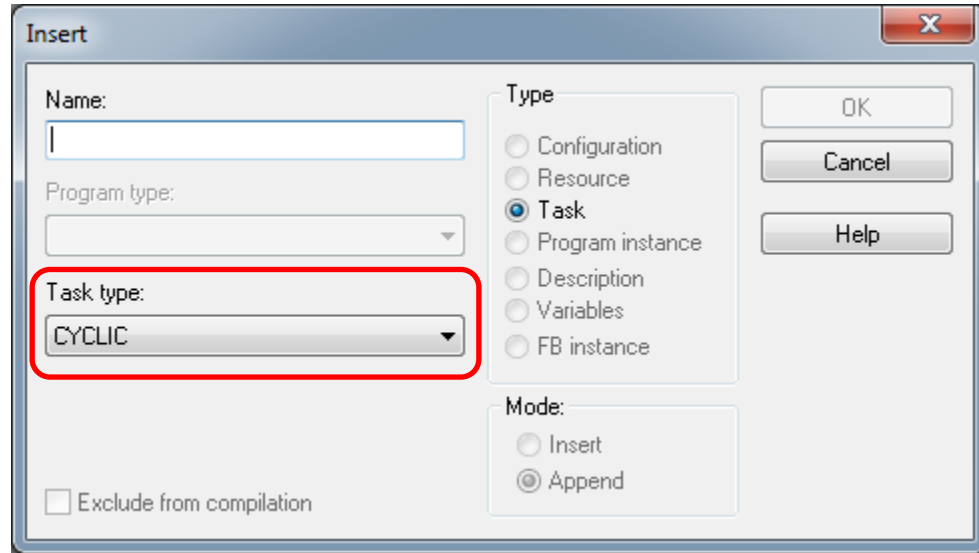


Configuração de Task Cyclic e resultados comparativos



Insert

Name:

Program type:

Task type:

Exclude from compilation

Type

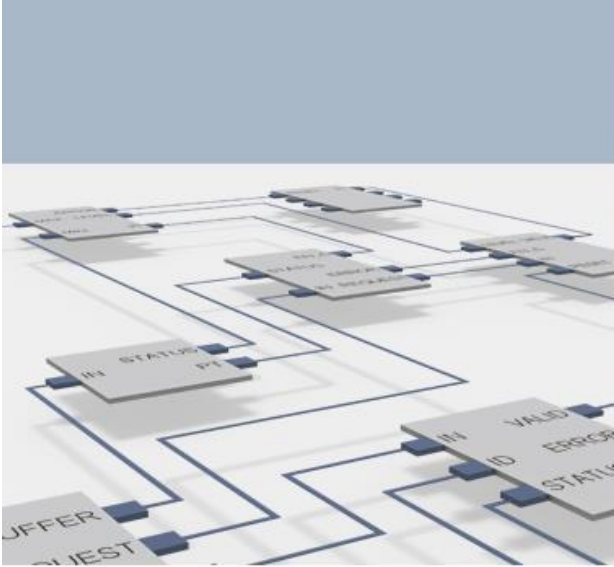
- Configuration
- Resource
- Task
- Program instance
- Description
- Variables
- FB instance

Mode:

- Insert
- Append

OK
Cancel
Help

A configuração de Task Cyclic é possível somente no PC-WORX



PC WORX
PLC Programming
Version 6.30.2972

Copyright 2019
PHOENIX CONTACT GmbH & Co. KG
32823 Blomberg

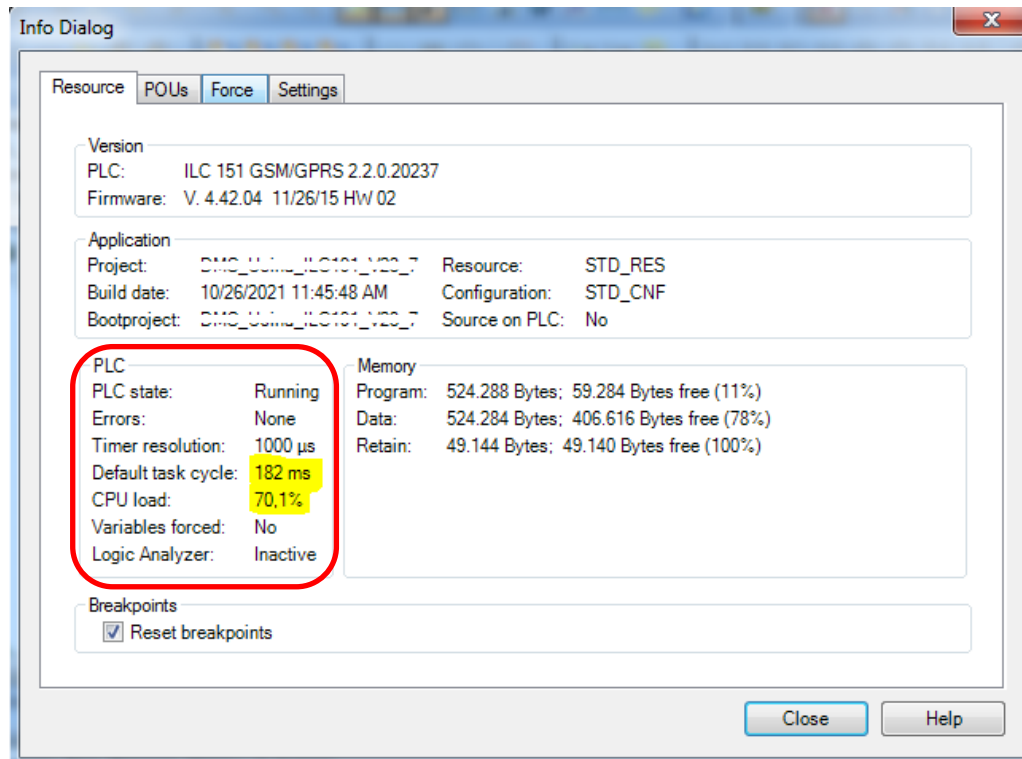
For up-to-date software versions
and error removals, visit
www.phoenixcontact.com

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* Não é possível configurar Task Cyclic na versão de PC-WORX EXPRESS

Todas as POU's rodando em Task Default

Observe o carregamento da CPU e o tempo que leva o ciclo da task

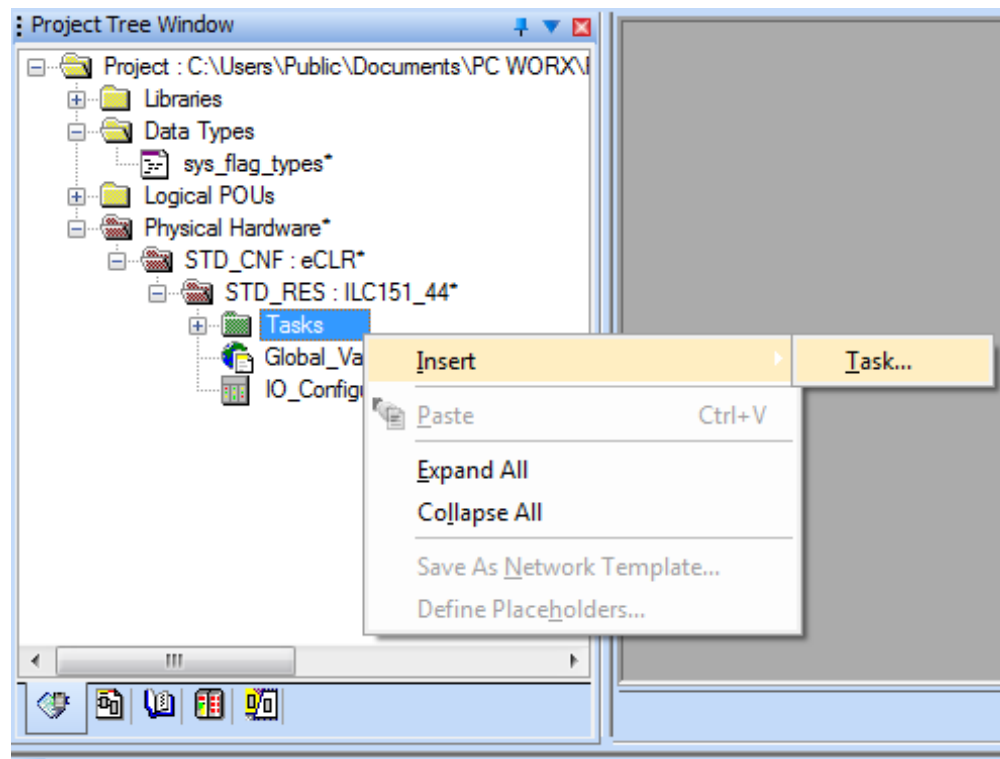


Importante!

Para dividir as POUs em várias task cíclicas, é importante escolher as rotinas de prioridade e o intervalo de tempo em mesmas sejam executadas



Como criar e configurar uma Task Cyclic



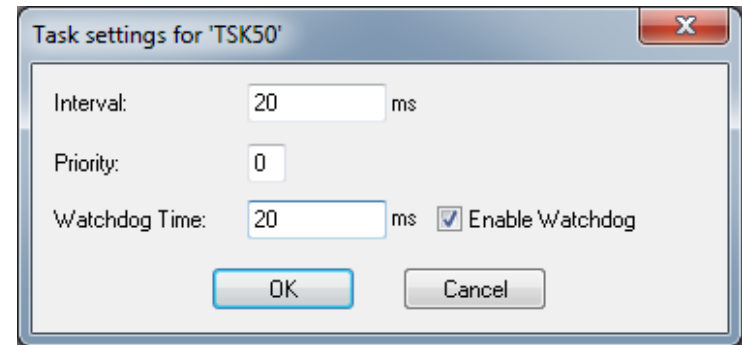
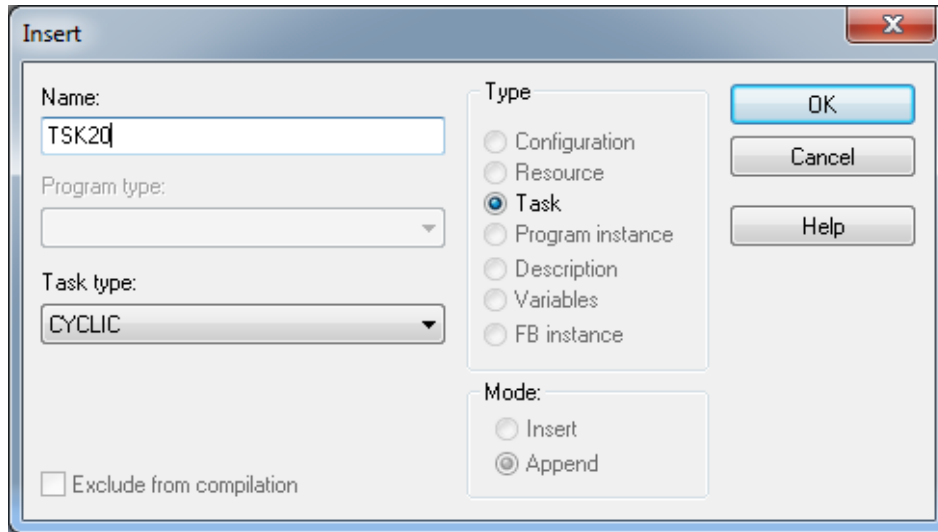
Como criar e configurar uma Task Cyclic

Nome: TSK20

Intervalo de execução: 20ms

Prioridade: 0 (prioridade zero é sempre a maior prioridade)

Watchdog Time: 20ms(sempe deve ser igual ou maior do que o intervalo)



Como criar e configurar uma Task Cyclic

Nome: TSK50

Intervalo de execução: 50ms

Prioridade: 1 (prioridade posterior a prioridade zero)

Watchdog Time: 50ms(sempe deve ser igual ou maior do que o intervalo)

Insert

Name: TSK50

Program type:

Task type: CYCLIC

Type

- Configuration
- Resource
- Task
- Program instance
- Description
- Variables
- FB instance

Mode:

- Insert
- Append

Exclude from compilation

OK

Cancel

Help

Task settings for 'TSK50'

Interval: 50 ms

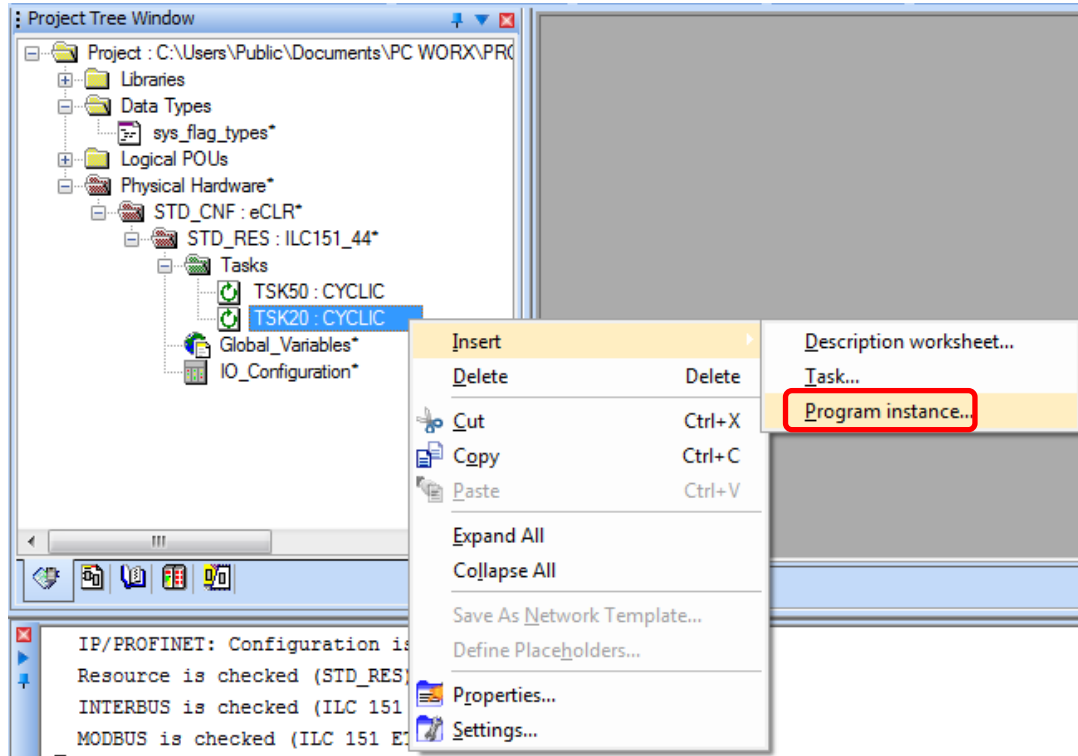
Priority: 1

Watchdog Time: 50 ms Enable Watchdog

OK

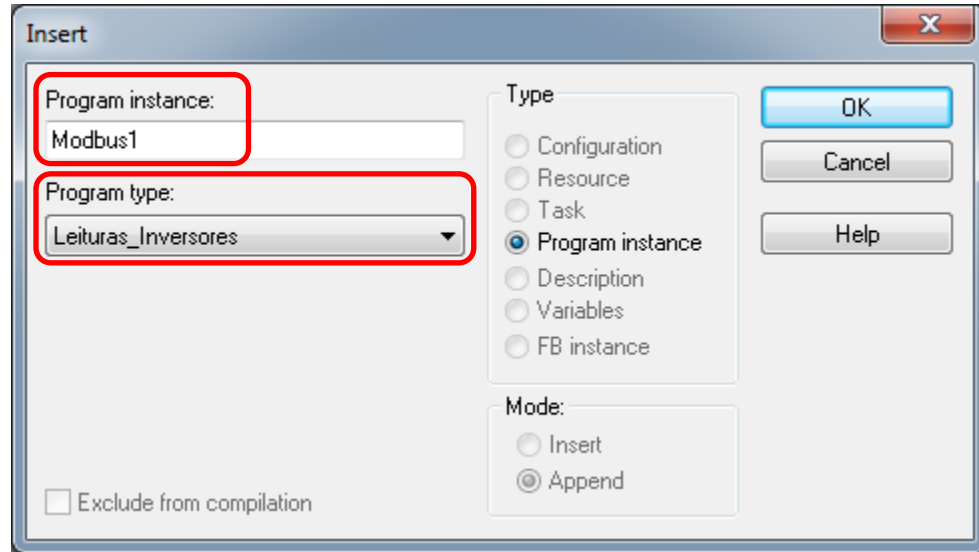
Cancel

Instanciamento de POUs nas respectivas TASKs



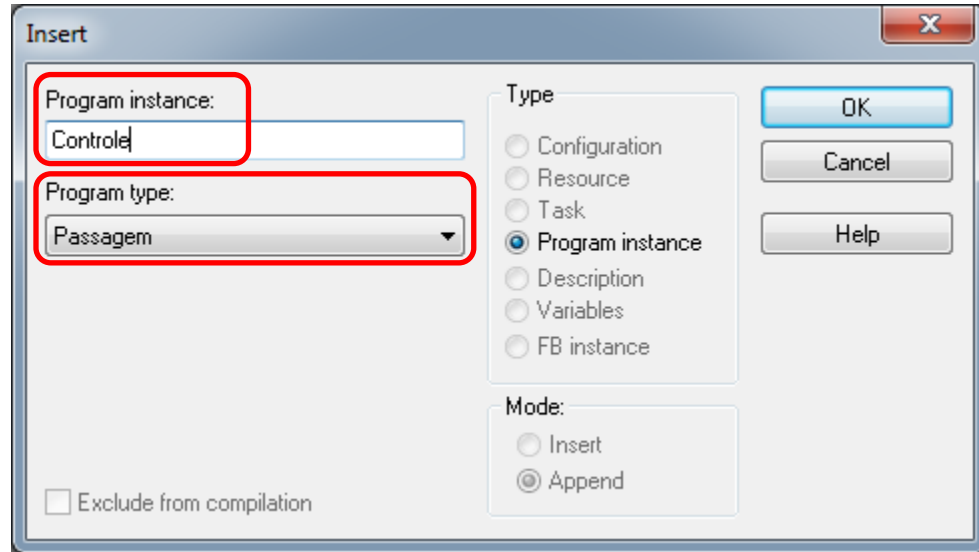
Instanciamento de POUs nas respectivas TASKs

Na task de 20ms, instanciar o programa *Leitura_Inversores* em *Modbus1*



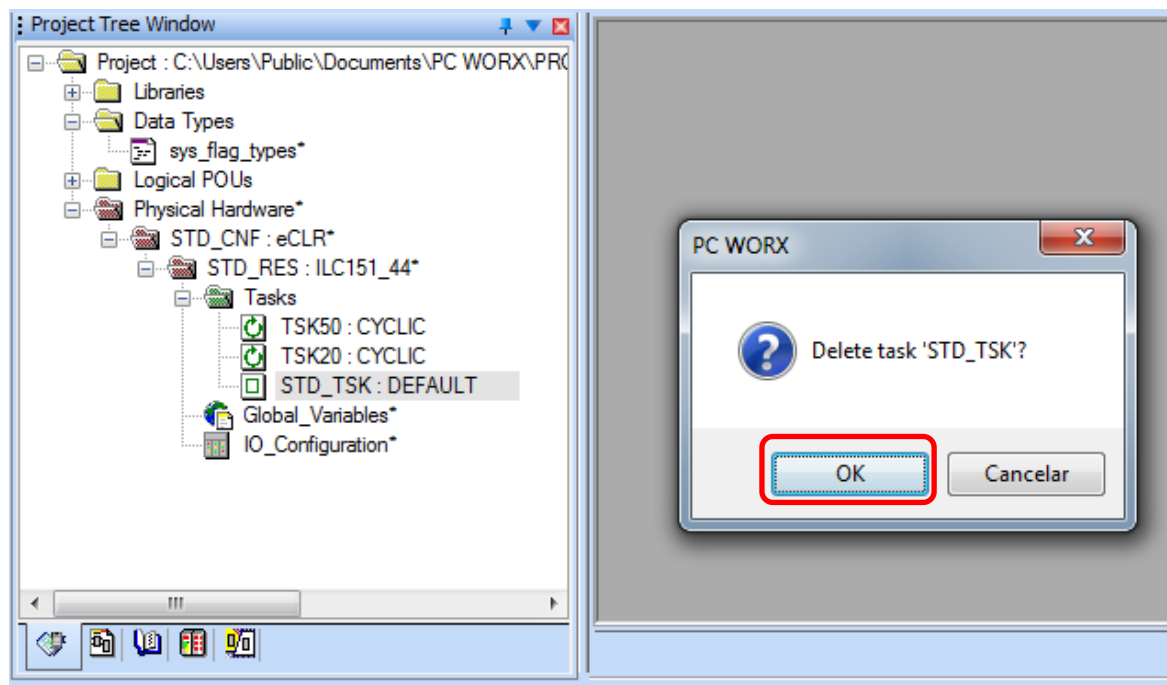
Instanciamento de POUs nas respectivas TASKs

Na task de 50ms, instanciar o programa *Passagem* em *Controle*



Deletar a Task Default

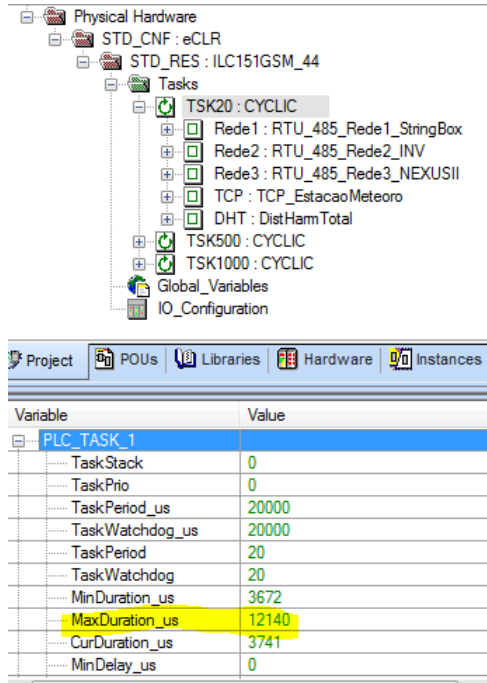
Se todas as POUs foram realocadas para tasks cíclicas, a task default pode ser excluída.



Monitoramento de tempos

Na system variables, existem variáveis **PLC_TASK_1...8**.

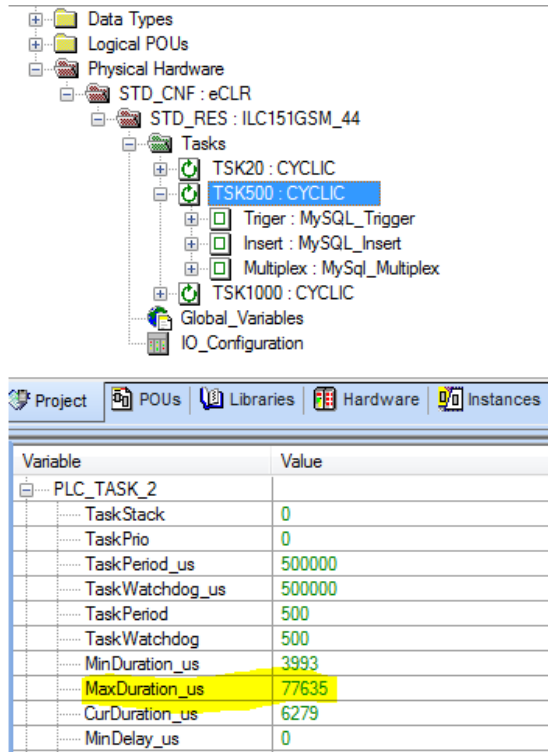
Para monitorar uma task, basta adicioná-la ao **Watch Windows**.



Variable	Value
PLC_TASK_1	
..... TaskStack	0
..... TaskPrio	0
..... TaskPeriod_us	20000
..... TaskWatchdog_us	20000
..... TaskPeriod	20
..... TaskWatchdog	20
..... MinDuration_us	3672
..... MaxDuration_us	12140
..... CurDuration_us	3741
..... MinDelay_us	0

A task é executada a cada 20ms e o tempo máximo que levou para sua execução completa foi de 12,1ms.

Monitoramento de tempos

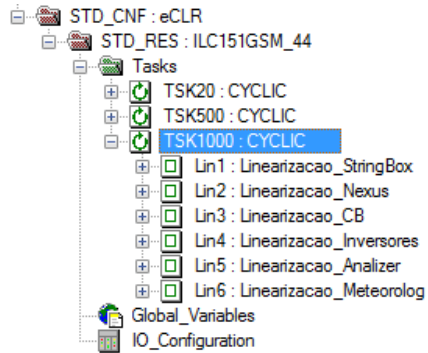


The screenshot shows a software interface with a tree view on the left and a table on the right. The tree view shows a hierarchy of folders: Data Types, Logical POUs, Physical Hardware, STD_CNF : eCLR, STD_RES : ILC151GSM_44, Tasks, TSK20 : CYCLIC, TSK500 : CYCLIC (highlighted), Triger : MySQL_Trigger, Insert : MySQL_Insert, Multiplex : MySql_Multiplex, TSK1000 : CYCLIC, Global_Variables, and IO_Configuration. The table below shows the configuration for PLC_TASK_2.

Variable	Value
PLC_TASK_2	
TaskStack	0
TaskPrio	0
TaskPeriod_us	500000
TaskWatchdog_us	500000
TaskPeriod	500
TaskWatchdog	500
MinDuration_us	3993
MaxDuration_us	77635
CurDuration_us	6279
MinDelay_us	0

A task é executada a cada 500ms e o tempo máximo que levou para sua execução completa foi de 77,6ms.

Monitoramento de tempos



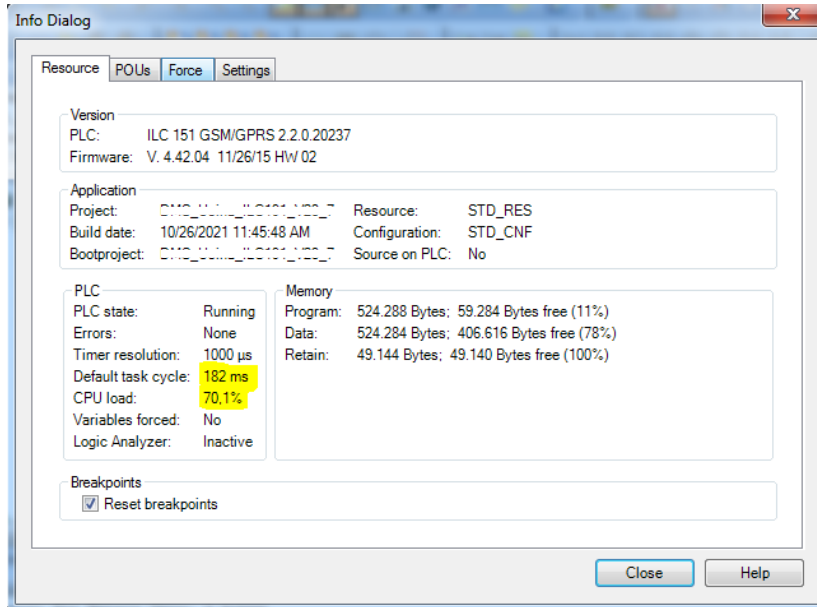
Variable	Value
PLC_TASK_3	
TaskStack	0
TaskPrio	0
TaskPeriod_us	1000000
TaskWatchdog_us	1000000
TaskPeriod	1000
TaskWatchdog	1000
MinDuration_us	94232
MaxDuration_us	131803
CurDuration_us	94500
MinDelay_us	0

A task é executada a cada 1000ms e o tempo máximo que levou para sua execução completa foi de 131,1ms.

Resultados

Observe o carregamento da CPU antes e depois. Após a realocação das POU's o tempo da task default passou a não ter mais relação.

antes



Info Dialog

Resource | POU's | Force | Settings

Version
PLC: ILC 151 GSM/GPRS 2.2.0.20237
Firmware: V. 4.42.04 11/26/15 HW 02

Application
Project: DMS_H1..._ILC101_V02_PR Resource: STD_RES
Build date: 10/26/2021 11:45:48 AM Configuration: STD_CNF
Bootproject: DMS_H1..._ILC101_V02_PR Source on PLC: No

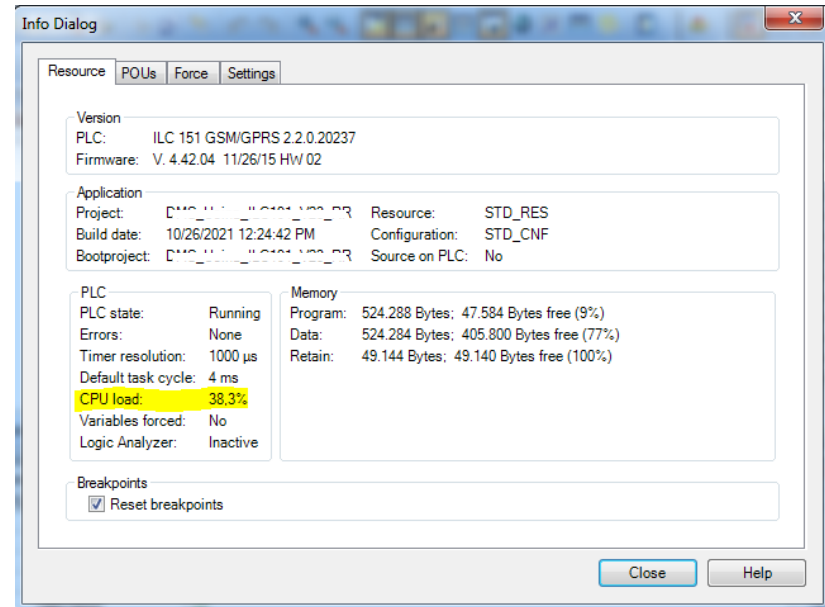
PLC
PLC state: Running
Errors: None
Timer resolution: 1000 µs
Default task cycle: 182 ms
CPU load: 70.1%
Variables forced: No
Logic Analyzer: Inactive

Memory
Program: 524.288 Bytes; 59.284 Bytes free (11%)
Data: 524.284 Bytes; 406.616 Bytes free (78%)
Retain: 49.144 Bytes; 49.140 Bytes free (100%)

Breakpoints
 Reset breakpoints

Close Help

depois



Info Dialog

Resource | POU's | Force | Settings

Version
PLC: ILC 151 GSM/GPRS 2.2.0.20237
Firmware: V. 4.42.04 11/26/15 HW 02

Application
Project: DMS_H1..._ILC101_V02_PR Resource: STD_RES
Build date: 10/26/2021 12:24:42 PM Configuration: STD_CNF
Bootproject: DMS_H1..._ILC101_V02_PR Source on PLC: No

PLC
PLC state: Running
Errors: None
Timer resolution: 1000 µs
Default task cycle: 4 ms
CPU load: 38.3%
Variables forced: No
Logic Analyzer: Inactive

Memory
Program: 524.288 Bytes; 47.584 Bytes free (9%)
Data: 524.284 Bytes; 405.800 Bytes free (77%)
Retain: 49.144 Bytes; 49.140 Bytes free (100%)

Breakpoints
 Reset breakpoints

Close Help

Pronto!!!

A organização aliviou a CPU e melhorou a performance.



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