### Title: How to Configure a Project to Include Multiple MPiec Controller Resources Product(s): MP2000iec, MP3000iec Series Controllers, Sigma-7Siec Controllers, Sigma-7 Series, Sigma-5 Series Doc. No. AN.MPIEC.19

#### **Application Overview**

This application note will go in detail about how to download to multiple resources within MotionWorks IEC 3 Pro.



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#### Products Used

Component	Product and Model Number
Servopack	Sigma-7 Series Mechatrolink-III, Sigma-5 Series Mechatrolink-III
Motor	Sigma-7 Series Servomotors, Sigma-5 Series Servomotors
Controller	MP2000iec and MP3000iec Series and Sigma-7Siec Controllers
Software	MotionWorks IEC 3.2 Pro or greater

#### Application Requirements

MPiec Series Firmware 3.2 or greater

MECHATROLINK-III Sigma-7 or Sigma-5 Series SERVOPACKS

#### Application Solution and Benefits

With today's machines having a plethora of axes for motion, Yaskawa's ability to have multiple resources allows for modularity between different machine sections.

#### Download the latest below:

- <u>MotionWorks IEC</u> (must have partner login)
- <u>MotionWorks IEC Firmware</u> (must have partner login)

Title: How to	Config	ure a Project to Includ	le Multiple MPiec	
Controller Re	esource	S		
Product(s): MP20 Sigma Sigma	000iec, MP a-7Siec Co a-5 Series	3000iec Series Controllers, ntrollers, Sigma-7 Series,	Doc. No. AN.MPIEC.19	
Implementati	on			
Steps:				
1. Establis	sh IP Addre	ss on both MP3000iec Series Co	ontrollers	
a. M	MP3300iec	Controller IP Address: 192.168.	1.33	
	YASKAWA	🌲 🞯 Status 🖷 Operations 🗸 🌣 Setup 👻 🖑 Re	eboot	👤 User 🗸
	Welco	ome Admin		
		Vackowa MP3300iaa Controlla	rintorfaca	
		raskawa IMF3500lec Controlle	rintenace	
		Software Platform	MP3300iec	
		Version	3.2.0	
		Build Number	178	
		Build Date	2016-03-24	
		Hardware Platform	JAPMC-CP3311-2-E	
		Model Number	PMC-U-MP33332	
b.	MP3200iec	Controller IP Address: 192 168	1 32	
0. 1		▲ ② Status	eboot	L User -
		- · · · · ·		
	Welco	ome Admin		
		Yaskawa MP3200iec Controlle	r Interface	
		Software Platform	MP3200iec	
		Version	3.3.0	
		Build Number	240	
		Build Date	2016-10-24	
		Hardware Platform	JEPMC-CP3201-E	
		Model Number	PMC-U-MP32032	
d				

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Sigma-5 Series	

2. Establish IP Address on PC: 192.168.1.62

Internet Protocol Version 4 (TCP/IPv4	4) Properties
General	
You can get IP settings assigned aut this capability. Otherwise, you need for the appropriate IP settings.	omatically if your network supports to ask your network administrator
Obtain an IP address automatic	ally
Use the following IP address:	
IP address:	192.168.1.62
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	
<ul> <li>Obtain DNS server address auto</li> </ul>	omatically
Ouse the following DNS server as	ddresses:
Preferred DNS server:	
Alternate DNS server:	· · ·
Validate settings upon exit	Advanced
	OK Cancel

3. Open MotionWorks IEC 3 Pro

a.

 Begin and save and compile a new project with MP3300iec or MP3200iec (whichever will be the default)







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Sigma-5 Series	

8. Click Save Configuration and reboot controller

		💮 Me	otionWor	ks IEC 3 Pro	, ,				
		File	Edit	Device					
				€					
	2		Save Con	figuration					
	a.	Hardware	e Configura	ation					
		uning	Online	Help					
		1	Onlin	e/Offline					
		$\sim$	Rebo	ot Controller	,				
		:esPr(	Reset	Mechatrolin	ik				
	h	P330(	Contr	oller Config	uration Utilities				
9.	Disconr	nk-III - nect fror	m MP330	0iec Cont	roller to go 'off	fline'			
	a.		Onlir	ne	Disconnect	] 1	92 . 168 .	1.33	]
		(	Offline		Connect 19	2.16	68 . 1 . 33		

10. Right click on Project name folder within the Hardware Configuration and click 'Add Device'



b.

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11. Choose the controller needed (MP3200iec) and click 'Finish'



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Sigma-7Siec Controllers, Sigma-7 Series,	Doc. No. AN.MPIEC.19
Sigma-5 Series	

- 14. Click on the MP3200iec : MP3200iec header [Slot\_1] ..... I MP3200iec : MP3200iec Mechatrolink-III Groups TCP/IP Settings EtherNet/IP Modbus/TCP
- a. 15. Type in the IP Address of the MP3200iec Controller



17. Choose the Autodiscovered Configuration of this MP3200iec Controller



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18. Project tree now shows the following:



20. Close Hardware Configuration

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In MotionWorks IEC 3 Pro, the Project Tree Window should display like below:



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22. Compiling this project will result in errors because there aren't any Program Instances within the MP3200iec Resource Tasks



23. Add the same tasks from the MP3300iec Resource and compile and the Message Window should result in 0 Errors

Building instance tree for RESOURCE 'MP3200iec' A
Generating specific Code for CONFIGURATION Co
Generating specific Code for RESOURCE Resourd
Generating specific Code for CONFIGURATION MI
Generating specific Code for RESOURCE MP3200j
✓ 0 Error(s), 0 Warning(s)
4 III • •
Build / Errors / Warnings / Info / PLC Errors / Print / Multi-User /

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24. To choose between different resources when downloading, click either 'Resource: MP3300iec' or 'MP3200iec:eCLR'



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Sigma-7 Siec Controllers, Sigma-7 Series, Sigma-5 Series
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25. Click on the MP3300iec Controller and click the Project Dialog Icon



26. In the Project Control Box, notice the Status of each controller shows 'Offline'. This is due to no project running on either controller.

Resource     Configuration     Offline       MP3200iec     MP3200iec     Offline	
Online Download Control	
Connect Project Cold Warm	Hot
Djsconnect <u>M</u> ore <u>S</u> top <u>R</u> eset	Control.
Canc <u>e</u> l	

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27. Select Resource and 'Connect'

Sigma-5 Series

28. The bottom of MotionWorks IEC 3 will indicate it is 'On' by the green filled bar



a. Freiher presta 29. In the Download section of Project Control, click on 'Project'

Resource       Configuration       On         MP3200iec       MP3200iec       Offline         Online       Download       Control         Connect       Project       Cold       Warm         Disconnect       More       Stop       Reset       Control	nesource	Configuration	Status	Info		
MP3200iec Offline Online Download Control Connect More Stop Reset Control Control	Resource	Configuration	On			
Online     Download     Control       Connect     Project     Cold     Warm       Djsconnect     More     Stop     Reset     Control	MP3200iec	MP3200iec	Offline			
Connect     Project     Cold     Warm     Ho       Disconnect     More     Stop     Reset     Contra	Online	Download	Control			
Disconnect         More         Stop         Reset         Contr	Co <u>n</u> nect	Project	Co	ojd (	<u>₩</u> arm	Hot
	Disconnect	<u>M</u> ore	<u>S</u> t	op (	<u>R</u> eset	C <u>o</u> ntrol
Canc <u>e</u> l		Canc <u>e</u> l				

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30. A warning will indicate that this command will download projects to all selected resources. (In this case, one controller for now)



31. Click 'Ok' and watch the Status start to increment until 100% is reached and Status is 'Stop'

Resource	Configuration	Sta	itus	Info	
Resource	Configuration	Do	wnload	55 %	
MP3200iec	MP3200iec	Off	line		
Project contro	I				
Resource	Configuration	Status	Info		
Resource	Configuration	Stop			
MP3200iec	MP3200iec	Offline			

32. In the Control Section, click 'Warm'

Resource	Configuration	Status	Info		
Resource	Configuration	Stop			
MP3200iec	MP3200iec	Offline			
Online	Download	Control			
Connect	Project		bļd	Warm	Hot
Disconnect	<u>M</u> ore		ор	<u>R</u> eset	C <u>o</u> ntrol
	Canc <u>e</u> l				
					Class

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33. Another warning about selecting 'warm start'



a. \_\_\_\_\_\_ 34. The Status will now read 'Run'

Resource     Configuration     Run       MP3200iec     MP3200iec     Offline	
MP3200iec Offline	
Online Download Control	
Co <u>n</u> nect <u>Project</u> Cold <u>W</u> arm	Ho <u>t</u>
Disconnect More Stop Reset	C <u>o</u> ntrol.
Canc <u>e</u> l	

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35. Repeat steps 25 through 34 to download the project to the MP3200iec Controller. The result should show the following once all complete:

Resource	Configuration	Status	Info		
Resource MP3200iec	Configuration MP3200iec	Run Run			
Online Co <u>n</u> nect	Download Project	Control	old	<u>W</u> arm	Hot
Djsconnect	More Canc <u>e</u> l	<u><u>S</u>I</u>	top	<u>R</u> eset	C <u>o</u> ntrol

36. Alternatively, the user could click on the 'Select All' button to download to all Resources / Controllers at once repeating steps 25-34:

Resource	Configuration	Status	Info		
Resource	Configuration	Run			
MP3200iec	MP3200iec	Run			
Online	Download	Control			
Co <u>n</u> nect	Project		bļd	<u>W</u> arm	Hot
Disconnect	<u>M</u> ore	<u><u>s</u></u>	op	<u>R</u> eset	Control
	Canc <u>e</u> l				
Select all			ſ	Help	Close

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Sigma-5 Series

- 37. Close the Project Control Window
- 38. In MotionWorks IEC 3, click on the 'Debug' icon to see the values online



- a. 39. Open the Global Variables worksheet based upon whichever resource is selecte to see the 'Online values'
  - a. MP3300iec

window 📮 🔻 🛛	high	Name	Online value	Туре	Usage	Description
ct : C:\Users\Public\Documents\MotionWork	hrvd	🗄 System Variables				
ibraries		AXIS3 <sgd7w> - Sic</sgd7w>	ma-7W Servo Ampli	fier - 1:3 (* Modify \	Variable Names, No	ot Group Name.
PLCopenPlus_v_2_2a		AXIS3 SI1 POT	FALSE	BOOL	VAR GLOB	POT, default of
DataTypes_Toolbox_v320		AXIS3 SI2 NOT	FALSE	BOOL	VAR GLOB	NOT, default
PLCopen_Toolbox_v301		AXIS3 SI3 DEC	FALSE	BOOL	VAR GLOB	DEC, default of
)ata Types	121	AXIS3 SI4 EXT1	FALSE	BOOL	VAR GLOB	EXT1. default
ogical POUs		AXIS3 SI5 EXT2	FALSE	BOOL	VAR GLOB	EXT2. default
1 Initialize	1111	AXIS3 SI6 EXT3	FALSE	BOOL	VAR GLOB	EXT3, default
0		AXIS3 BRK	TRUE	BOOL	VAR GLOB	Brake Output
1 Main		AXIS3 HBB	FALSE	BOOL	VAR GLOB	HBB, Stop Sic
I HMI		AXIS3 SI0 IO12	FALSE	BOOL	VAR GLOB	Servo Input 0
'hysical Hardware	186	AXIS3 SI1 I013	FALSE	BOOL	VAR GLOB	Servo Input 1
Configuration : eCLR	60 -	AXIS3 SI2 1014	FALSE	BOOL	VAR GLOB	Servo Input 2
Resource : MP3300iec	14	AXIS3 SI3 I015	FALSE	BOOL	VAR GLOB	Servo Input 3
🚊 🖓 🎆 Tasks	TM -	AXIS3 ALM	FALSE	BOOL	VAR GLOB	Alarm On Driv
FastTsk : CYCLIC	-	AXIS3 WARNG	FALSE	BOOL	VAR GLOB	Warning On D
0 : 01		AXIS3 SVON	FALSE	BOOL	VAR GLOB	Servo On
MedTsk : CYCLIC		AXIS3 PON	TRUE	BOOL	VAR GLOB	Main Circuit P
Main : Main		AXIS3 PSET	TRUE	BOOL	VAR GLOB	Positioning Co
SlowTsk : CYCLIC		AXIS3_501	FALSE	BOOL	VAR GLOB	S01 pins 23
- HMI : HMI		AXIS3_502	FALSE	BOOL	VAR GLOB	SO2 pins 25
Start : SYSTEM		AXIS3_503	FALSE	BOOL	VAR GLOB	SO3 pins 27
Initialize : Initialize	6.0	AXIS3	TALGE	AXIS REF	VAR GLOB	SGD7W - 3 (*
Global_Variables		AXIS5 < SGD7 S> - Sig	ma-75 Servo Amplifi	ier - 1:5 (* Modify V	ariable Names, Not	t Group Name.
IO_Configuration		AXISS SIL POT	FALSE	BOOL	VAR GLOB	POT default (
MP3200iec : eCLR	- N	AXISS SIZ NOT	FALSE	BOOL	VAR GLOB	NOT default (
MP3200iec : MP3200iec		AXISS_SI3_DEC	FALSE	BOOL	VAR GLOB	DEC_default of
🖮 🍘 Tasks		AXISS SIA EXT1	FALSE	BOOL	VAR GLOB	EXT1 default
FastTsk : CYCLIC	1 🌮 🕒	AXISS_SIS_EXT2	FALSE	BOOL	VAR GLOB	EXT2 default
0 : 01	ll 🧓 🖿	AXISS SIG EXT3	FALSE	BOOL	VAR GLOB	EXT3 default
MedTsk : CYCLIC	11 ° F	AXISS BRK	TRUE	BOOL	VAR GLOB	Brake Output
Main : Main		AXISS HBB	FALSE	BOOL	VAR GLOB	HBB Stop Siz
SlowTsk : CYCLIC	ImF	AXIS5_100	FALSE	BOOL	VAR_GLOB	Serve Input 0
HMI : HMI		AXIS5_SIL 1013	FALSE	BOOL	VAR_GLOB	Servo Input 0
Start : SYSTEM			EALSE	BOOL	VAR_GLOB	Serve Input 2
Init : Initialize	II - F	AXIS5_312_1014	EALSE	BOOL	VAR_GLOB	Serve Input 2
Global Variables			EALSE	BOOL	VAR_GLOB	Alarm On Driv
IO_Configuration	-	AXISS WARNG	FALSE	BOOL	VAR_GLOB	Warning On D
	-	AXISS SVON	FALSE	BOOL	VAR_GLOB	Servo On
	l -	AVISS DON	TDUE	BOOL	VAR_GLOB	Main Circuit B
	l -	AVISS DEFT	TDUE	BOOL	VAR_GLOB	Bositioning Co
	l -	AVIS5_F3E1	EALSE	BOOL	VAR_GLOB	SO1 pipe 1 c
	-	AAIS5_501	FALSE	BOOL	VAR_GLUB	501, pins 1 a
	-	AAIS5_502	FALSE	BOOL	VAR_GLUB	502, pins 23
		- MOIDD 2012	LEALOE	IDUUL	I VAR GLUB	1.505,00875

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#### b. MP3200iec

window 📮 🔻 🔟	luzi	Name	Online value	Туре	Usage	Description 4
t : C:\Users\Public\Documents\MotionWork	hird -	E System Variables	Į			
praries		AXIS25 <sgdv rota<="" td=""><td>y&gt; - Sigma-V Rotary S</td><td>Servo Amplifier - 1:</td><td>25 (* Modify Varial</td><td>ble Names, Not</td></sgdv>	y> - Sigma-V Rotary S	Servo Amplifier - 1:	25 (* Modify Varial	ble Names, Not
PLCopenPlus_v_2_2a		AXIS25 SI1 POT	FALSE	BOOL	VAR GLOB	POT, default c
DataTypes_Toolbox_v320		AXIS25_SI2_NOT	FALSE	BOOL	VAR_GLOB	NOT, default (
PLCopen_Toolbox_v301	1111	AXIS25 SI3 DEC	FALSE	BOOL	VAR GLOB	DEC, default c
ata Types	th 🗌	AXIS25 SI4 EXT1	FALSE	BOOL	VAR GLOB	EXT1, default
gical POUs	db -	AXIS25 SI5 EXT2	FALSE	BOOL	VAR GLOB	EXT2, default
Initialize	414	AXIS25 SI6 EXT3	FALSE	BOOL	VAR GLOB	EXT3. default -
10		AXIS25 BRK	TRUE	BOOL	VAR GLOB	Brake Output
Main		AXIS25 HBB	FALSE	BOOL	VAR GLOB	HBB. Stop Sic
HMI		AXIS25 SI0 1012	FALSE	BOOL	VAR GLOB	Configurable
iysical Hardware	rith	AXIS25 SI1 1013	FALSE	BOOL	VAR GLOB	Configurable
Configuration : eCLR	66	AXIS25_SI2_I014	FALSE	8001	VAR GLOB	Configurable
Resource : MP3300iec		AXIS25_SI3_I015	FALSE	BOOL	VAR GLOB	Configurable
🚊 🖓 Tasks	1M -	AXIS25_ALM	FALSE	BOOL	VAR GLOB	Alarm On Driv
FastTsk : CYCLIC	E F	AXIS25_WARNG	FALSE	8001	VAR GLOB	Warning On F
IO : IO		AXIS25_WAINIO	EALSE	BOOL	VAR_OLOB	Servio On
🖃 🕜 MedTsk : CYCLIC		AVIS25_SVOI	TRUE	BOOL	VAR_GLOB	Main Circuit B
Main : Main		AVIS25_PON	TOUE	BOOL	VAR_GLOB	Bositioning Co
SlowTsk : CYCLIC		AVIS25_FOLT	EALCE	BOOL	VAR_GLOB	Fositioning CC
		AXIS25_301	FALSE	BOOL	VAR_GLOB	SO2 pins 22
Start : SYSTEM		AXI525_502	FALSE	BOOL	VAR_GLOB	502, pins 25
Initialize : Initialize	6.3 -	AXI525_505	FALSE	AVIC DEE	VAR_GLOB	SODV Datas
Global Variables	(°7) -		Cinera M Datama (	AAIS_REF	VAR_GLUB	SGDV Rolary
IO Configuration	3 -	AXIS35 SGUV ROTAL	y> - sigma-v Rotary s	Bool	35 (* Modify Varial	Die Names, Not
MP3200iec : eCLR	0	AXIS35_SI1_PUT	FALSE	BOOL	VAR_GLOB	POT, default c
		AXIS35_SI2_NUT	FALSE	BOOL	VAR_GLOB	NOT, default (
Tasks	16 -	AXIS35_SI3_DEC	FALSE	BOOL	VAR_GLOB	DEC, default (
E FastTsk : CYCLIC		AXIS35_5I4_EXT1	FALSE	BOOL	VAR_GLOB	EX11, default
	L L	AXIS35_SI5_EXT2	FALSE	BOOL	VAR_GLOB	EX12, default
	1 🖉 📙	AXIS35_SI6_EXT3	FALSE	BOOL	VAR_GLOB	EX13, default
Main Main	-	AXIS35_BRK	TRUE	BOOL	VAR_GLOB	Brake Output
	Im F	AXIS35_HBB	FALSE	BOOL	VAR_GLOB	HBB, Stop Sig
		AXIS35_SI0_I012	FALSE	BOOL	VAR_GLOB	Configurable
		AXIS35_SI1_I013	FALSE	BOOL	VAR_GLOB	Configurable
		AXIS35_SI2_I014	FALSE	BOOL	VAR_GLOB	Configurable
Global Variables		AXIS35_SI3_I015	FALSE	BOOL	VAR_GLOB	Configurable
		AXIS35_ALM	FALSE	BOOL	VAR_GLOB	Alarm On Driv
		AXIS35_WARNG	FALSE	BOOL	VAR_GLOB	Warning On E
		AXIS35_SVON	FALSE	BOOL	VAR_GLOB	Servo On
		AXIS35_PON	TRUE	BOOL	VAR_GLOB	Main Circuit P
		AXIS35_PSET	TRUE	BOOL	VAR_GLOB	Positioning Cc
		AXIS35_S01	FALSE	BOOL	VAR_GLOB	SO1, pins 1 a
		AXIS35_S02	FALSE	BOOL	VAR_GLOB	SO2, pins 23
		AVIC25 CO2	EALCE	BOOL	VAP CLOB	SO3 pipe 25