

STP SPLIT AND MERGE

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Terminology

STP	Server Time Protocol
CPC	Central Processor Complex
CTN	Coordinated Timing Network
PTS	Preferred Time Server
CTS	Current Time Server
BTS	Backup Time Server
ARB	Arbiter
ETS	External Time Source

Introduction

The STP Split function allows you to dynamically split CPCs from one CTN into a new CTN. The STP Merge function allows you to dynamically merge CPCs from two CTNs into one CTN. These functions are available on IBM z14 GA2 and newer CPCs only and is non-disruptive to running z/OS LPARs. To start with either function you need an HMC that has all involved CPCs defined to it. For this white paper I will be demonstrating splitting two CPCs into a new CTN and then merging those split CPCs back into the original CTN. I will also demonstrate what happens when you try to split CPCs to a new CTN that has LPARs operating in the original CTN, across where you are performing the split.

Our environment consists of two z14 GA2 CPCs (M89 and M87) and two ZR1 CPCs (M256 and M263). All CPCs have coupling links to all other CPCs. We have two sysplexes defined on these CPCs, SVPLEX5 and SVPLEX7. We have z/OS LPARs running z/OS 2.1, 2.2 and 2.3 running in each sysplex. SVPLEX5 is running on M89 and M256 and SVPLEX7 is running on M87, with coupling facilities located on the standalone coupling facility, M263.

STP Split

To start I opened the Manage System Time panel on the HMC. There are two ways to get to the panel, one was is by selecting Manage System Time task from the System Management panel.

The screenshot displays the IBM Hardware Management Console (HMC) interface, specifically the Systems Management panel. The top bar indicates the version is 2.14.1. The left sidebar contains navigation options: Welcome, Systems Management, Ensemble Management, Custom Groups, HMC Management, Service Management, and Tasks Index. The main area shows a table of systems with the following columns: Select, Name, Status, Activation Profile, Last Used Profile, SE IP Address, Machine Type - Model, and Machine Serial. The table lists various systems, including CR01, M10, M113, M114, M116, M256, M312, M87, M89, M92, P88, P89, S05, S215B, S310, S62, and S89. The status of these systems varies, with some marked as 'Service required' and others as 'Operating'. The 'Manage System Time' task is highlighted in the left sidebar under the 'Tasks' section. The bottom status bar shows 'Status: Exceptions and Messages'.

Select	Name	Status	Activation Profile	Last Used Profile	SE IP Address	Machine Type - Model	Machine Serial
<input type="checkbox"/>	CR01	Service required	DEFAULT			2817 - M66	
<input type="checkbox"/>	M10	Service required	DEFAULT			2088 - E10	
<input type="checkbox"/>	M113	Operating	DEFAULT	DEFAULT		3906 - M04	
<input type="checkbox"/>	M114	Operating	DEFAULT			3906 - M04	
<input type="checkbox"/>	M116	Operating	DEFAULT	DEFAULT		3906 - M03	
<input type="checkbox"/>	M256	Operating	DEFAULT			3907 - ZR1	
<input type="checkbox"/>	M253	Operating	DEFAULT			3907 - ZR1	
<input type="checkbox"/>	M312	Service required	DEFAULT			3906 - M04	
<input type="checkbox"/>	M87	Operating	DEFAULT	DEFAULT		3906 - M03	
<input type="checkbox"/>	M89	Operating	DEFAULT			3906 - M05	
<input type="checkbox"/>	M92	Operating	DEFAULT			3906 - M03	
<input type="checkbox"/>	P88	Service required	H89RESET			2827 - H89	
<input type="checkbox"/>	P89	Service required	DEFAULT			2827 - H86	
<input type="checkbox"/>	P89	Operating	P89RESET			2827 - HA1	
<input type="checkbox"/>	S05	Operating	DEFAULT			2964 - N96	
<input type="checkbox"/>	S05	Service required	DEFAULT			2965 - N96	

The other way to get to the Manage System Time panel is by selecting the CPC that is part of the CTN you want to work on and then under the configuration tasks, select Manage System Time.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

Home

Systems Management

CR01

M10

M113

M114

M116

M256

M253

M312

M87

M89

M92

P69

P88

P89

S05

S215B

S310

S62

S89

Ensemble Management

Custom Groups

HMC Management

Service Management

Tasks Index

Systems Management > M89

PartitionsTopology

Filter

TasksViews

Select	Name	Status	Activation Profile	Last Used Profile	OS Name	OS Type	OS Level
<input type="checkbox"/>	S53	Not activated	S53	S53			
<input type="checkbox"/>	S54	Operating	S54		S54	z/OS	V2R2
<input type="checkbox"/>	S55	Not activated	S55	S55			
<input type="checkbox"/>	S56	Not activated	S56	S56			
<input type="checkbox"/>	S57	Operating	S57		S57	z/OS	V2R3
<input type="checkbox"/>	S58	Not activated	S58	S58			
<input type="checkbox"/>	S59	Not activated	S59	S59			
<input type="checkbox"/>	S5A	Operating	S5A		S5A	z/OS	V2R3
<input type="checkbox"/>	S5B	Operating	S5B		S5B	z/OS	V2R2
<input type="checkbox"/>	S5C	Not activated	S5C				
<input type="checkbox"/>	S5D	Operating	S5D		S5D	z/OS	V2R3
<input type="checkbox"/>	S5E	Not activated	S5E				
<input type="checkbox"/>	S5F	Operating	S5F		S5F	z/OS	V2R3
<input type="checkbox"/>	S5G	Not activated	S5G				
<input type="checkbox"/>	S5H	Operating	S5H		S5H	z/OS	V2R1

Max Page Size: 500Total: 48Filtered: 48Selected: 0

Tasks: M89

System Details

Toggle Lock

Daily

Recovery

Service

Change Management

Remote Customization

Operational Customization

Configuration

Manage System Time

Perform Model Conversion

System Input/Output Configuration Analyzer

Transmit Vital Product Data

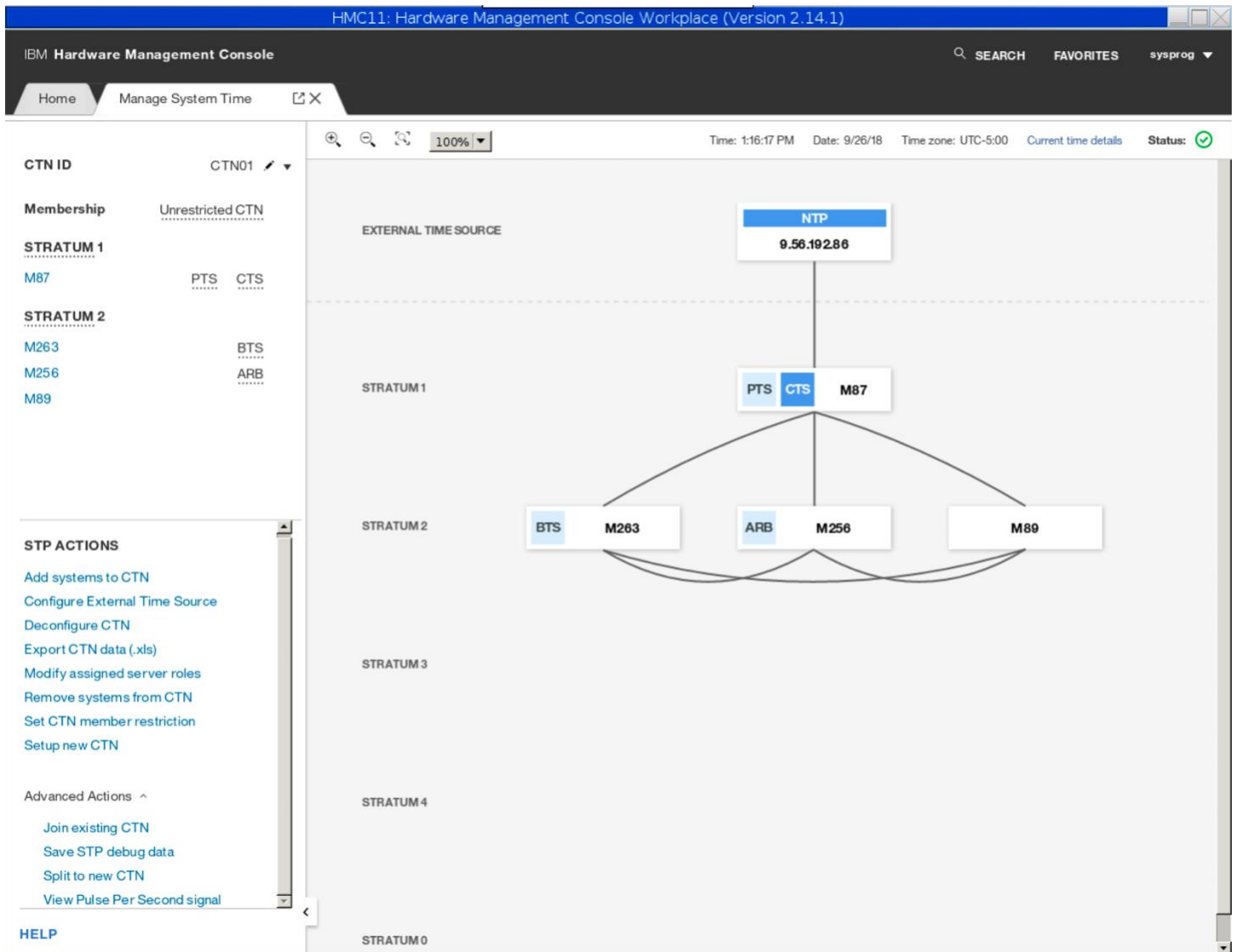
View Frame Layout

Energy Management

Monitor

Status: Exceptions and Messages

The original starting configuration of CTN01 looks like the following:



As you can see CPC M87 is the Preferred Time Server and the Current Time Server, M263 is the Backup Time Server, and M256 is the Arbiter. I am going to split M89 and M256 into their own CTN, which I will call CTN02. To begin I need to Modify Assigned Server Roles and take the role of arbiter away from M256 because all the CPCs that will be splitting to a new CTN cannot have an assigned role in the original CTN. I will leave M87 as the PTS/CTS and M263 as the BTS. I start by clicking on Modify Assigned Server Roles under STP Actions on the left of the Manage System Time panel. The first step of the Modify Assigned Server Roles action is to choose the Preferred Time Server. I selected M87 as it was the PTS already and click on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeXModify Assigned Server ... X

CHOOSE PTSCHOOSE BTSCHOOSE ARBITERCHOOSE CTSCONFIRM CHANGES

Choose Preferred Time Server

The Preferred Time Server controls time synchronization among systems in the CTN during normal operations. In the topology of an STP-only CTN, the system that you select for this role is placed in Stratum 1.

Current role selections (last modified 9/26/18 5:11:03 PM): M87 (CTS/PTS), M263 (BTS), M256 (ARB)

M87M263M256M89

GUIDANCE

Select a system that has connectivity to the systems that you plan to assign to the Backup Time Server and Arbiter roles.

PREVIOUS SELECTIONS

CTN ID

CTN01

CANCELNEXTHELP

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I next choose the Backup Time Server, I select M263 as it was the BTS already and I click on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Modify Assigned Server ... X

CHOOSE PTS CHOOSE BTS CHOOSE ARBITER CHOOSE CTS CONFIRM CHANGES

Choose Backup Time Server *(Optional)*

The Backup Time Server takes over the role of the Preferred Time Server during recovery situations.
The system that you select for this role is placed in stratum 2.

Current role selections (last modified 9/26/18 5:11:03 PM): M87 (CTS/PTS), M263 (BTS), M256 (ARB)

M87	M263	M256	M89
-----	------	------	-----

☐ Do not configure a Backup Time Server

BACK

NEXT

HELP

GUIDANCE

Select a system that has connectivity to the Preferred Time Server and the system that you plan to assign to the Arbiter role, and to all systems that you plan for stratum 3.

If you choose not to configure a Backup Time Server, the Arbiter will be automatically set to "Not configured".

PREVIOUS SELECTIONS

Preferred Time Server
M87

Since we are removing the Arbiter role from M256, I check the box that says “Do not configure an Arbiter” and I click on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Modify Assigned Server ... X

CHOOSE PTS CHOOSE BTS CHOOSE ARBITER CHOOSE CTS CONFIRM CHANGES

Choose Arbiter (Optional)

The Arbiter assists with switching the Current Time Server role from the Preferred Time Server to the Backup Time Server during recovery situations. The system that you select for this role is placed in stratum 2.

Current role selections (last modified 9/26/18 5:11:03 PM): M87 (CTS/PTS), M263 (BTS), M256 (ARB)

M87	M263	M256	M89
-----	------	------	-----

☒ Do not configure an Arbiter

GUIDANCE

Select a system that has connectivity to the systems that you selected for the Preferred Time Server and the Backup Time Server roles.

PREVIOUS SELECTIONS

Preferred Time Server

M87

Backup Time Server

M263

BACK NEXT HELP

I next choose the Current Time Server, selecting the PTS as the CTS and clicking on next.

The screenshot displays the IBM Hardware Management Console (HMC) interface. At the top, a blue header bar contains the text 'HMC11: Hardware Management Console Workplace (Version 2.14.1)'. Below this, a dark grey navigation bar shows 'IBM Hardware Management Console' on the left and 'SEARCH', 'FAVORITES', and 'sysprog' on the right. A breadcrumb trail includes 'Home', 'Manage System Time', and 'Modify Assigned Server ...'. The main content area features a progress bar with five steps: 'CHOOSE PTS', 'CHOOSE BTS', 'CHOOSE ARBITER', 'CHOOSE CTS' (which is highlighted with a blue line), and 'CONFIRM CHANGES'. The 'CHOOSE CTS' step is titled 'Choose Current Time Server'. Below the title, a paragraph of instructions states: 'Select either the Preferred Time Server or the Backup Time Server as the Current Time Server. If you are configuring a CTN for the first time, assign the Preferred Time Server as the Current Time Server.' Two radio buttons are present: 'Preferred Time Server' (selected) and 'Backup Time Server'. To the right, a 'GUIDANCE' section explains that the Current Time Server is typically the Preferred Time Server, and the Backup Time Server should only be selected for reconfiguration. Below this, a 'PREVIOUS SELECTIONS' section lists: 'Preferred Time Server' (M87), 'Backup Time Server' (M263), and 'Arbiter' (Not configured). At the bottom, there are three buttons: 'BACK' (outlined), 'NEXT' (solid blue), and 'HELP' (text link).

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

Home Manage System Time X Modify Assigned Server ... X

CHOOSE PTS CHOOSE BTS CHOOSE ARBITER CHOOSE CTS CONFIRM CHANGES

Choose Current Time Server

Select either the Preferred Time Server or the Backup Time Server as the Current Time Server. If you are configuring a CTN for the first time, assign the Preferred Time Server as the Current Time Server.

☒ Preferred Time Server

☐ Backup Time Server

GUIDANCE

Typically, the Current Time Server is the Preferred Time Server, which is the preferred assignment when you are configuring a CTN for the first time. Select the Backup Time Server as the Current Time Server only when you plan to reassign the Preferred Time Server role to a different server, as part of a planned reconfiguration.

PREVIOUS SELECTIONS

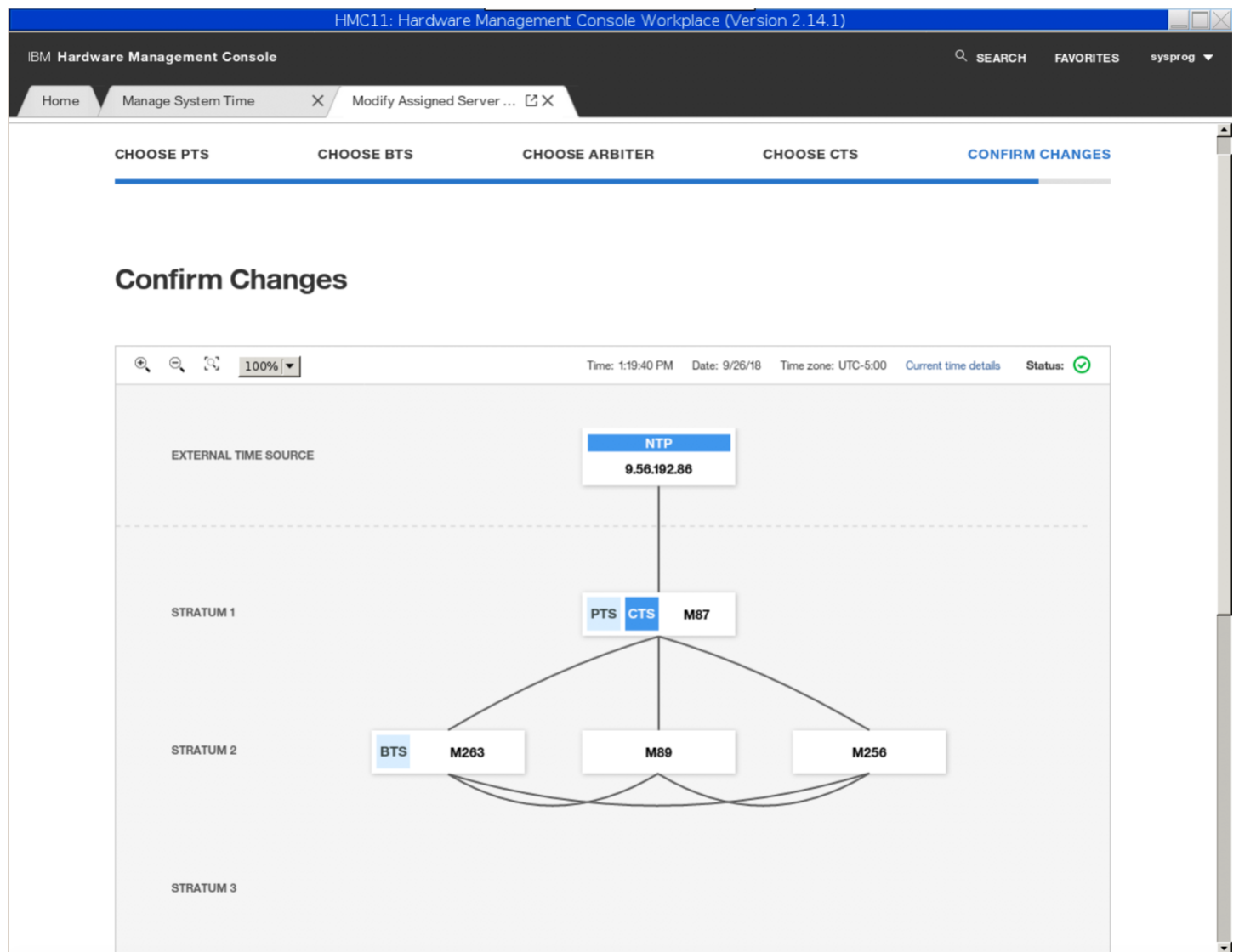
Preferred Time Server
M87

Backup Time Server
M263

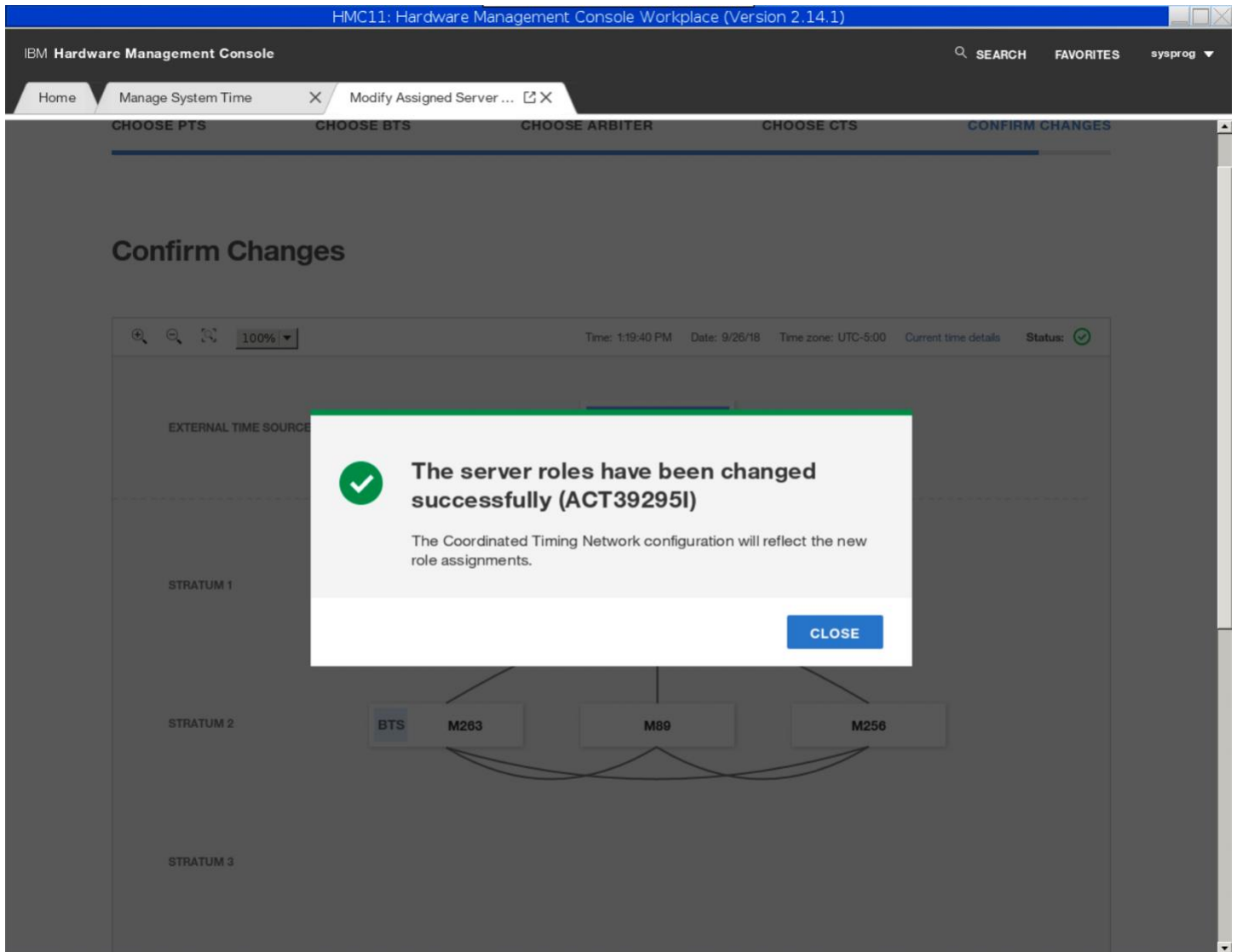
Arbiter
Not configured

BACK NEXT HELP

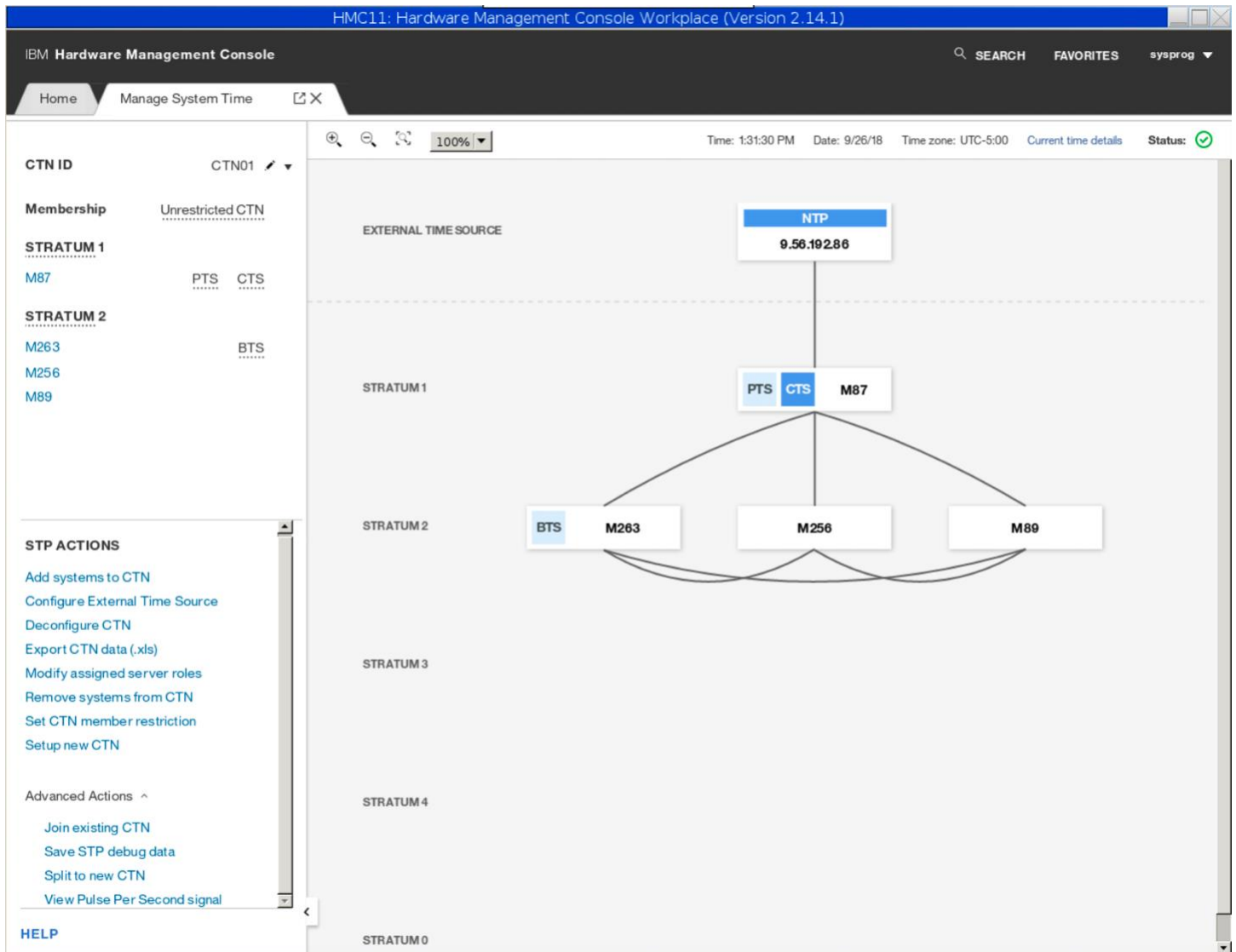
Finally, I confirm the changes I made, scroll down to the bottom and click on Apply and it will remove the Arbiter role from M256.



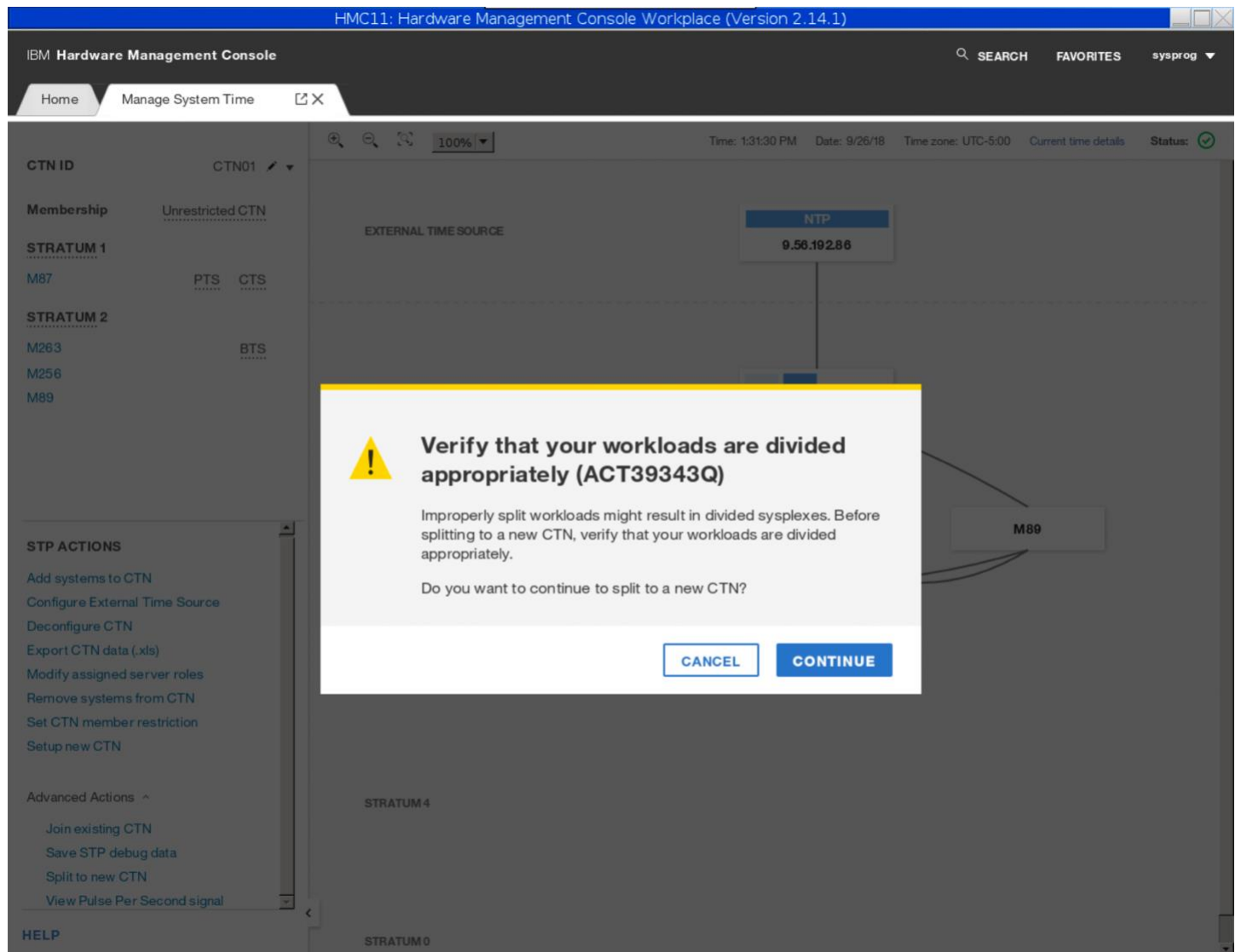
When it's done a window will pop up and say the server roles were successfully changed.



Once the server roles have been successfully changed, the configuration looks like the following:



I can now begin the STP Split process. I start this by clicking on Split to New CTN under the Advanced Actions of the Manage System Time panel. I first get a warning reminding me to verify that the workload and sysplexes are properly only running on either CPCs that are splitting away into CTN02 or CPCs that are staying in CTN01. I have verified that all z/OS and coupling facility LPARs for SVPLEX5 are only running on M89 and M256 and that all z/OS and coupling facility LPARs for SVPLEX7 are only running on M87 and M263 and I clicked on continue.



The first step is to set the new CTN ID, which I named as CTN02. As you can see on the right-hand side there is also guidance that will update with helpful information as you move through the process. I set the CTN ID as CTN02 and clicked on next.

The screenshot shows the IBM Hardware Management Console (HMC) interface. The title bar at the top reads 'HMC11: Hardware Management Console Workplace (Version 2.14.1)'. Below the title bar is a navigation bar with 'IBM Hardware Management Console' on the left and 'SEARCH', 'FAVORITES', and 'sysprog' on the right. The main navigation area has tabs for 'Home', 'Manage System Time', and 'Split to New CTN - CTN01'. The 'Split to New CTN - CTN01' tab is active. Below the navigation bar is a progress bar with four steps: 'SET NEW CTN ID' (highlighted), 'SPECIFY CTN MEMBERS', 'CHOOSE PTS', and 'CONFIRM CHANGES'. The main content area is titled 'Set the new Coordinated Timing Network's (CTN) ID'. Below the title is a description: 'The CTN ID is an identifier used to indicate whether the server has been configured to be part of a CTN and, if so configured, identifies the CTN.' Below this is a text input field labeled 'CTN ID' with the value 'CTN02'. To the right of the input field is a 'GUIDANCE' section with the text: 'Every server that will participate in the configured STP-only CTN will have the same CTN ID. The CTN ID is case sensitive and one to eight characters long. The valid characters are A-Z, a-z, 0-9, and _.' At the bottom of the form are three buttons: 'CANCEL', 'NEXT', and 'HELP'.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Split to New CTN - CTN01 X

SET NEW CTN ID SPECIFY CTN MEMBERS CHOOSE PTS CONFIRM CHANGES

Set the new Coordinated Timing Network's (CTN) ID

The CTN ID is an identifier used to indicate whether the server has been configured to be part of a CTN and, if so configured, identifies the CTN.

CTN ID

GUIDANCE

Every server that will participate in the configured STP-only CTN will have the same CTN ID. The CTN ID is case sensitive and one to eight characters long. The valid characters are A-Z, a-z, 0-9, and _.

[HELP](#)

I will now specify which members to split into the new CTN. Since M89 and M256 are the only two systems in the CTN without any assigned roles, they are the only two listed. If you do not see a CPC you would like to be a part of the split, make sure it does not have an assigned role. I selected both M89 and M256 and clicked on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeSplit to New CTN - CTN01

SET NEW CTN IDSPECIFY CTN MEMBERSCHOOSE PTSCONFIRM CHANGES

Specify CTN members for split

Select systems from the current CTN to be flagged to split to the new CTN. Unflag a system by selecting it again.

CTN ID: CTN01 (current CTN)

M256M89

GUIDANCE

Systems shown as available to split from the original CTN are not assigned roles. If you would like to select a system that currently has a role, launch the **Modify assigned server roles** action and remove the role.

PREVIOUS SELECTIONS

New CTN ID
CTN02

BACK

NEXT

HELP

I will now specify the Preferred Time Server for the new CTN. This will also become the Current Time Server of the new CTN. This process does not ask for a Backup Time Server nor does it ask for an Arbiter. If you would like to assign those roles you can do so after the split by going through the Modify Assigned Server Roles panels. I selected M89 as the PTS and clicked on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Split to New CTN - CTN01 X

SET NEW CTN ID SPECIFY CTN MEMBERS CHOOSE PTS CONFIRM CHANGES

Choose Preferred Time Server (PTS) for the new CTN

The Preferred Time Server controls time synchronization among systems in the CTN during normal operations. In the topology of an STP-only CTN, the system that you select for this role is placed in Stratum 1.

M256

M89

BACK

NEXT

HELP

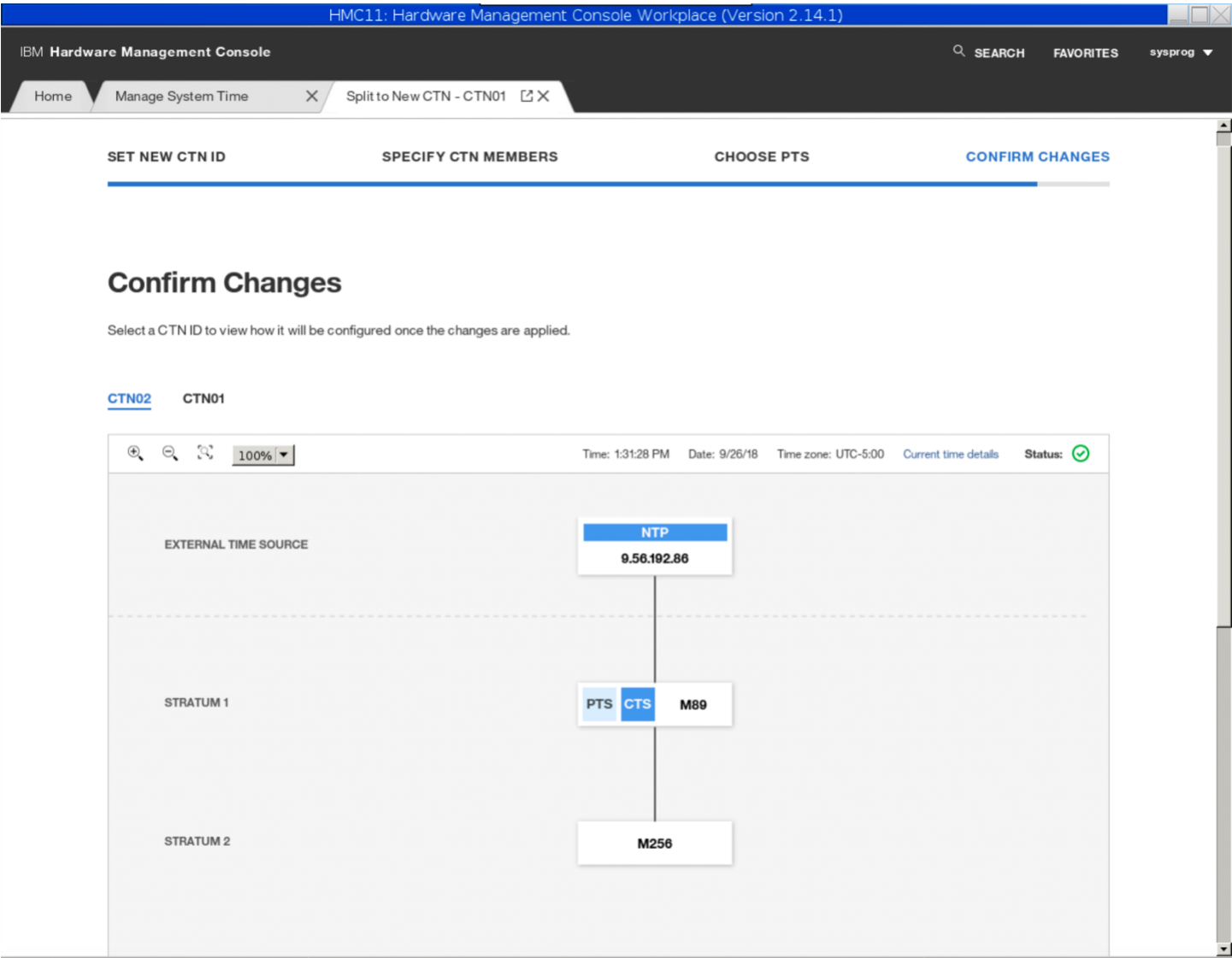
GUIDANCE

Select a system that has connectivity to the systems that you plan to assign to the Backup Time Server and Arbiter roles. Once the CTN is configured, launch the "Modify assigned server roles" wizard to assign the Backup Time Server and Arbiter.

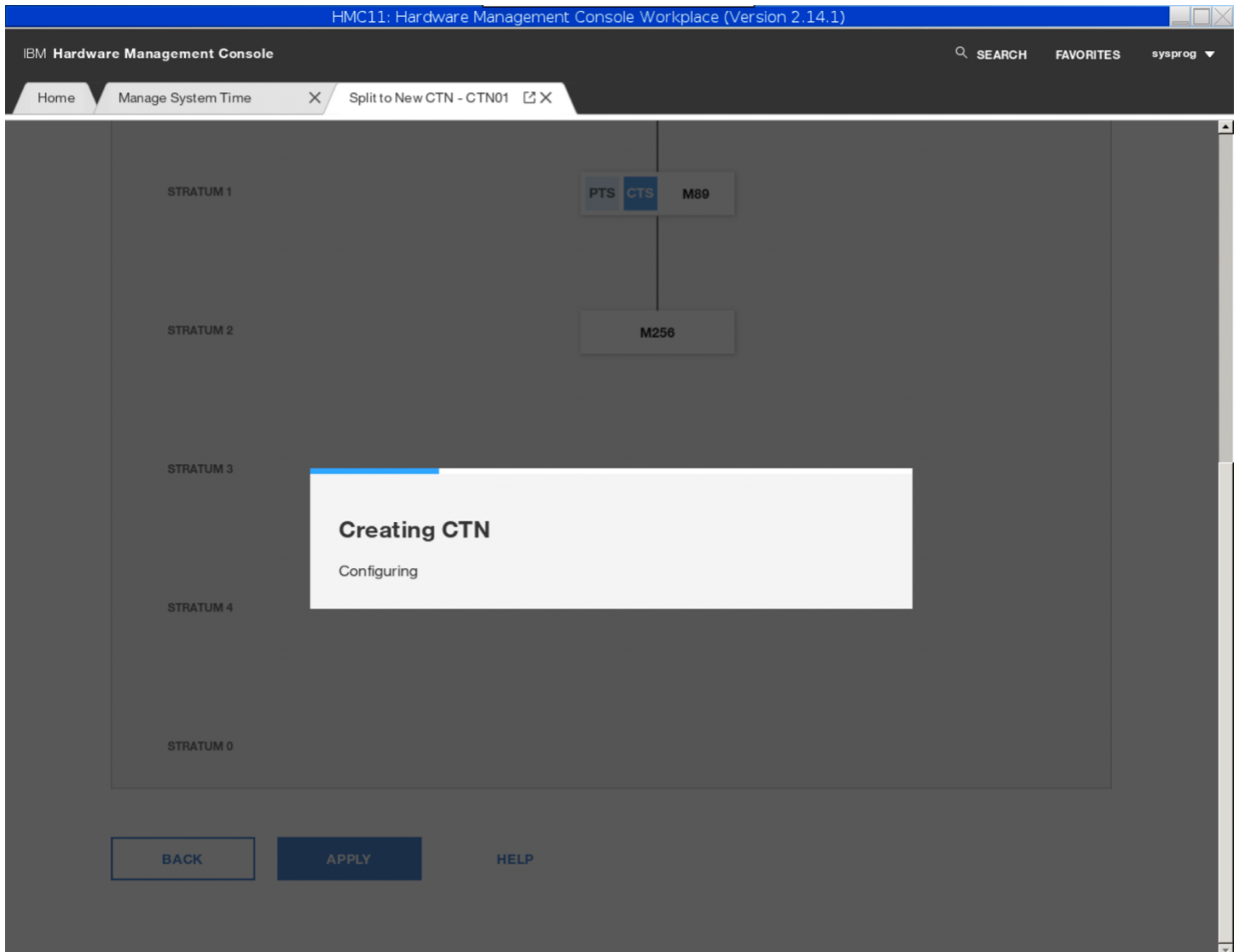
PREVIOUS SELECTIONS

New CTN ID
CTN02

It now shows me a visual diagram of what the two CTNs will look like after the split. You can toggle between what the old and new CTN's will look like by clicking on their CTN ID's. The following is what the new CTN02 will look like. As you can see, I have an ETS configured for the new PTS in the new CTN. It is recommended to have an ETS defined for both the PTS and the BTS of the new CTN. I verified that it is correct and the CPCs I want to split into a new CTN and I scrolled down and clicked on Apply.



It will now go and create the new CTN.

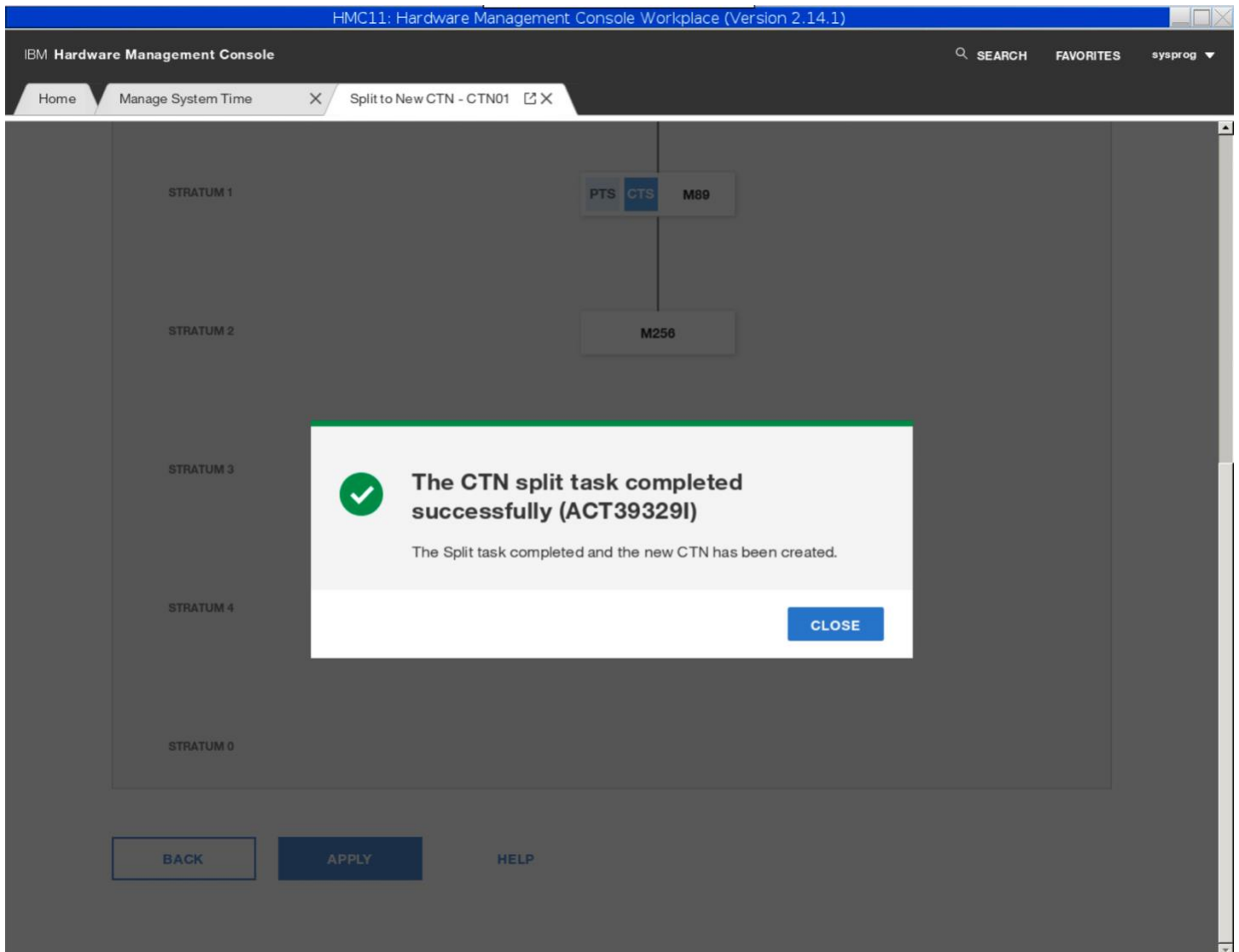


When the split occurs, you will see messages such as IEA389I, IXC439E and IXC425I. The IEA389I message is because during the split it only lets you define a PTS for the new CTN, and this message is letting you know there is no BTS or arbiter. The IXC439E message is letting you know that the CTNID is not in sync across the sysplex, you see this message because this change does not happen in the same instant for all z/OS LPARs in the sysplex. Finally, once all the z/OS LPARs are in sync with the same CTNID, you will see the IXC435I messages. In my environment I saw the following messages from z/OS systems running on the CPCs that are splitting away:

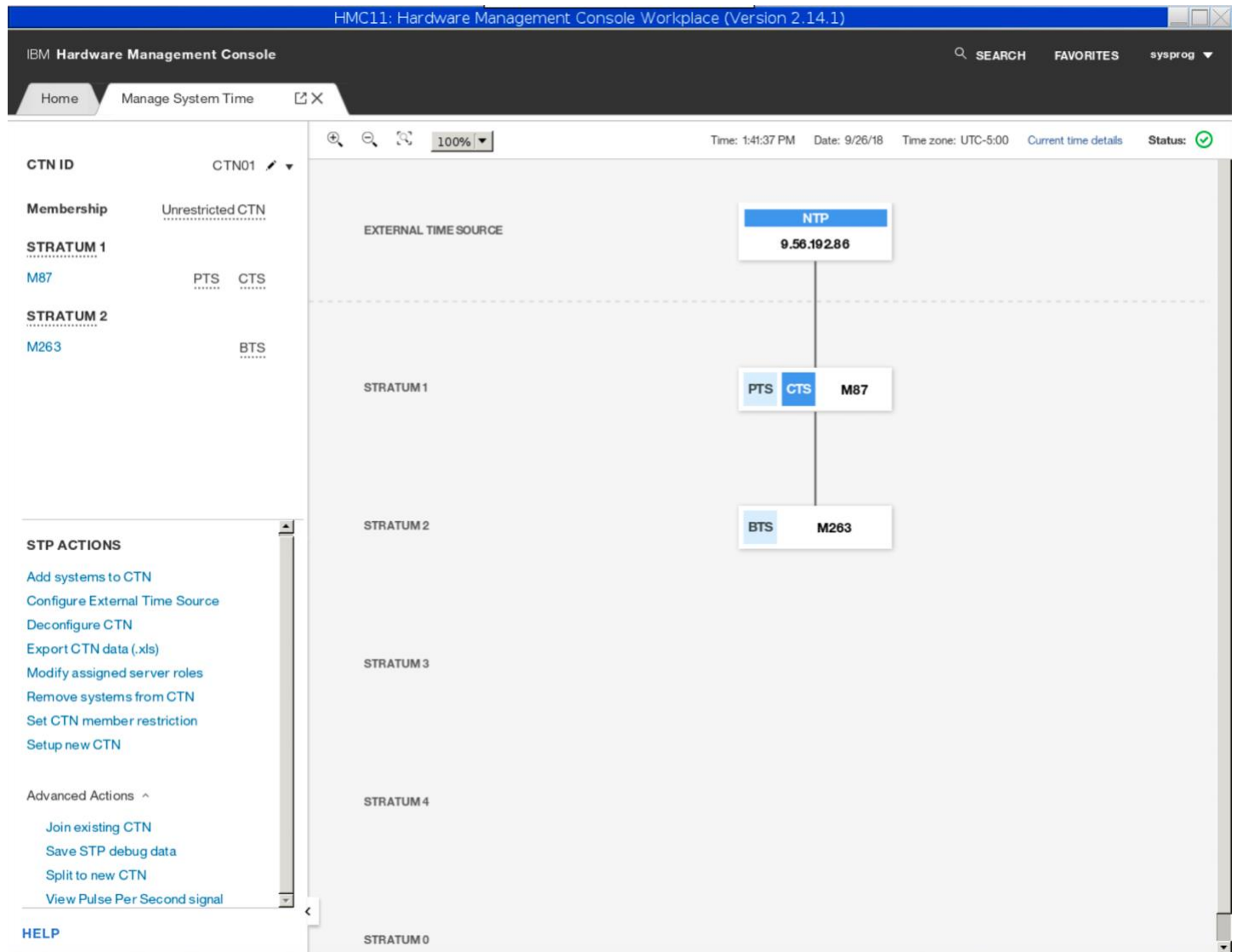
S5C	18269	13:39:41.59	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS BACKUP
S5C	18269	13:39:41.59	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
S59	18269	13:39:41.63	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS BACKUP
S59	18269	13:39:41.63	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
S5B	18269	13:39:41.64	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS BACKUP
S5B	18269	13:39:41.64	00000010	IEA389I	THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
S5B	18269	13:39:41.65	00000010	IXC438I	COORDINATED TIMING INFORMATION HAS BEEN UPDATED 496
			496 00000010		FOR SYSTEM: S5B
			496 00000010		PREVIOUS CTNID: CTN01...
			496 00000010		CURRENT CTNID: CTN02...
S5B	18269	13:39:41.65	00000010	*IXC439E	ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOT SYNCHRONIZED 497
			497 00000010		TO THE SAME TIME REFERENCE.
			497 00000010		SYSTEM: S5B IS USING CTNID: CTN02...
			497 00000010		SYSTEM: S55 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5A IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5D IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S50 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5C IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S51 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S58 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S59 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5H IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5F IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5E IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S56 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S52 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S53 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S5G IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S54 IS USING CTNID: CTN01...
			497 00000010		SYSTEM: S57 IS USING CTNID: CTN01...
S5B	18269	13:39:42.70	00000010	IXC435I	ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOW SYNCHRONIZED 500
			500 00000010		TO THE SAME TIME REFERENCE.
			500 00000010		SYSTEM: S5B IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S55 IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S5A IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S5D IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S50 IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S5C IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S51 IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S58 IS USING CTNID: CTN02...
			500 00000010		SYSTEM: S59 IS USING CTNID: CTN02...

500	00000010	SYSTEM: S5H	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S5F	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S5E	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S56	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S52	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S53	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S5G	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S54	IS USING CTNID: CTN02...
500	00000010	SYSTEM: S57	IS USING CTNID: CTN02...

When the split is successful you will get the following notice:



You can now view each CTN and makes changes to each one if you wish. For example, I did Modify Assigned Server Roles while in CTN02 and I assigned M256 as the Backup Time Server. This would also be a good time to configure an ETS for both the PTS and the BTS, if you have not done so already. Also, it is recommended to perform the Set CTN member restriction action under STP actions so that the configuration will be maintained across POR and it will prevent future IEA389I messages from being displayed. The two CTN's now look like the following:



HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System Time

CTN IDCTN02

MembershipUnrestricted CTN

STRATUM 1

M89PTSCTS

STRATUM 2

M256BTS

STP ACTIONS

Add systems to CTN

Configure External Time Source

Deconfigure CTN

Export CTN data (.xls)

Modify assigned server roles

Remove systems from CTN

Set CTN member restriction

Setup new CTN

Advanced Actions

Join existing CTN

Save STP debug data

Split to new CTN

View Pulse Per Second signal

HELP

Time: 1:53:42 PMDate: 9/26/18Time zone: UTC-5:00Current time detailsStatus:

EXTERNAL TIME SOURCE

STRATUM 1

STRATUM 2

STRATUM 3

STRATUM 4

STRATUM 0

NTP9.56.192.86

PTSCTSM89

BTSM256

STP Merge

To start the STP merge process I opened the Manage System Time panel on the HMC. There are two ways to get to the panel, one was is by selecting Manage System Time task from the System Management panel.

The screenshot displays the IBM Hardware Management Console (HMC) Systems Management panel. The top bar indicates 'HMC11: Hardware Management Console Workplace (Version 2.14.1)'. The main area shows a table of systems with the following columns: Select, Name, Status, Activation Profile, Last Used Profile, SE IP Address, Machine Type - Model, and Machine Serial. The 'Manage System Time' task is highlighted in the left sidebar under 'System Management'.

Select	Name	Status	Activation Profile	Last Used Profile	SE IP Address	Machine Type - Model	Machine Serial
<input type="checkbox"/>	CR01	Service required	DEFAULT			2817 - M65	
<input type="checkbox"/>	M10	Service required	DEFAULT			2098 - E10	
<input type="checkbox"/>	M113	Operating	DEFAULT	DEFAULT		3906 - M04	
<input type="checkbox"/>	M114	Operating	DEFAULT			3906 - M04	
<input type="checkbox"/>	M116	Operating	DEFAULT	DEFAULT		3906 - M03	
<input type="checkbox"/>	M256	Operating	DEFAULT			3907 - ZR1	
<input type="checkbox"/>	M253	Operating	DEFAULT			3907 - ZR1	
<input type="checkbox"/>	M312	Service required	DEFAULT			3906 - M04	
<input type="checkbox"/>	M87	Operating	DEFAULT	DEFAULT		3906 - M03	
<input type="checkbox"/>	M89	Operating	DEFAULT			3906 - M05	
<input type="checkbox"/>	M92	Operating	DEFAULT			3906 - M03	
<input type="checkbox"/>	P89	Service required	H89RESET			2827 - H89	
<input type="checkbox"/>	P88	Service required	DEFAULT			2827 - H66	
<input type="checkbox"/>	P89	Operating	P89RESET			2827 - HA1	
<input type="checkbox"/>	S05	Operating	DEFAULT			2964 - N96	
<input type="checkbox"/>	S05B	Service required	DEFAULT			2964 - N96	

Max Page Size: 500 Total: 19 Filtered: 19 Selected: 0

Tasks: Systems Management

Grouping: Manage System Time

Monitors Dashboard

New Partition

Status: Exceptions and Messages

The other way to get to the Manage System Time panel is by selecting the CPC that is part of the CTN you want to work on and then under the configuration tasks, select Manage System Time.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

Home

Systems Management

CR01

M10

M113

M114

M116

M256

M253

M312

M87

M89

M92

P69

P88

P89

S05

S215B

S310

S62

S89

Ensemble Management

Custom Groups

HMC Management

Service Management

Tasks Index

Systems Management > M89

PartitionsTopology

Filter

TasksViews

Select	Name	Status	Activation Profile	Last Used Profile	OS Name	OS Type	OS Level
<input type="checkbox"/>	S53	Not activated	S53	S53			
<input type="checkbox"/>	S54	Operating	S54		S54	z/OS	V2R2
<input type="checkbox"/>	S55	Not activated	S55	S55			
<input type="checkbox"/>	S56	Not activated	S56	S56			
<input type="checkbox"/>	S57	Operating	S57		S57	z/OS	V2R3
<input type="checkbox"/>	S58	Not activated	S58	S58			
<input type="checkbox"/>	S59	Not activated	S59	S59			
<input type="checkbox"/>	S5A	Operating	S5A		S5A	z/OS	V2R3
<input type="checkbox"/>	S5B	Operating	S5B		S5B	z/OS	V2R2
<input type="checkbox"/>	S5C	Not activated	S5C				
<input type="checkbox"/>	S5D	Operating	S5D		S5D	z/OS	V2R3
<input type="checkbox"/>	S5E	Not activated	S5E				
<input type="checkbox"/>	S5F	Operating	S5F		S5F	z/OS	V2R3
<input type="checkbox"/>	S5G	Not activated	S5G				
<input type="checkbox"/>	S5H	Operating	S5H		S5H	z/OS	V2R1

Max Page Size: 500Total: 48Filtered: 48Selected: 0

Tasks: M89

System Details

Toggle Lock

Daily

Recovery

Service

Change Management

Remote Customization

Operational Customization

Configuration

Manage System Time

Perform Model Conversion

System Input/Output Configuration Analyzer

Transmit Vital Product Data

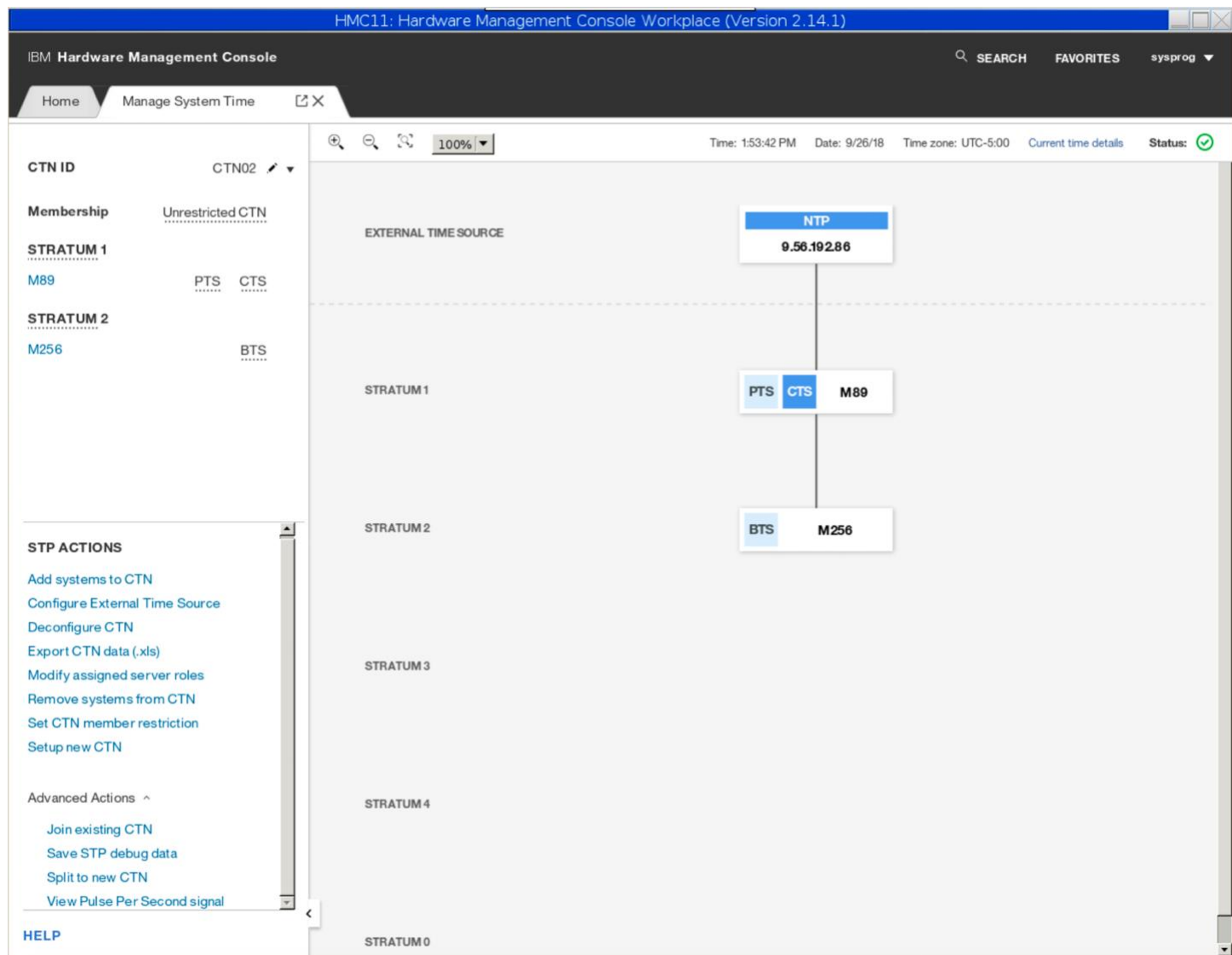
View Frame Layout

Energy Management

Monitor

Status: Exceptions and Messages

It is recommended to have the same ETS configured for both CTNs before a merge is started. For the merge to happen you also need coupling and/or STP links configured between the CPCs you are merging. The two CTNs need to be within 1 second of each other, if they are not then the merge will not happen and you will have to try again once the two CTNs are closer in time. I can look at the layout of CTN01 and CTN02 (as seen in the last two screen shots above). While looking at CTN02 I select Join Existing CTN under the Advanced Actions.



The first step is to select a CTN to join. The only available CTN is CTN01, so I selected that and clicked on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeJoin Existing CTN - CTN02

SELECT EXISTING CTN

CONFIRM CHANGES

Select an existing CTN to join

The CTNs shown on this panel are active.

Current CTN ID: CTN02

CTN01

CTS: M87

GUIDANCE

After joining the selected CTN, all systems within the current CTN are synchronized with the Current Time Server (CTS) of the selected CTN.

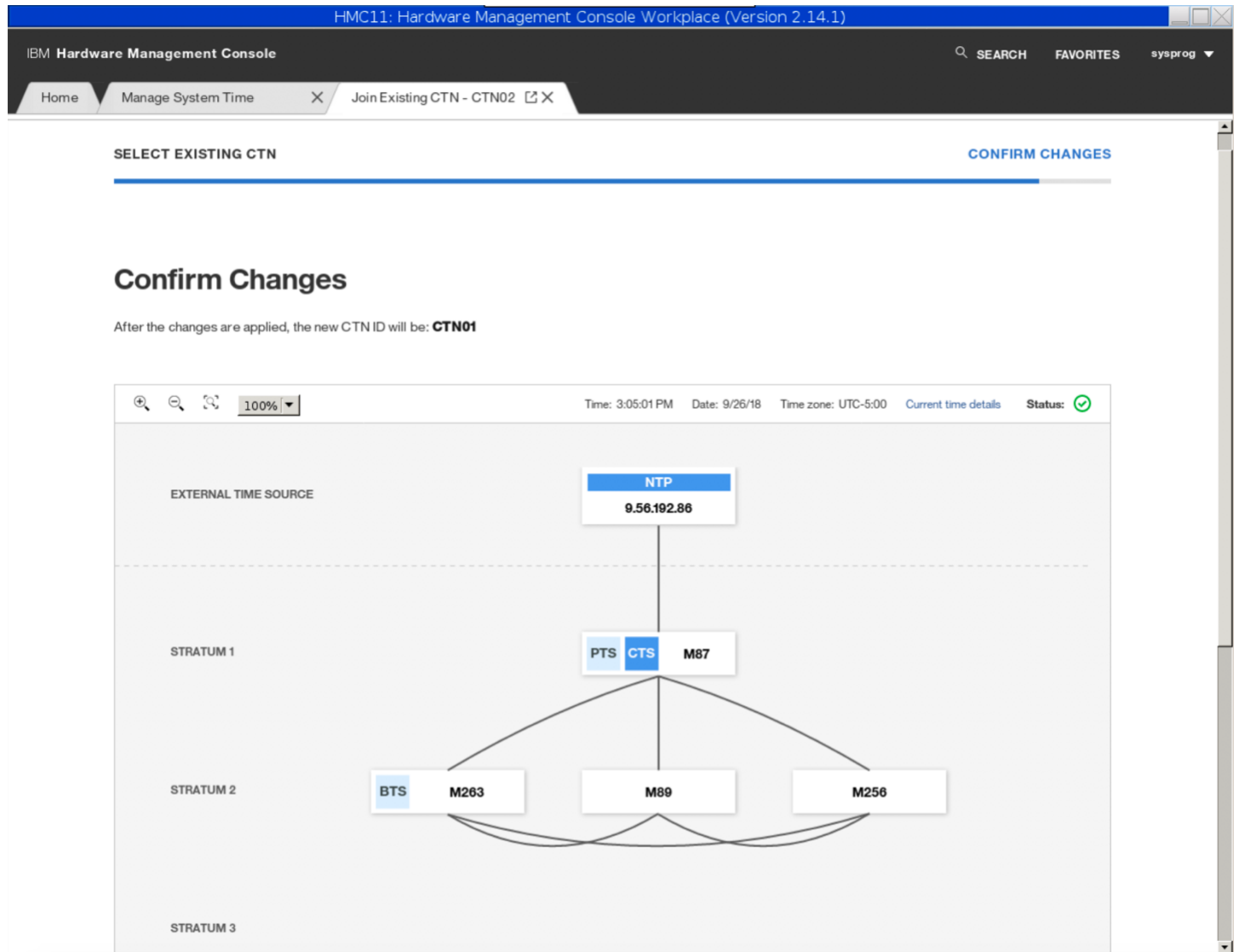
A coupling link must exist between the CTS of the selected CTN and the CTS of the current CTN.

CANCEL

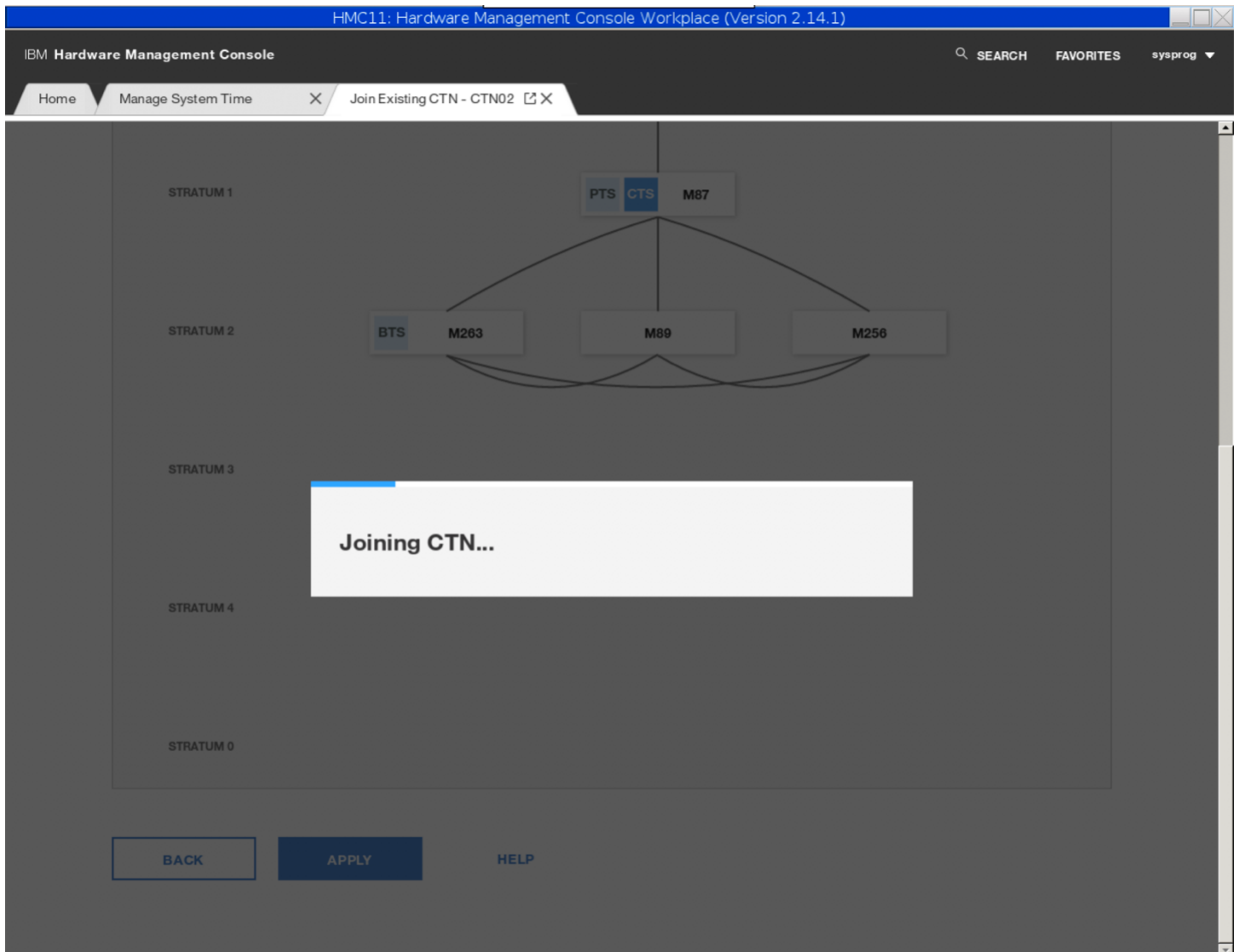
NEXT

HELP

It now shows me a confirmation of what the CTN will look like after the merge. As you can see, the CTN we are merging into, CTN01, will keep its original PTS/CTS and BTS. The CTN that will be doing the merging, CTN02, will have its PTS/CTS and BTS roles removed. Also, it shows the stratum level of each CPC after the merge as well as the defined coupling/STP links between them. As a reminder z14 GA2 can support stratum level 4 but it is recommended that you try and keep the CPCs at a stratum level 2. I confirm that after the join the CTN will be CTN01 with the proper layout and scroll down and click on Apply.



It will now start the join process.



It now tells me that the join process was successfully started.

The screenshot displays the IBM Hardware Management Console (HMC) interface. The title bar at the top reads "HMC11: Hardware Management Console Workplace (Version 2.14.1)". The main header shows "IBM Hardware Management Console" with search, favorites, and a user profile dropdown. The breadcrumb trail indicates the current path: "Home" > "Manage System Time" > "Join Existing CTN - CTN02".

The central area features a hierarchical diagram of CTNs (Common Time Nodes) organized into strata:

- STRATUM 1:** Contains nodes PTS, CTS, and M87. The CTS node is highlighted in blue.
- STRATUM 2:** Contains nodes BTS, M263, M89, and M256.

Connections are shown between CTS and M87, and between CTS and the nodes in Stratum 2. A green checkmark icon is positioned to the left of the main message box.

CTN join task started successfully (ACT39328I)

The process to join the two specified STP CTNs was successfully started. When the joining CTN is finished adjusting its time to the target CTN, the join will complete.

A blue "CLOSE" button is located at the bottom right of the message box.

At the bottom of the console, there are three buttons: "BACK", "APPLY", and "HELP".

From here a majority of the STP actions are locked out as it is joining the two CTNs. It is getting the times of the two CTNs in sync and then it will merge them together. As you can see at the top of the panel there is an estimated countdown clock. The two CTN's will not merge unless the system clocks are within one second of each other. If the two CTNs are the maximum one second apart when the join starts it will take about seven hours for the two CTNs to sync up to the same time.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System Time

CTN IDCTN02

MembershipUnrestricted CTN

STRATUM 1

M89PTSCTS

STRATUM 2

M256BTS

STP ACTIONS

Advanced Actions

Save STP debug data

View Pulse Per Second signal

HELP

Time: 3:12:08 PMDate: 9/26/18Time zone: UTC-5:00Current time detailsStatus:

This CTN is joining the CTN01 CTN. Some actions are unavailable. Estimated time remaining: 12 minutes...Cancel Join

EXTERNAL TIME SOURCE

STRATUM 1

STRATUM 2

STRATUM 3

STRATUM 4

NTP

9.56.192.86

PTS

CTS

M89

BTS

M256

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Once the two CTN's join you will see the following messages on the z/OS systems that are merging into the CTN01.

```

16.03.35 S5A          IEA389I THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
16.03.36 S5A          IEA389I THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
16.03.36 S5A          IXC438I COORDINATED TIMING INFORMATION HAS BEEN UPDATED
                        FOR SYSTEM: S5A
                        PREVIOUS CTNID: CTN02
                        CURRENT CTNID: CTN01
16.03.36 S5E          *IXC439E ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOT SYNCHRONIZED
                        TO THE SAME TIME REFERENCE.
                        SYSTEM: S5B IS USING CTNID: CTN02
                        SYSTEM: S55 IS USING CTNID: CTN02
                        SYSTEM: S5A IS USING CTNID: CTN01
                        SYSTEM: S5D IS USING CTNID: CTN01
                        SYSTEM: S50 IS USING CTNID: CTN01
                        SYSTEM: S5C IS USING CTNID: CTN02
                        SYSTEM: S51 IS USING CTNID: CTN02
                        SYSTEM: S58 IS USING CTNID: CTN01
                        SYSTEM: S59 IS USING CTNID: CTN02
                        SYSTEM: S5H IS USING CTNID: CTN02
                        SYSTEM: S5F IS USING CTNID: CTN02
                        SYSTEM: S5E IS USING CTNID: CTN01
                        SYSTEM: S56 IS USING CTNID: CTN02
                        SYSTEM: S52 IS USING CTNID: CTN02
                        SYSTEM: S53 IS USING CTNID: CTN02
                        SYSTEM: S5G IS USING CTNID: CTN01
                        SYSTEM: S54 IS USING CTNID: CTN02
                        SYSTEM: S57 IS USING CTNID: CTN01
16.03.37 S5A          IXC435I ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOW SYNCHRONIZED
                        TO THE SAME TIME REFERENCE.
                        SYSTEM: S5B IS USING CTNID: CTN01
                        SYSTEM: S55 IS USING CTNID: CTN01
                        SYSTEM: S5A IS USING CTNID: CTN01
                        SYSTEM: S5D IS USING CTNID: CTN01
                        SYSTEM: S50 IS USING CTNID: CTN01
                        SYSTEM: S5C IS USING CTNID: CTN01
                        SYSTEM: S51 IS USING CTNID: CTN01
                        SYSTEM: S58 IS USING CTNID: CTN01
                        SYSTEM: S59 IS USING CTNID: CTN01
                        SYSTEM: S5H IS USING CTNID: CTN01

```

SYSTEM: S5F	IS USING CTNID: CTN01
SYSTEM: S5E	IS USING CTNID: CTN01
SYSTEM: S56	IS USING CTNID: CTN01
SYSTEM: S52	IS USING CTNID: CTN01
SYSTEM: S53	IS USING CTNID: CTN01
SYSTEM: S5G	IS USING CTNID: CTN01
SYSTEM: S54	IS USING CTNID: CTN01
SYSTEM: S57	IS USING CTNID: CTN01

The panel now tells us that the merge was completed successfully.

The screenshot displays the IBM Hardware Management Console Workplace (Version 2.14.1) interface. The top navigation bar includes 'Home', 'Manage System Time', and a search bar. The left sidebar lists 'CTN ID' (CTN01), 'Membership' (Unrestricted CTN), and 'STRATUM 1' (M87, PTS, GTS) and 'STRATUM 2' (M263, M256, M89, BTS). The main area shows a diagram of the system time source hierarchy, including 'EXTERNAL TIME SOURCE', 'NTP 9.56.192.86', 'STRATUM 1' (PTS, CTS, M87), and 'STRATUM 3', 'STRATUM 4', and 'STRATUM 0'. A central dialog box with a green checkmark icon and the title 'Join successful (ACT39333I)' states: 'The two CTNs have joined successfully. The new CTN ID is CTN01.' A 'CLOSE' button is located at the bottom right of the dialog. The bottom left corner contains 'STP ACTIONS' and 'HELP' sections.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console
SEARCH
FAVORITES
sysprog

Home
Manage System Time
Operating System Messages

CTN ID
CTN01

Membership
Unrestricted CTN

STRATUM 1
M87
PTS
CTS

STRATUM 2
M263
M256
M89
BTS

STP ACTIONS
Add systems to CTN
Configure External Time Source
Deconfigure CTN
Export CTN data (.xls)
Modify assigned server roles
Remove systems from CTN
Set CTN member restriction
Setup new CTN

Advanced Actions
Join existing CTN
Save STP debug data
Split to new CTN
View Pulse Per Second signal

HELP

Time: 4:15:50 PM
Date: 9/26/18
Time zone: UTC-5:00
Current time details
Status:

EXTERNAL TIME SOURCE
NTP
9.56.192.86

STRATUM 1
PTS
CTS
M87

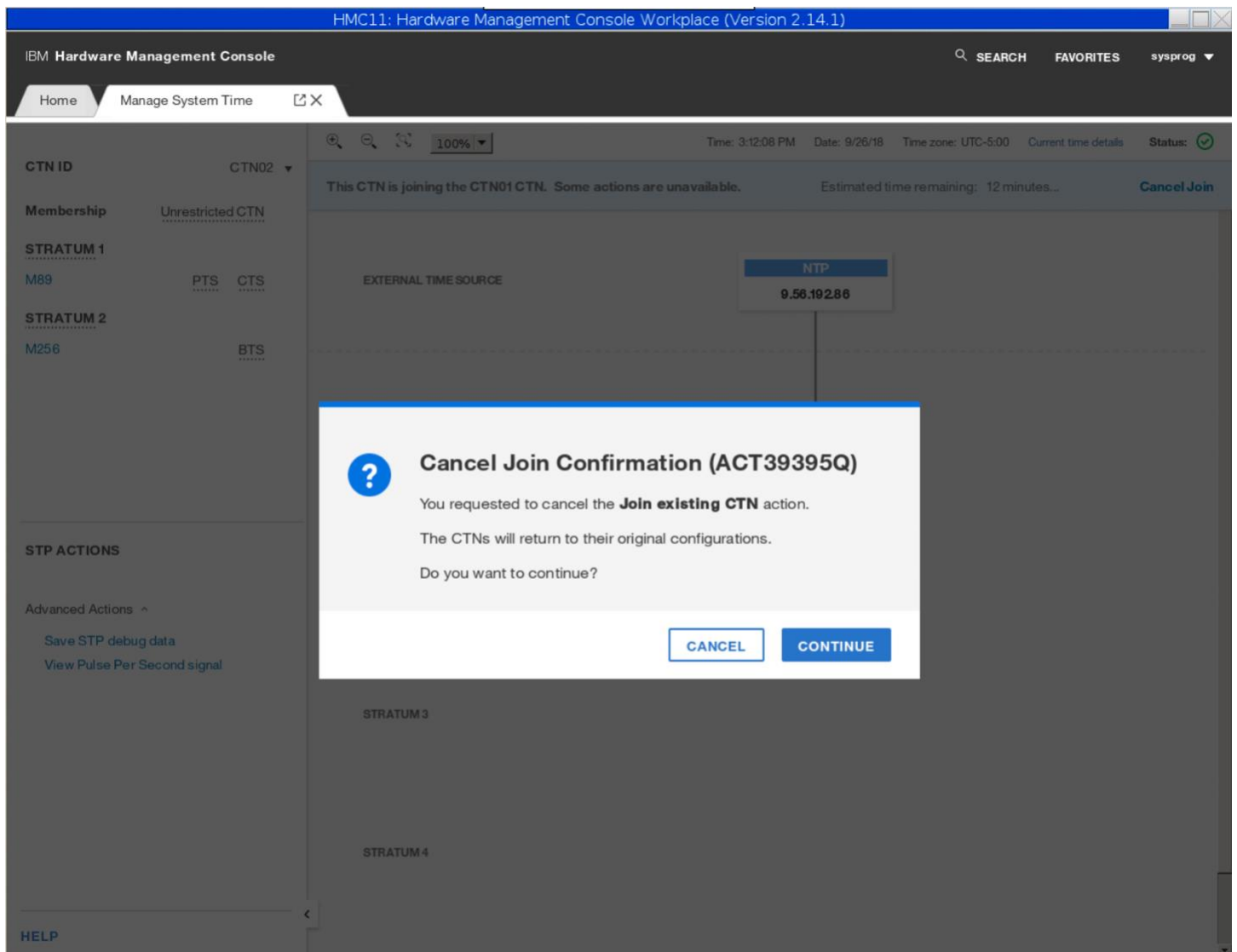
STRATUM 2
BTS
M263
M256
M89

STRATUM 3

STRATUM 4

STRATUM 0

If for some reason during the CTN time sync up you wanted to cancel the join, you can click on the cancel button and it will ask you if you are sure you want to cancel and the two CTNs will return to their original split configuration.



Once you click on continue it goes through with the cancel operation.

IBM Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

Home Manage System Time

CTN ID CTN02

Membership Unrestricted CTN

STRATUM 1

M89 PTS CTS

STRATUM 2

M256 BTS

STP ACTIONS

Advanced Actions: ^

Save STP debug data

View Pulse Per Second signal

HELP

Time: 3:12:08 PM Date: 9/26/18 Time zone: UTC-5:00 Current time details Status: ✓

This CTN is joining the CTN01 CTN. Some actions are unavailable. Estimated time remaining: 12 minutes... Cancel Join

EXTERNAL TIME SOURCE

NTP 9.56.192.86

STRATUM1

PTS CTS M89

STRATUM3

STRATUM4

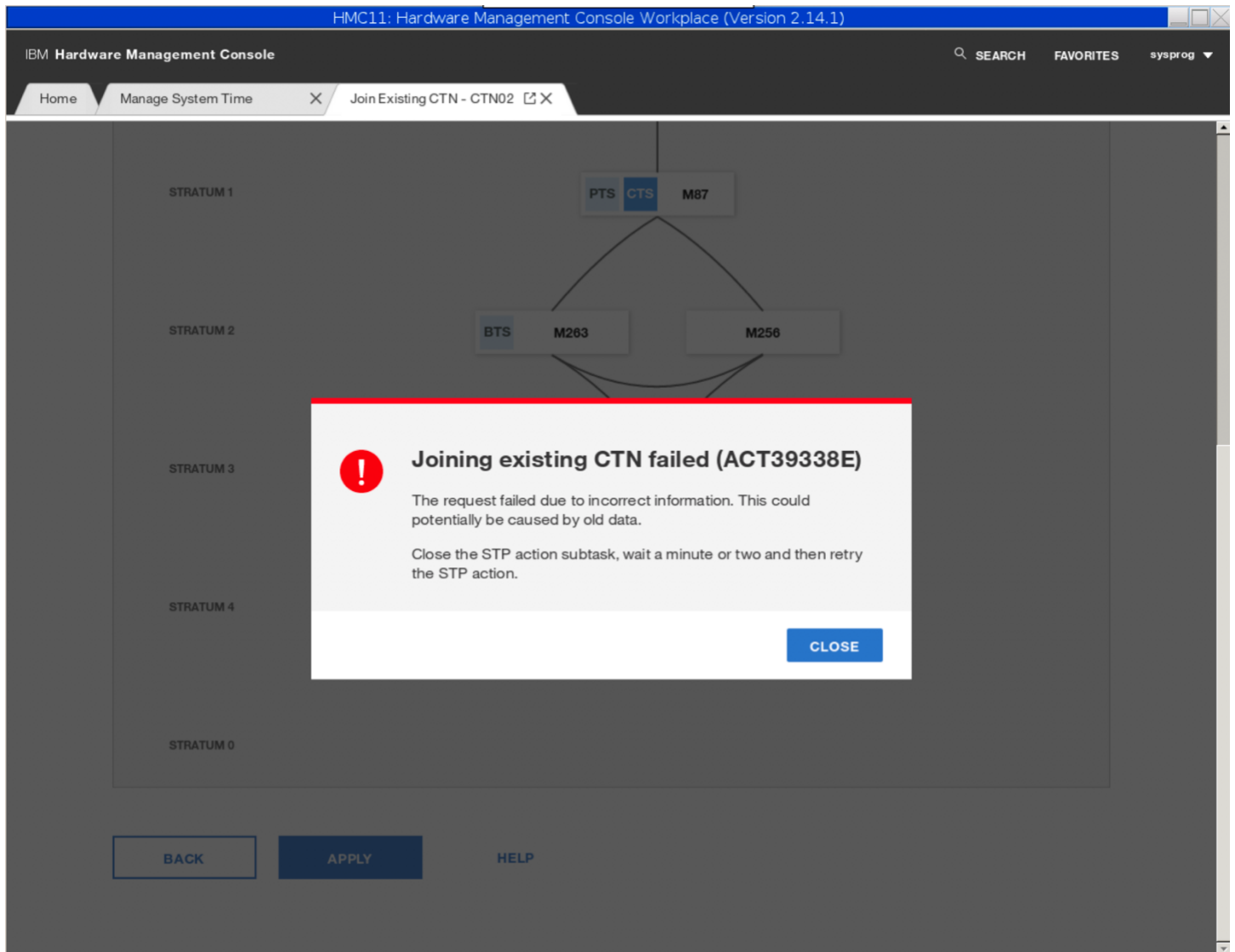
Canceling "Join existing CTN" process

The CTNs will return to their original configurations...

Then it lets you know that the cancel operation was successful and the two CTNs are still split.

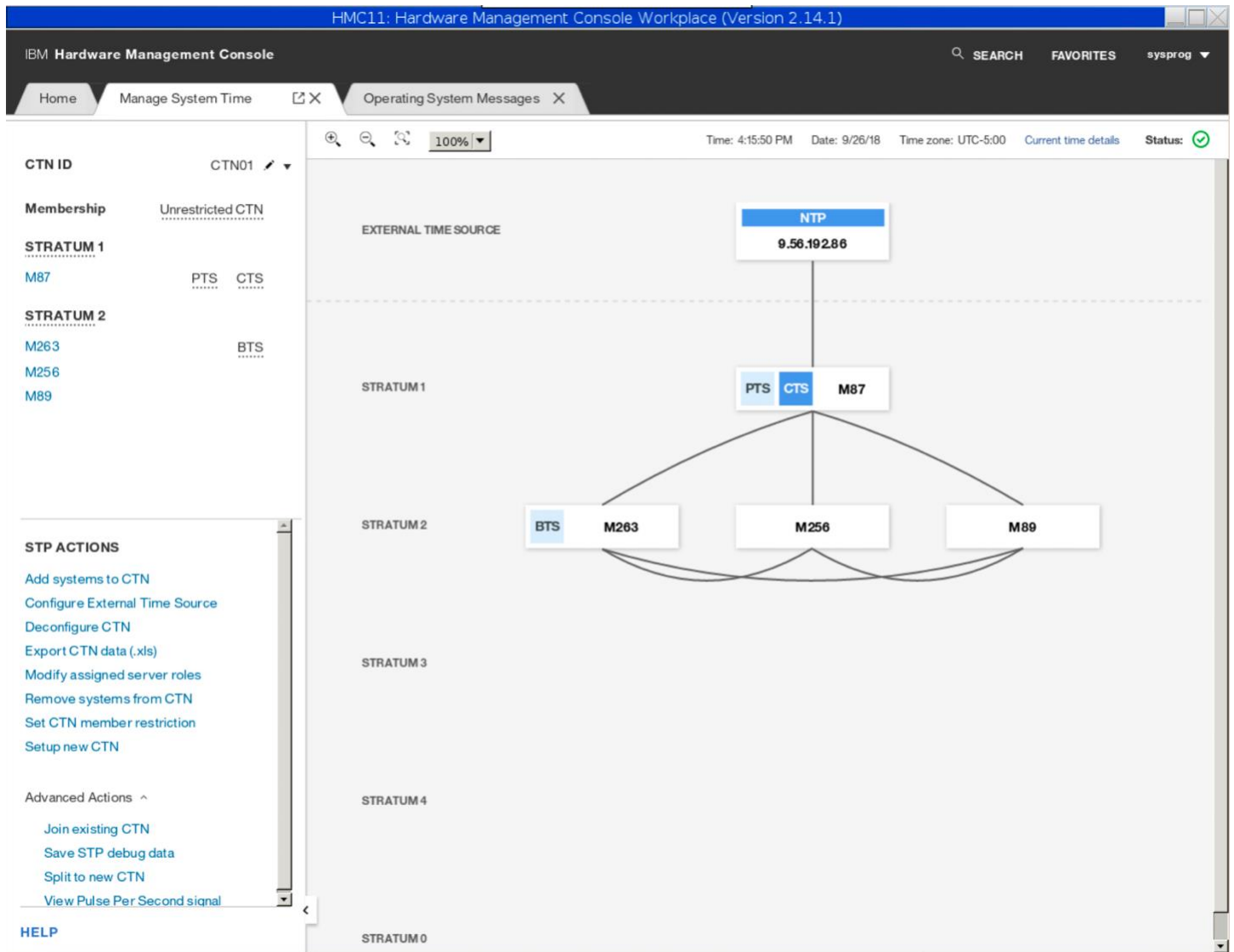
The screenshot displays the IBM Hardware Management Console Workplace (Version 2.14.1) interface. The top navigation bar includes 'Home', 'Manage System Time', and a search bar. The left sidebar lists 'CTN ID' (CTN02), 'Membership' (Unrestricted CTN), and 'STP ACTIONS' (Add systems to CTN, Configure External Time Source, Deconfigure CTN, Export CTN data (.xls), Modify assigned server roles, Remove systems from CTN, Set CTN member restriction, Setup new CTN, Advanced Actions, Join existing CTN, Save STP debug data, Split to new CTN, View Pulse Per Second signal). The main area shows a diagram of the CTN structure with 'EXTERNAL TIME SOURCE' (NTP 9.56.192.86) and 'STRATUM 1' (PTS, CTS, M89). A green checkmark icon and a message box indicate 'Join canceled successfully (ACT39335I)' with the text 'The two CTNs did not Join and have returned to their original configurations.' and a 'CLOSE' button.

Sometimes the panel could have incorrect information and an action is not available. If that happens it will give you a warning and ask you to close and reopen the panel. For example, I too quickly tried to restart the STP Join operation after canceling it, and it told me the join failed because it was using old data. I closed the panel and waited a few minutes for it to refresh the current configuration and then tried again and it was successful the second time.

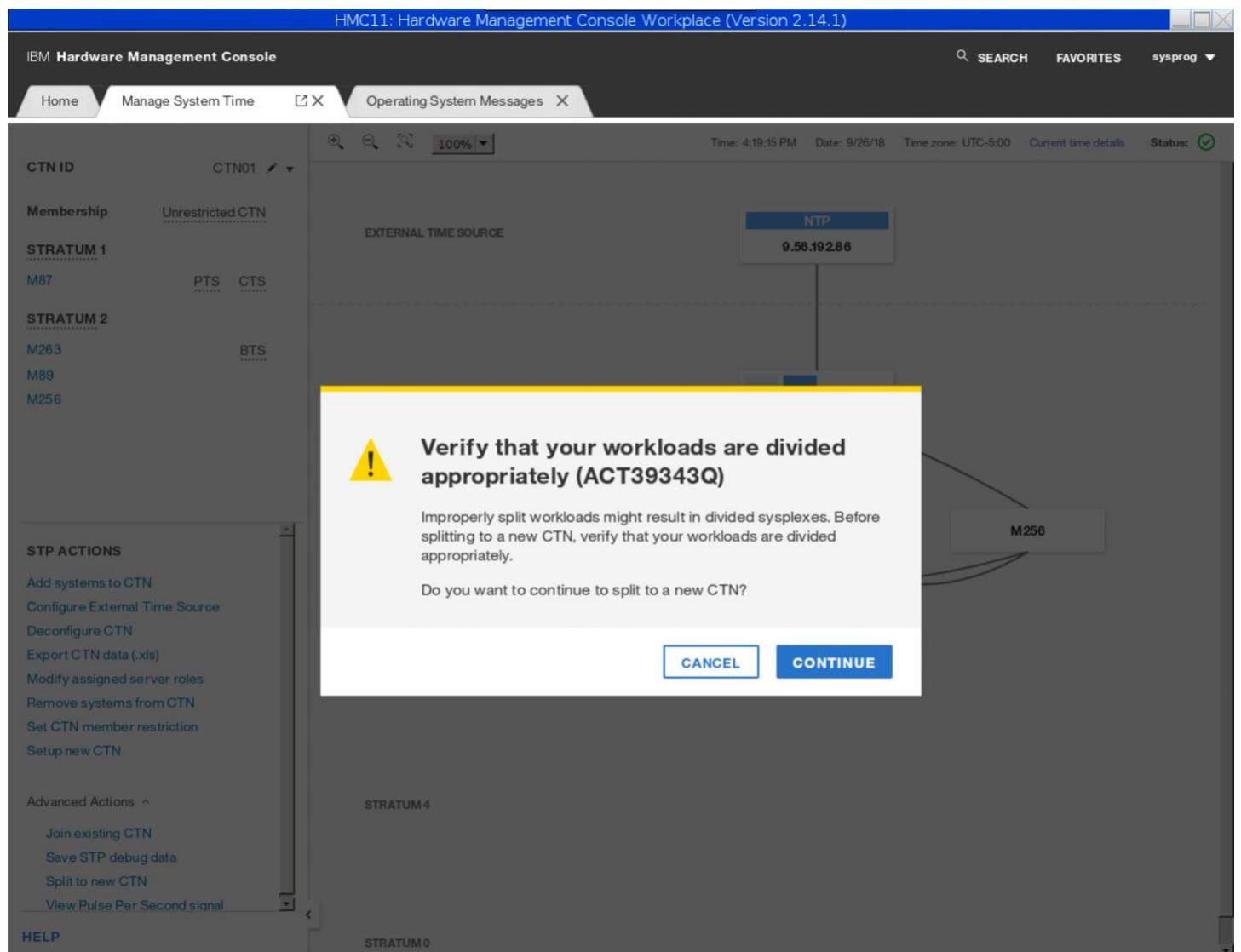


STP Split with an LPAR on the wrong side

I already showed in this document a proper STP Split, now I am going to show what will happen if you split away CPCs where there is a sysplex running across the split. For example, let's say in the following configuration I want to again split away M89 and M256 into their own CTN, but I have z/OS and coupling facilities running on M87. It will give me a warning about this before it does the split. So, I am starting with the following original CTN01 configuration again.



I will select Split to New CTN under the Advanced Actions. A warning will be issued to ensure the sysplexes are on the proper CPCs, but for the purpose of a demonstration, continue is clicked. **This would not be recommended in a real production environment and corrective action should be taken.**



I then assign the new CTN a name of CTN02 and click on next.

The screenshot shows the IBM Hardware Management Console (HMC) interface. The title bar indicates 'HMC11: Hardware Management Console Workplace (Version 2.14.1)'. The main header includes 'IBM Hardware Management Console', a search bar, and links for 'SEARCH', 'FAVORITES', and 'sysprog'. Below the header, there are tabs for 'Home', 'Manage System Time', 'Split to New CTN - CTN01', and 'Operating System Messages'. The main content area is titled 'Set the new Coordinated Timing Network's (CTN) ID' and is part of a four-step process: 'SET NEW CTN ID', 'SPECIFY CTN MEMBERS', 'CHOOSE PTS', and 'CONFIRM CHANGES'. The first step is active. The text explains that the CTN ID is an identifier used to indicate whether the server has been configured to be part of a CTN and, if so configured, identifies the CTN. A text input field labeled 'CTN ID' contains the value 'CTN02'. To the right, a 'GUIDANCE' section states: 'Every server that will participate in the configured STP-only CTN will have the same CTN ID. The CTN ID is case sensitive and one to eight characters long. The valid characters are A-Z, a-z, 0-9, and _.' At the bottom, there are three buttons: 'CANCEL', 'NEXT', and 'HELP'.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time Split to New CTN - CTN01 Operating System Messages

SET NEW CTN ID SPECIFY CTN MEMBERS CHOOSE PTS CONFIRM CHANGES

Set the new Coordinated Timing Network's (CTN) ID

The CTN ID is an identifier used to indicate whether the server has been configured to be part of a CTN and, if so configured, identifies the CTN.

CTN ID

GUIDANCE

Every server that will participate in the configured STP-only CTN will have the same CTN ID. The CTN ID is case sensitive and one to eight characters long. The valid characters are A-Z, a-z, 0-9, and _.

[CANCEL](#) [NEXT](#) [HELP](#)

Then it will ask me which CPCs I would like to split away into the new CTN. I select both M89 and M256 and click on next.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeSplit to New CTN - CTN01Operating System Messages

SET NEW CTN IDSPECIFY CTN MEMBERSCHOOSE PTSCONFIRM CHANGES

Specify CTN members for split

Select systems from the current CTN to be flagged to split to the new CTN. Unflag a system by selecting it again.

CTN ID: CTN01 (current CTN)

M89

M256

GUIDANCE

Systems shown as available to split from the original CTN are not assigned roles. If you would like to select a system that currently has a role, launch the **Modify assigned server roles** action and remove the role.

PREVIOUS SELECTIONS

New CTN ID
CTN02

BACK

NEXT

HELP

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It will now warn me that with the two CPCs selected I will be splitting z/OS and coupling facility LPARs away from SVPLEX5. It shows me which z/OS and coupling facilities will be running in which CTN after the split and is warning me that members of the same sysplex are being split across the two CTNs. So, I can see that in CTN01 on M87, I will be leaving behind z/OS LPAR S57 and coupling facility X5CFM87.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeSplit to New CTN - CTN01Operating System Messages

SET NEW CTN ID

SPECIFY CTN MEMBERS

CHOOSE PTS

CONFIRM CHANGES

Specify CTN members

Select systems from the current CTN and select it again.

CTN ID: CTN01 (current CTN)

M89M256

BACK

Identical sysplex names exist

The systems you selected to be split have LPARs with the same sysplex name as ones in the original CTN.

CTN02CTN01

System name	Sysplex name	LPAR name
^ M87	SVPLEX5	2 lpars
		X5CFM87
		S57

Verify that your workloads are divided appropriately to determine if the sysplex is shared.

Do you want to continue with the selected systems to perform the CTN split?

CANCELCONTINUE

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For CTN02 it shows me which z/OS and coupling facilities will be split away into the new CTN.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeSplit to New CTN - CTN01Operating System Messages

SET NEW CTN ID

SPECIFY CTN MEMBERS

CHOOSE PTS

CONFIRM CHANGES

Specify CTN members

Select systems from the current CTN to be split into the new CTN. You can select a system only once.

CTN ID: CTN01 (current CTN)

M89M256

Identical sysplex names exist

The systems you selected to be split have LPARs with the same sysplex name as ones in the original CTN.

CTN02

CTN01

System name	Sysplex name	LPAR name
^ M256	SVPLEX5	4 lpars
		S53
		S56
		S55
		X5CFM256
^ M89	SVPLEX5	15 lpars
		S5A

Verify that your workloads are divided appropriately to determine if the sysplex is shared.

Do you want to continue with the selected systems to perform the CTN split?

BACK

CANCEL

CONTINUE

If I did not verify this earlier, I should cancel the split and go resolve my issue with S57 and X5CFM87. I should make sure that the workload is properly shut down on that system and structures are moved off of the coupling facility and I should vary S57 out of SVPLEX5 and deactivating X5CFM87. Instead I am going to show you what will happen if you don't do that, I hit continue and let it wait state z/OS system S57 and leave behind coupling facility X5CFM87. I click on continue **(which in a real production environment I would not do)** and I assign the Preferred Time Server to M89.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time Split to New CTN - CTN01 Operating System Messages

SET NEW CTN ID SPECIFY CTN MEMBERS CHOOSE PTS CONFIRM CHANGES

Choose Preferred Time Server (PTS) for the new CTN

The Preferred Time Server controls time synchronization among systems in the CTN during normal operations. In the topology of an STP-only CTN, the system that you select for this role is placed in Stratum 1.

M89

M256

BACK

NEXT

HELP

GUIDANCE

Select a system that has connectivity to the systems that you plan to assign to the Backup Time Server and Arbiter roles. Once the CTN is configured, launch the "Modify assigned server roles" wizard to assign the Backup Time Server and Arbiter.

PREVIOUS SELECTIONS

New CTN ID
CTN02

It will then show me the configuration of the two CTNs after the split. Happy with the way it looks I tell it to apply the changes.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System TimeSplit to New CTN - CTN01Operating System Messages

SET NEW CTN IDSPECIFY CTN MEMBERSCHOOSE PTSCONFIRM CHANGES

Confirm Changes

Select a CTN ID to view how it will be configured once the changes are applied.

CTN02

CTN01

100%

Time: 4:19:13 PMDate: 9/26/18Time zone: UTC-5:00Current time detailsStatus:

EXTERNAL TIME SOURCE

STRATUM 1

STRATUM 2

NTP

9.56.192.86

PTS

CTS

M89

M256

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As it splits away SVPLEX5 on M89 and M256 into the new CTN, z/OS will wait state the S57 image.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Split to New CTN - CTN01 X Operating System Messa... X

Operating System Messages

Partition: M87:S57

Actions Search

Timestamp	Message	Priority
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH2 LIST 282 TO COMMUNICATE WITH SYSTEM S53 WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08220000 0000000C 08750C02 0000000C 0C1C0C06	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH5 LIST 302 TO COMMUNICATE WITH SYSTEM S5A WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08220000 0000000C 08750C02 0000000C 0C1C0C06	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH5 LIST 290 TO COMMUNICATE WITH SYSTEM S59 WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08780006 031A0000 00000000 00000000 00000000	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH3 LIST 296 TO COMMUNICATE WITH SYSTEM S5B WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08780006 031A0000 00000000 00000000 00000000	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH4 LIST 308 TO COMMUNICATE WITH SYSTEM S5B WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08780006 031A0000 00000000 00000000 00000000	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH4 LIST 304 TO COMMUNICATE WITH SYSTEM S5D WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08780006 031A0000 00000000 00000000 00000000	-
2018269 16.26.24 S57	IXC308I STOP PATHIN REQUEST FOR STRUCTURE IXCplex PATH5 LIST 292 TO COMMUNICATE WITH SYSTEM S5I WAS NOT SUCCESSFUL: AN UNCONDITIONAL STOP PREEMPTED THIS REQUEST DIAG073:08220000 0000000C 08750C02 0000000C 0C1C0C06	-
2018269 16.26.26 S57	*IXC436W THIS SYSTEM HAS LOST TIME SYNCHRONIZATION WITH THE OTHER SYSTEMS IN THE SYSPLEX AND HAS BEEN PLACED INTO A NON-RESTARTABLE WAIT STATE CODE: 0A2 REASON CODE: 15A	✓

Total: 121 Selected: 0

Command: Send

☐ Priority message

Close Help

As the split occurs you will see z/OS messages such as the following. The 16:25:57.21 *IXC439E message is displayed with only system S57 not updated. Thirty seconds later the 16:26:26.40 IXC435I message was displayed with S57 removed, corresponding with the above IXC468W wait state message. Now the split successfully occurs. Also, the IXL162E message is displayed to show that the coupling facility on M87 now has a CTNID mismatch. Since time ordering is no longer enabled, this coupling facility can no longer be used.

S5B	18269 16:25:55.59	00000010	IEA389I THIS STP NETWORK HAS NO SERVER TO ACT AS BACKUP
S5B	18269 16:25:55.59	00000010	IEA389I THIS STP NETWORK HAS NO SERVER TO ACT AS ARBITER
S5B	18269 16:25:55.59	00000010	IXC438I COORDINATED TIMING INFORMATION HAS BEEN UPDATED 681
		681 00000010	FOR SYSTEM: S5B
		681 00000010	PREVIOUS CTNID: CTN01...
		681 00000010	CURRENT CTNID: CTN02...
S5B 682	18269 16:25:55.59	00000010	*IXL162E CF REQUEST TIME ORDERING: REQUIRED AND WILL NOT BE ENABLED
		682 00000010	COUPLING FACILITY 003906.IBM.02.00000000150E8
		682 00000010	PARTITION: 17 CPCID: 00
		682 00000010	REASON: CTNID MISMATCH. CF CTNID: CTN01...
S5B	18269 16:25:55.60	00000010	*IXC439E ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOT SYNCHRONIZED 683
		683 00000010	TO THE SAME TIME REFERENCE.
		683 00000010	SYSTEM: S5B IS USING CTNID: CTN02...
		683 00000010	SYSTEM: S55 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5A IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5D IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S50 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5C IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S51 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S58 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S59 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5H IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5F IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5E IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S56 IS USING CTNID: CTN02...
		683 00000010	SYSTEM: S52 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S53 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S5G IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S54 IS USING CTNID: CTN01...
		683 00000010	SYSTEM: S57 IS USING CTNID: CTN01...
S51	18269 16:25:57.21	00000010	*IXC439E ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOT SYNCHRONIZED 687
		687 00000010	TO THE SAME TIME REFERENCE.
		687 00000010	SYSTEM: S5B IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S55 IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S5A IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S5D IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S50 IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S5C IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S51 IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S58 IS USING CTNID: CTN02...
		687 00000010	SYSTEM: S59 IS USING CTNID: CTN02...

		687 00000010	SYSTEM: S5H	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S5F	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S5E	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S56	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S52	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S53	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S5G	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S54	IS USING CTNID: CTN02...	
		687 00000010	SYSTEM: S57	IS USING CTNID: CTN01...	
S59	18269 16:26:26.40	00000010	IXC435I ALL SYSTEMS IN SYSPLEX SVPLEX5 ARE NOW SYNCHRONIZED 945		
		945 00000010	TO THE SAME TIME REFERENCE.		
		945 00000010	SYSTEM: S5B	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S55	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5A	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5D	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S50	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5C	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S51	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S58	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S59	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5H	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5F	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5E	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S56	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S52	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S53	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S5G	IS USING CTNID: CTN02...	
		945 00000010	SYSTEM: S54	IS USING CTNID: CTN02...	

And then the split happens successfully, just with one fewer z/OS LPAR and coupling facility.

HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCH FAVORITES sysprog

Home Manage System Time X Split to New CTN - CTN01 X Operating System Messages X

SET NEW CTN ID SPECIFY CTN MEMBERS CHOOSE PTS CONFIRM CHANGES

Confirm Changes

Select a CTN ID to view how it will be configured once the changes are applied.

CTN02 CTN01

EXTERNAL TIME SOURCE

STRATUM 1

STRATUM 2

PTS CTS M89

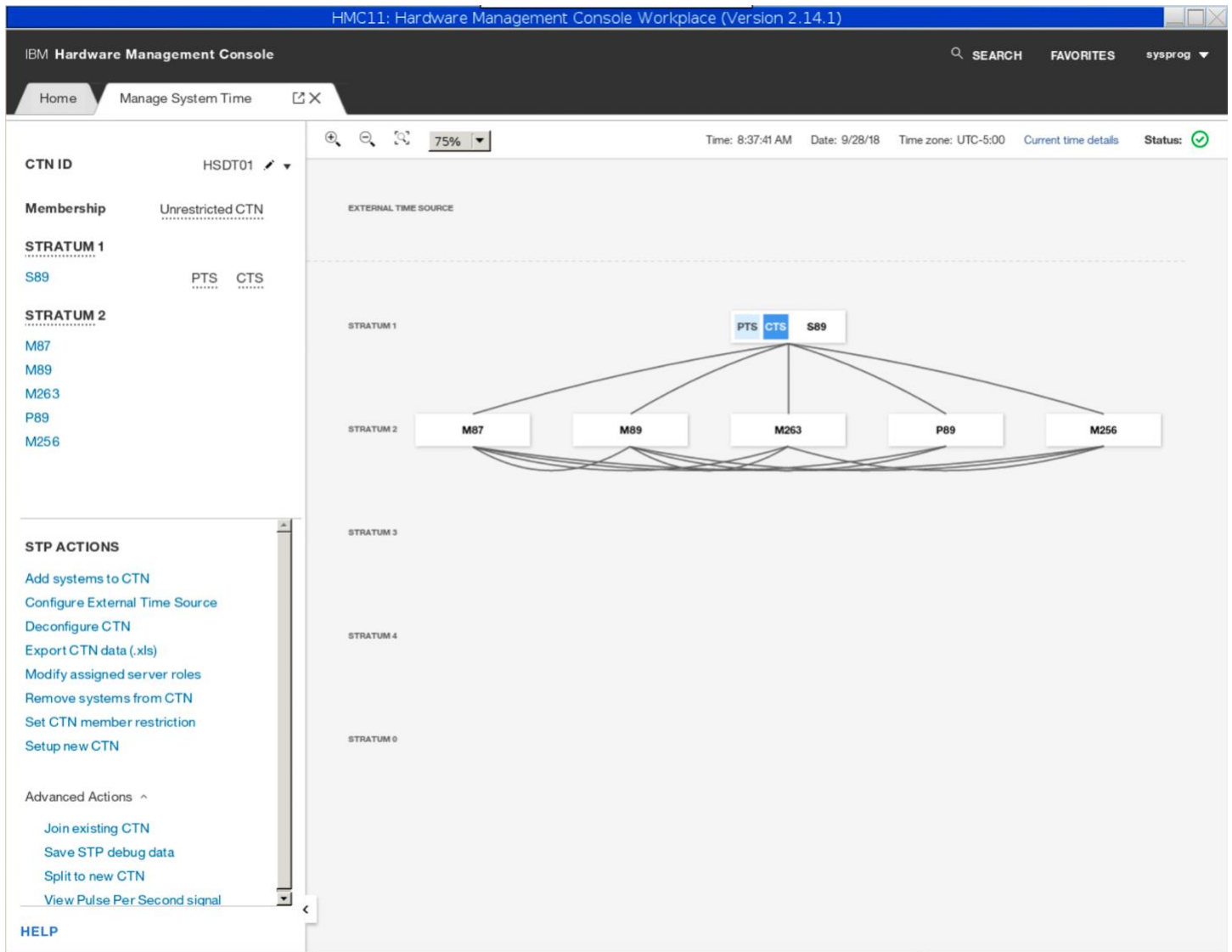
M256

current time details Status:

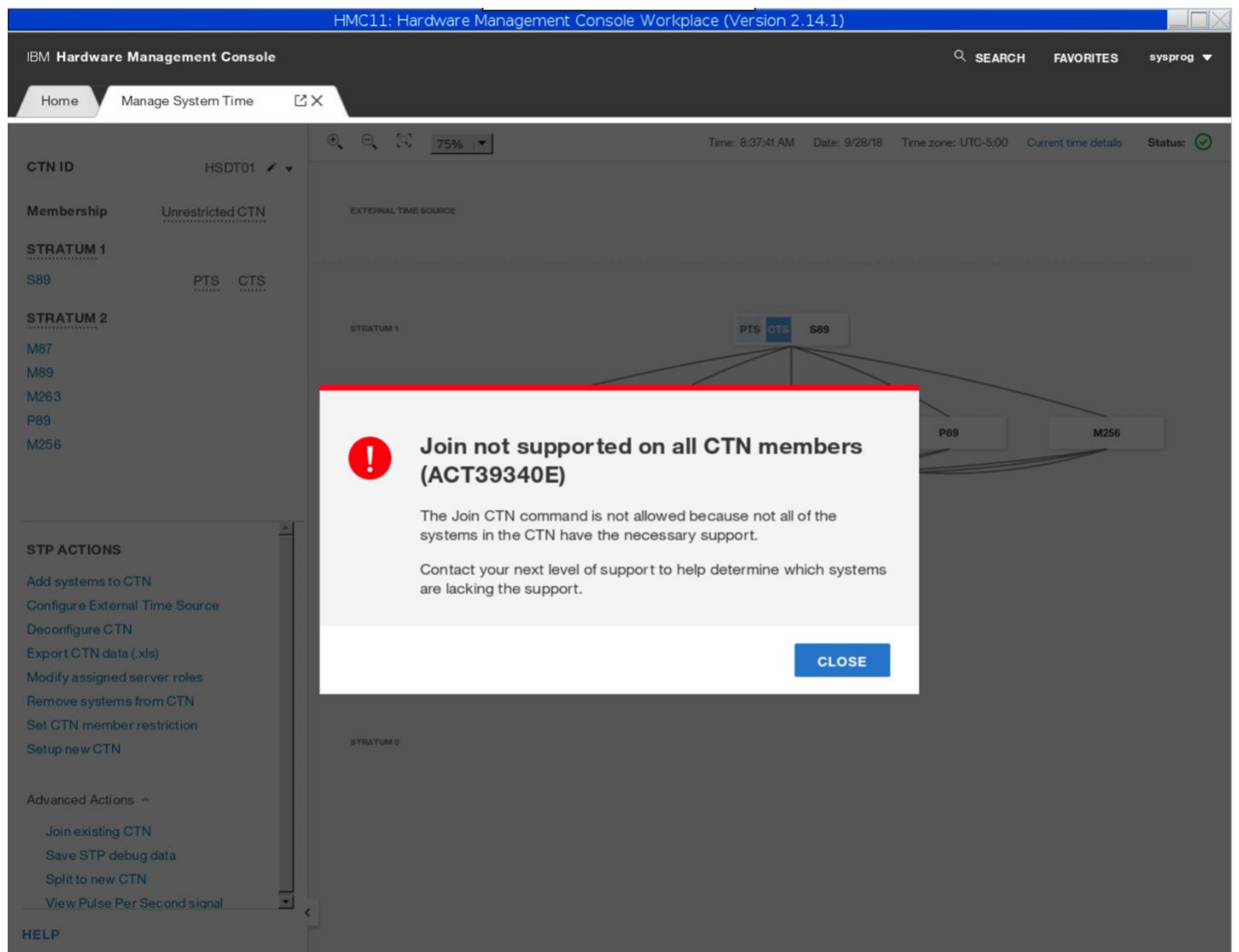
The CTN split task completed successfully (ACT39329I)
The Split task completed and the new CTN has been created.
[CLOSE](#)

STP Split or Merge with a System Involved that does not have the Proper Support

I have the following CTN which is two z14 (M89 and M87), two ZR1 (M256 and M263), a z13 (S89) and an zEC12 (P89) CPCs in the same CTN.



If I try and do either a split or a merge it tells me that it is not possible because it is not supported on the z13 nor is it supported on the zEC12.



HMC11: Hardware Management Console Workplace (Version 2.14.1)

IBM Hardware Management Console

SEARCHFAVORITESsysprog

HomeManage System Time

CTN IDHSDT01

MembershipUnrestricted CTN

STRATUM 1

S89PTSCTS

STRATUM 2

M87

M89

M263

P89

M256

STP ACTIONS

Add systems to CTN

Configure External Time Source

Deconfigure CTN

Export CTN data (.xls)

Modify assigned server roles

Remove systems from CTN

Set CTN member restriction

Setup new CTN

Advanced Actions

Join existing CTN

Save STP debug data

Split to new CTN

View Pulse Per Second signal

HELP

75%

Time: 8:37:41 AMDate: 9/28/18Time zone: UTC-5:00Current time detailsStatus:

EXTERNAL TIME SOURCE

STRATUM 1

PTSCTS

S89

P89

M256

STRATUM 2

!

Split not supported on all CTN members (ACT39330E)

The Split CTN command is not allowed because not all of the systems in the CTN have the necessary support.

Contact your next level of support to help determine which systems are lacking the support.

CLOSE