



Symmetrix Managment Console to oprogramowanie przeznaczone do zarządzania wszystkimi macierzami EMC w DataCenter z jednego miejsca.





Symmetrix Managment Console to oprogramowanie przeznaczone dla administratorów zajmujących się przydzielaniem zasobów dyskowych w serwerowniach oraz monitoringiem systemów pamięci masowych.

Prezentacja przedstawia cztery główne aspekty konfiguracji macierzy:

- 1. Tworzenie dysków
- 2. Budowanie dużych woluminów
- 3. Mapowanie zasobów macierzy do kanałów
- 4. Maskowanie zasobów dla określonych WWN'ów LUN masking





Tworzenie nowego dysku – podstawowym elementem macierzy, który udostępnimy jest dysk. Aby stworzyć dysk na macierzy należy z menu kontekstowego wybrać:

- 1. *Macierz* (jej numer seryjny) możemy zarządzać kilkoma macierzami w SMC 2. *Device Configuration*
- 3. Create Device

EMC Symmetrix Management Console	(localhost:7070)) - Microsoft Internet	Explorer			_ 8 ×
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	Device Configu	ration >	Device Lock Mair	tenance	51562	
	FBA Meta Devi	ce Configuration >	Create Device	N	60910	
🗳 21fd00051e9044c7 F/	z/OS Configura	ition >	Duplicate Device	<i>N</i>		
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- Directors (12)	Device Pool Ma	nagement >	Set Device Attrib	utes		
+ Fibre (4)	Replication	>	Set Device Statu:			
+ Disks (4)	Optimizer	>	Delete Device			
	Priority Control and Cache Partition >		Change Device T	o RDF Configuration		
	Performance A	nalyzer >	Allocate/Free Thi	n Device		
	Alerts	>	pare Disks	2		
		reamper or oncorriga	ed Disks	20		
		Maximum Number of H	lypers per Disk	64		
Devices (2)		Device Masking (VCM) Config State	Enabled		
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Tworzenie nowego dysku – w oknie dialogowym wypełniamy poszczególne pola według założeń :

- 1. Wpisujemy ilość dysków
- 2. Rodzaj zabezpieczenia (Typ RAID'u)
- 3. Pojemność dysku

				EMC Symmetrix Management Console V6.
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T Data Disks (28)	Dynamic Capability .	NONE		
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± Disk Groups (1)				
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Replication Views				
Device Groups (0)				
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	PAV Mode	Dynamic	StandardPAV	
	PAV Alias Limit	15		
	SDDF Configuration St	ate Enabled		1



Tworzenie nowego dysku – po wypełnieniu wartości dodajemy zadanie do sesji. Możemy wykonać zadanie natychmiast lub w innym czasie ze względu na np. chwilowe obciążenie macierzy.

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+ = Fibre (6)		
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Disks (4)		
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		R
Disk Groups (1)	Committing a config change may take a long time, continue?	
CU Images (1)	Van Na	
Private Devices (2)		>
	Deactivate Preview All	Clear
- Device Groups (0)	× =	^
- Composite Groups (0)		
	Log	
	Mon Apr 02 11:14:45 GMT-05:00 2012 Syncing all data	
	Mon Apr 02 11:14:45 GMT-05:00 2012 Define Config Changes	
	Mon Apr 02 11:14:46 GMT-05:00 2012 Submit Config Changes	
	Mon Apr 02 11:14:53 GMT-05:00 2012 Validate Config Changes	
	Mon Apr 02 11:15:35 GMT-05:00 2012 New Device(s) : 0004-0007 on Disk Group Number 0	
	Mon Apr 02 11:15:35 GMT-05:00 2012 Abort Symm Config Changes	
	Mon Apr 02 11:15:39 GMT-05:00 2012 SymConfigChange session ended Symmetrix=000287900464	×
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Tworzenie Meta FBA – drugą czynnością jaka może wyniknąć z potrzeb serwera to stworzenie dużego dysku zwanego Metą FBA z wcześniej utworzonych dysków.

Z menu kontekstowego wybieramy opcję FBA Meta Devices Configuration
 Form Meta

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						EMC Symmetrix Manageme	ent Console V6.1.1.
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- ± Disks (30) Port and Director Con		onfiguration >	(MB (Cyl)	3806 (3897632 (830	1806		
— ± CU Images (Device Configuration	on >	(CVD	3823 (3914792 (835	1562		
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+ Pools (1)	DG/CG Managemer	nt >	Dissolve Meta				
+ C Replication	Device Pool Manage	ement >	Convert Meta from Concater	nated to Striped			
Device Groups (0)	Replication	>	ectors	0			
- 🧰 Composite Groups (Optimizer	>	red (Symm) Devices	12			
	Priority Control and	Cache Partition >	Host) Devices	2			
	Performance Analy	/zer >	red Actual Disks	8			U
-	,		red Spare Disks	2			
	Alerts		ngured Disks	20			
		Maximum Number	of Hypers per Disk	64			
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		VCMDB Access F	Restricted State	Disabled			
		Access Control C	onfiguration State	Disabled			
		Configuration Cha	ange State	Enabled			
		Disk Group Assig	nments	Not in Use			
		Parity RAID Confi	guration	N/A			
		RAID Configuration	n	N/A			
	PAV Mode			DynamicStandardPA	V		
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Tworzenie Meta FBA – po wpisaniu wszystkich parametrów mety dodajemy ją do zadań do wdrożenia.

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+ > Properties	🔀 FBA Meta Device Configuration - Form FBA Meta (000287900464) 🛛 🔀	
Composite Group	Instantion Telepis FBA Meta Device Configuration - Form FBA Meta (000287900464) Device Type : Regular Meta Config: Striped Stripe Size (cyl / blocks): 2 / 1920 Auto Select Number of Metas : Page 1 work Page 1 work Page 1 work Meta Head: Connerts: Expiration: Network Network Network Network Network <th></th>	
	PAV Allas Limit 15 SDDF Configuration State Enabled	×
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Tworzenie Meta FBA – wdrażamy zmianę konfiguracji natychmiast lub w późniejszym okresie.

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Mapowanie zasobu do kanału – Jeżeli chcemy przydzielić zasoby macierzy dla serwera lub serwerów należy wykonać MAPOWANIE do kanału i MASKOWANIE dla WWN'a.

Z menu wybieramy opcję: *Device Masking and Mapping Map Devices*

EMC Symmetrix Mar	nagement Console (loc	calhost:7070) - M	icrosoft Internet Explorer		_[#]
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	Device Masking and M	figuration	Map Devices	tr W	0 / 49666
temperature temperatu	Port and Director Con	nguralion >	Unmap Devices •	•	97632 / 8301896
- ± Devices (7	EBA Mete Device Con	figuration >	Masking		14792 / 8351562
	TOS Configuration	Inguration >	Delete Masking Entry		00420 / 8960910
— 🛨 🚞 Private De	2/OS Comiguration		Initiator Authentication		
	Dovice Management	vort >	Set initiator Attributes		
	Device Publi Managem	ien.	Rename Initiator Alias		
Device Groups (U) Composite Groups	Optimizer		Replace Initiator		
Composite Groups	Optimizer	noho Dortition	Masking Information Maintena	ance	
	Priority Control and Ca		Masking Backup Records		
-	Performance Analyze	ar	ured Actual Disks	8	
	Alerts	>	ured Spare Disks	2	
		Number of Uncol	ntigured Disks	20	
		Maximum Numpe	r of Hypers per Disk	64	
		VCMDR Access	Postricted State	Disabler	a
		Access Control	Configuration State	Disabler	al
		Configuration Ch	ange State	Enabled	1
		Disk Group Assi	anments	Not in U	Jse
		Parity RAID Conf	iguration	N/A	
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		PAV Mode		Dynamic	icStandardPAV
		PAV Alias Limit		15	
		SDDF Configurat	ion State	Enabled	d
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Mapowanie zasobu do kanału – W oknie dialogowym wybieramy zasoby dyskowe, które chcemy mapować do kanałów. Lista, z której będziemy wybierać jest po lewej stronie.

🖉 EMC Symmetrix Manag	gement Console (loca	lhost:7070) - Microsoft Internet Expl	lorer				_ & ×		
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+ > Properties Con	nfig Session Alerts	Command History Replication Monitor	QoS Monitor						
	1	15 000007000414 I					AA 2		
- Symmetrix Arra	vice Masking and Map	oping - Map Devices (000287900464)				×	<u>844</u>		
							<u>^</u>		
- <u>000287900</u> Ma	ap : Select Devices (F	Page 1 of 5)							
Host Bu	te Hoat blu ← Director Move one or more devices to be mapped from the Available list to the Selected list.								
Disks (;									
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E F	Reserve Comments :			Exp	piration : Never				
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Mapowanie zasobu do kanału – Po wybraniu dysków widzimy je w prawej kolumnie. Klikamy NEXT w celu przejścia do następnych opcji.

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e > Properties Config Session Alerts Command History Replication Monitor QoS Monitor	
	[#4] 2
Symmetrix Arra	×
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Map : Select Devices (Page 1 of 5)	
Move one or more devices to be mapped from the Available list to the Selected list.	
Cultural Dev Config: None Emulation: None Cap (MB): None Res: Unres	×
Dev # Mappings Dev Config Ca	Cap (
Control Contro Control Control Control Control Control Control Control Control Co	
- Device Groups 0 0004 0 2-Way Mir Add All -	
Composite Grou 🔮 0009 0 2-Way Mir	
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Page 1 v of 1 end tems 1 to 5 of 5 Page 1 v of 1 end tems 1	to 1 of 1 📄
Reserve Comments :	
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Party KAID Configuration N/A	
PAV Mode DynamicStandardPAV	
PAV Alias Limit 15	
SDDF Configuration State Enabled	~
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ing start € jEML Symmetrix Mana	😰 💟 近 11:46 AM



Mapowanie zasobu do kanału – Analogicznie wybieramy kanał lub kanały, do których będziemy mapować zasoby dyskowe.

🖉 EMC Symmetrix Management Console (lo	calhost:7070) - Microsoft Internet Expl	lorer			_ 8 ×				
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+ + Properties Config Session Alerts	s Command History Replication Monitor	QoS Monitor							
					AA 2				
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Image: Select Ports (f Image: Select Por	Map : Select Ports (Page 2 of 5) Move one or more ports to be mapped from the Available list to the Selected list.								
Ulma Available			Selected						
	# Mappings	Add Add All Remove	Port # Mappings FA-16D:0 Page 1 ∨ of 1	# Mappings 1					
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Mapowanie zasobu do kanału – Ustalamy adres LUN.

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Mapowanie zasobu do kanału – Dodajemy zadanie do sesji.

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							EMC Syr	nmetrix Manager	ment Console V6.1	.1.2	
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- Propertie	Config Session Alerts	Command History Repli	cation M	Ionitor QoS Monit	or					-	
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t CU Im	a Selected Devices			Se	lected Devices			R		L	
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Maskowanie zasobu do WWN – Jest to przypisanie zasobu dyskowego do konkretnego numeru WWN karty FC serwera.

Z menu wybieramy Device Masking and Mapping
 Masking

🙆 EMC Symmetrix Management	t Console (lo	calhost:7070) - Micr	soft Internet Explorer	_ @ ×		
			EM	C Symmetrix Management Console V6.1.1.2		
File Control Administration	Help		⊂ Refresh View	Export Logout 2 14 New Alerts		
+ + Properties Config Sess	ion Alert	s Command History	explication Monitor			
		ConfigSession - 000	37900464 Local	44. ?		
Symmetrix Arrays		Manager Testa				
		My Active Tasks	My Inactive Tasks All Active Tasks All Inactive Tasks	Description		
+ 💼 Host Bus Adapters	Symmetrix	: Admin		bescription		
	Device Ma	sking and Mapping	> Map Devices			
	Port and D	irector Configuration	> Unmap Devices			
	Device Cor	nfiguration	> Masking			
t Meta Devices (3)	FBA Meta	Device Configuration	> Delete Masking Entry			
→ → Private Devices (2)	z/OS Conf	iguration	> Initiator Authentication >			
	DG/CG Ma	nagement	> Set Initiator Attributes			
	Device Poo	ol Management	> Rename Initiator Alias			
- Device Groups (0)	Replication	ı	> Replace Initiator			
- Composite Groups (U)	Optimizer		> Masking Information Maintenance			
	Priority Control and Cache Partition > Masking Backup Records					
Perform		ice Analyzer				
	Alerts		> Deactivate Preview All Cor	Abort All Activate Clear		
-		×	=	^		
		Tue Apr 03 11:52:4	Log CMT 05:00 2012 (000287900464) : Sten 102 of 115 stens Execution			
		Tue Apr 03 11:52:4	CMT-05:00 2012 (000287900464) : Step 102 of 115 steps	g		
Tue Apr 03 (1.52.54 0 m) -05.00 2012 (200026/300464) . Step 102 01 (15 steps						
		Tue Apr 03 11:53:0	CMT-05:00 2012 (000207900464) : Step 102 of 115 steps	g.		
		Tue Apr 03 11:53:5	CMT 05:00 2012 (000207300404): Step 102 01 113 steps	g.		
		Tue Apr 03 11.54.0	ONT-05-00 2012 (000207300404): Step 112 01 115 steps	g.		
		Tue Apr 03 11:54:1	OMT-05-00 2012 (000201300404). E00al COMMITDORE.			
		Tue Apr 03 11:54:1	CMT-05-00-2012 End Symm Cornig Session	=		
		Tue Apr 05 11:54:1	own-oo.oo zorz symcoringchange session ended symmetrix=ooo287900464	×		
A Valoomo to Neusuah	2	51 		2 Local intranet		
	14					
EML Symmetrix	mana			😬 🖤 🛬 12:06 PM		



Maskowanie zasobu do WWN – Wybieramy kanał FC macierzy, przez który łączymy się serwerem.

🕘 EMC S	ymmel	rix Manageme	nt Console (loc	alhost:7070) ·	Micros	oft Internet Exp	olorer							_ 8 ×
											E	MC Symmetr	ix Managemen	t Console V6.1.1.2
		🔯 Device Mas	king and Mappir	ng - Masking (0002879	00464)							>	
	Control	Director Port :	FA-1C:0					~						17 New Alerts
	Toper	Initiator :	FA-1D:1					^	nitiator Alia	is:				
		Enable Dvr	FA-16C:0											(M) ?
B Sym	nmetrix	Filter Availab	FA-16C:1 FA-16D:0	N				-						
	00019	Dev Config :	FA-16D:1 Note	Ъ. П	nuiation.	NUTE	- capi	. (000)	None	~	Res: Uni	es	~	
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	Di	Available D	evices					Targ	jet					
+		Dev	Dev Config	LUN NU	um 🛛	Cap (MB)			Dev	Dev Config	LUN Nur	n Caj	p (MB)	
-+	M	e ⁰⁰⁰⁰	2-Way Mir		000	45								
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Maskowanie zasobu do WWN – Wybieramy "Alias Initiator" oraz dyski lub mety. Klikamy "Ok".

🙆 EMC Symme	nmetrix Management Console (localhost:7070) - Microsoft Internet Explorer		- 8 ×								
		EMC Symmetrix Management Console	V6.1.1.2								
	🔯 Device Masking and Mapping - Masking (000287900464)	×									
	Director Port : FA-16D:0	17 New	Alerts								
rioper	Initiator : 210000e08b1800ff Select Initiator Alias : (210000e08b1800ff/210000e08b1800ff)										
	Enable Dynamic Addressing										
Symmetrix	Fiter Available list										
	028 Dev Config: None Emulation: None Cap (MB): None	Res: Unres 🗸									
	Include Devices Not Mapped to this Port in Available Devices										
	Di Available Devices Target										
	Dev Dev Config LUN Num Cap (MB) Dev Dev Config	LUN Num Cap (MB)									
	6 0000 2-Way Mir 000 45 € 000E 2-Way Mir	001 2878									
	Pr		=								
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- Device Gri	Gn		_								
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	Refresh VCMDB after Apply/OK										
			_								
	Set Dynamic LUN Address	Apply ON Cancel Help									
			~								
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Maskowanie zasobu do WWN – Mamy zamaskowane zasoby do nr WWN.

			EMC Symmetrix Manage	ment Console V6.1.1
Control Administration Help			⊶Refresh View 📑 Export Logout	4 17 New Alerts
Properties Config Session Ale	ts Command History Replication Monitor	loS Monitor		
	Properties - 000287900464 Local			44
Symmetrix Arrays				
± 🔢 000190102870 Local	Product Model	DMX800		^
🧧 🧧 000287900464 Local	Microcode Version (Number)	5671.65		
Host Bus Adapters	Microcode Date/Patch Date	05-31-2007/05-31-2007		
± Directors (12)	Used Capacity (GB / MB / Cyl)	17 / 17160 / 49666		
T CILImages (1)	Free Capacity (GB / MB / Cyl)	3806 / 3897632 / 8301896		
T Devices (7)	Capacity (GB / MB / Cyl)	3823 / 3914792 / 8351562		
Meta Devices (3)	Actual Capacity (GB / MB / Cyl)	4102 / 4200420 / 8960910		
	Cache Size (MB)	32768		
	Number of Fron O Success	×		
— ± interplication ∀iews	Number of Back			
Device Groups (0)	Number of RDF	d a Symmetrix device masking session.		
Composite Groups (0)	Number of Cont			
	, Number of Visik	UK		
	Number of Configured Actual Disks	8	2	
	Number of Configured Spare Disks	2	<i>₽</i>	
	Number of Unconfigured Disks	20		
	Maximum Number of Hypers per Disk	64		
	Device Masking (VCM) Config State	Enabled		
	VCMDB Access Restricted State	Disabled		
	Access Control Configuration State	Disabled		
	Configuration Change State	Enabled		
	Disk Group Assignments	Not in Use		
	Parity RAID Configuration	N/A		
	RAID Configuration	N/A		
	PAV Mode	DynamicStandardPAV		
	PAV Alias Limit	15		
	SDDF Configuration State	Enabled		¥
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Symmetrix Managment Console – Program posiada zdecydowanie większą funkcjonalność. Przedstawiliśmy tutaj jedynie podstawowe funkcje umożliwiające rozpoczęcie pracy z macierzą.

Warto wspomnieć o możliwości skonfigurowania zdalnej replikacji SRDF, QoS, Optimizer, Duplikatach i modułach dodatkowych jak SPA (Symmetrix Performence Analyzer). Za pomocą SMC możemy konfigurować i monitorować stan macierzy.



Dziękuję za uwagę !

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