

Vježba 4. SQL Log shipping i mirroring

Za potrebe ove laboratorijske vježbe, instalirati ćemo AlwaysOn Failover cluster koristeći Microsoft SQL Server 2014. Za potrebe vježbe trebati će nam:

- virtualne mašine 20412D-LON-DC1, 20412D-LON-SVR1, 20412D-LON-SVR2, 20412D-SVR3
- ISO datoteka sa instalacijom Windows Server 2012 R2 operacijskog sustava
- ISO datoteka sa instalacijom Microsoft SQL Server 2014

- virtualnu mašinu 20412D-LON-DC1 možemo pokrenuti odmah, a SVR1, SVR2 i SVR3 ćemo pokrenuti nakon pripremnih radnji koje su opisane ispod.

Priprema prije paljenja virtualnih mašina SVR1, 2 i 3:

Potrebno je napraviti nekoliko izmjena na navedenim virtualnim mašinama, pa ćemo prvo napraviti sve potrebne izmjene.

1. Na virtualnim mašinama 20412D-LON-SVR1, 20412D-LON-SVR2 i 20412D-LON-SVR3 potrebno je napraviti rekonfiguraciju:

- ugasiti Dynamic Memory

- umjesto postojećih 1024MB memorije dodati fiksnih 3072MB memorije

20412D-LON-SVR1	¥	
20412D-LON-SVR1	5 III	Memory You can configure options for assigning and managing memory for this virtual machine. Specify the amount of memory that this virtual machine will be started with. Startup RAM: 4096 MB Dynamic Memory You can manage the amount of memory assigned to this virtual machine dynamically within the specified range. Enable Dynamic Memory Minimum RAM: 512 MB Specify the percentage of memory that Hyper-V should try to reserve as a buffer. Hyper-V uses the percentage and the current demand for memory to determine an amount of memory for the buffer. Memory weight Specify how to prioritize the availability of memory for this virtual machine compared to other virtual machines on this computer.
None Diskette Drive None Management		Specifying a lower setting for this virtual machine might prevent it from starting when other virtual machines are running and available memory is low.
Name 20412D-LON-SVR1 Integration Services Some services offered Checkpoint File Location C: VProgram Files Wicrosoft Le	a 🗸	

- dodati još jedan virtualni disk - na SCSI kontroler, smjestiti ga na E: disk u novokreirani direktorij RITS - fixed disk veličine 10GB (ne Differencing, niti Dynamically Expanding!), datoteka neka se zove SVR1.vhdx. Ako direktorij RITS na E disku ne postoji, napravite ga unaprijed.

Visoko učilište Algebra - visoka škola za primijenjeno računarstvo | Ilica 242 | 10000 Zagreb | Hrvatska Upisano kod trgovačkog suda u Zagrebu pod MBS: 080664742 Poslovna banka: Zagrebačka banka d.d. Trg bana Josipa Jelačića 10, 10000 Zagreb, Hrvatska OIB: 14575159920 | matični broj: 2412926 | IBAN: HR7523600001102036972 tel. +385 (0)1 2222 182 | fax. +385 (0)1 2305 004 | info@racunarstvo.hr | www.racunarstvo.hr

20412D-LON-SVR1
 ★ Hardware ▲ Add Hardware ▲ BIOS Boot from CD ➡ BIOS ➡ BIOS ➡ Drocessor ■ Virtual processor ■ DE Controller 0 ➡ Hard Drive 20412D-LON-SVR1_877 ➡ Hard Drive 20412D-LON-SVR1_877 ➡ Hard Drive 20412D-LON-SVR1_Allfi ■ IDE Controller 1 ● DVD Drive None ♥ Network Adapter Private Network ♥ Network Adapter Private Network 2 ♥ COM 1 None ♥ OCM 2 None ♥ Diskette Drive None ♥ Diskette Drive None

Algebra

visoka škola za

primijenjeno računarstvo

	Settings for 20412D-LON-SVR1 on SRVILI07-04	_ 🗆 X
20412D-LON-SVR1		
Hardware 2	New Virtual Hard Disk Wizard	X
Specify Nam	e and Location	
Before You Begin	Specify the name and location of the virtual hard disk file.	_
Choose Disk Type	Name: SVR1.vhdx	
Specify Name and Location	Location: D:\RITS\	Browse
Configure Disk Summary		
	< <u>Previous</u> <u>N</u> ext > <u>Einish</u>	Cancel
Some services offered	y	
	OK Cancel	Apply



Istu stvar potrebno je napraviti i na virtualnim mašinama SVR2 i 3, samo neka se datoteka zove SVR2.vhdx i SVR3.vhdx.

2. Na mašini 20412-LON-SVR3 potrebno je napraviti dodatnu konfiguraciju: - potrebno je dodati još jednu mrežnu karticu koja će biti spojena na Private Network 2 Hyper-

V virtualni switch

20412	2D-LON-SVR3	~	4 Þ G
	ardware Add Hardware BIOS Boot from CD Hemory 4096 MB Processor 1 Virtual processor 1 Virtual processor 1 UE Controller 0 Hard Drive 20412D-LON-SVR3_DA438 IDE Controller 1 DDrive None SCSI Controller Network Adapter Private Network COM 1 None COM 2 None		Add Hardware You can use this setting to add devices to your virtual machine. Select the devices you want to add and dick the Add button. SCSI Controller INstwork Adapter Fibre Channel Adapter RemoteFX 3D Video Adapter Add A network adapter requires drivers that are installed when you install integration services in the guest operating system.
Ŀ	Diskette Drive None		
I I	Name 20412D-LON-SVR3		
ALC: NO	Integration Services Some services offered		
3	Checkpoint File Location C:\Program Files\Microsoft Lea		
1000	Smart Paging File Location C:\Program Files\Microsoft Lea		
D	Automatic Start Action Restart if previously running	~	

20412D-LON-SVR3 🗸	4 0 4
★ Hardware ∧ ▲ Add Hardware ∧ ▲ BIOS Boot from CD Boot from CD Memory 4096 MB → ■ Processor 1 Virtual processor ■ IDE Controller 0 → ■ IDE Controller 1 → ● IDE Controller 1 → ● VD Drive None Notwork Adapter → Private Network 2 → ● COM 1 None ♥ COM 1 None ♥ Diskette Drive >	Network Adapter
None Management Name 20412D+LON-SVR3 Cutegration Services Some services offered Cutegration Services Some Services offered Smart Paging Files Microsoft Lea Cutegram Files Microsoft Lea	Remove Use a legacy network adapter instead of this network adapter to perform a network-based installation of the guest operating system or when integration services are not installed in the guest operating system.



Time smo završili konfiguraciju SVR1, SVR2 i SVR3 virtualnih mašina i možemo ih sada pokrenuti. Pričekajte 3-4 minute dok se virtualke upale kako biste sa njima mogli raditi. Za to vrijeme ulogirajte se u DC1 virtualku i isključite firewall u svim profilima (koristite Windows Firewall with Advanced Security konzolu). Istu akciju napravite i na SVR1 i SVR3 virtualkama kada se upale. Također, pošto smo u virtualnu mašinu SVR3 dodali još jednu mrežnu karticu, moramo ju konfigurirati. Dakle, u SVR3 virtualnoj mašini na mrežnoj kartici "Ethernet 3", postavite slijedeću IP konfiguraciju:

IP adresa: 131.107.0.23

Netmask: 255.255.0.0, bez gatewaya i bez DNS adresa.

Kada ste to napravili pokušajte ping-ati 131.107.0.21. Trebali biste dobiti odgovor od virtualne mašine SVR1. Ako vam se nakon gašenja firewalla i konfiguracije mreže SVR1 ne "javlja", zovite predavača.

Konfiguracija i instalacija SQL 2014 na SVR1, 2 i 3

Na virtualnoj mašini SVR1 podignite Disk Management utility (windows tipka, upišite na tipkovnici diskmgmt.msc i pritisnite Enter). Vidjeti ćete jedan disk koji će biti offline, u neinicijaliziranom stanju. To je upravo virtualni disk koji smo maloprije dodali (SVR1.vhdx, u slučaju virtualne mašine SVR1). Potrebno je disk podesiti da je online, inicijalizirati ga i formatirati ga:

1	20412D-LON-SVR1 on SRVILI07-04 - Virtual Machine Connection	_ 🗆 X
File Action Me	edia Clipboard View Help	
3 0 0	◎ II ▶ 1	
	Disk Management	_ 0 X
File Action V	/iew Help	
	1 = 0 = 0	
Volume	Layout Type File System Status Capacity Free Spa % Free	
CI)	Simple Basic NTES Healthy (B., 120,000B 11,000B 93%) Simple Basic NTES Healthy (B. 17,000B 26,20,00 29%)	
System Reserve	ample Basic NTFS Healthy (F., 12740-05 50125-06 25/6	
	ta segur par generale internet internet internet internet. En alle and a second second	
Disk 0		
Basic	System Reserved (C:)	
127.00 GB	350 MB NTFS 126.66 GB NTFS	
Unline	Healthy (System, Active, Primary Partition) Healthy (Boot, Page File, Primary Partition)	
Disk 1		
Basic	Alifiles (E)	
127.00 GB	127.00 GB NTFS	
Online	Healthy (Primary Partition)	
CODick 2		
Unknown		
10.00 GB	Online	
10.00 GB Offline ①	Online	
10.00 GB Offline ①	Online Properties	
Offline	Online Properties Help	
Offline	Online Properties Help	
Offline D CD-ROM U DVD (D:)	Online Properties Help	
Offline CD-ROM	Online Properties Help	
Offline () CD-ROM	Online Properties Help	
DOD GB Offline () DVD (D:) No Media	Online Properties Help	
DOD GB Offline D DVD (D:) No Media	Online Properties Help	
Offline () CD-ROM	Online Properties Help Primary partition	
Octo GB Offline D DVD (D:) No Media	Online Properties Help Primary partition	tivate Windows
10.00 GB Offline D DVD (D:) No Media	Online Properties Help Primary partition Action	tivate Windows

Kliknite desnim gumbom miša na kvadrat oko "Disk 2" (NE se desne strane na disk koji ima crnu vrpcu sa gornje strane), i označite lijevim gumbom miša "Online". Kada to napravite, disk će biti Online, ali u neinicijaliziranom stanju. Ponovo kliknite desnim gumbom miša na kvadrat oko "Disk 2" i kliknite na "Initialize". Nakon toga, kliknite sa desne strane pored tog kvadrata (na disk sa crnom vrpcom), i pokrenite "New simple volume" wizard. Sve vrijednosti u wizardu



od početka do kraja ostavite na *default* vrijednostima, ali provjerite da li će disk biti montiran kao F disk. Također, ukoliko želite, možete postaviti i neku labelu (tipa AlwaysOn).

Istu akciju ponovite od početka do kraja na SVR3 virtualki na Disku 1, uz napomenu da ovdje pri korištenju New simple volume wizard-a **sigurno** disk neće biti automatski podešen da se montira na F disk nego na E, pa iz menija obavezno odaberite da bude montiran kao F disk.

Prije instalacije SQL-a 2014, na sve tri virtualne mašine je potrebno poinstalirati .NET 3.5. Dakle, u svaku virtualku montirajte Windows 2012 ISO, pokrenite Server Manager, u "Features" odaberite .NET 3.5, i odaberite Alternate Source Path s obzirom na lokaciju na koju ste montirali ISO (npr. ako ste ISO montirali na D disk, lokacija instalacijskih datoteka biti će D:\sources\sxs).

Instalacija Microsoft SQL 2014

Priprema za instalaciju je gotova. Slijedeći je korak instalacija SQL Server 2014 na SVR1, SVR2 i SVR3.

U virtualne mašine SVR1, SVR2 i SVR3 potrebno je dodati SQL isto u virtualni CD/DVD uređaj. ISO datoteka nalazi se u direktoriju E:\RITS\ISO. Možemo ju odmah dodati u obje virtualne mašine pošto moramo napraviti instalaciju na obje. Demonstrirati ćemo instalaciju na SVR1, uz napomenu da je **nakon završetka instalacije na SVR1 identičnu proceduru potrebno napraviti i na SVR2 i SVR3.** Slobodno isključite firewall na svim virtualkama.

1	SQL Server Installation Center
Planning Installation Maintenance Tools Resources Advanced Options	 New SQL Server stand-alone installation or add features to an existing installation. Launch a wizard to install SQL Server 2014 in a non-clustered environment or to add features to an existing SQL Server 2014 instance. New SQL Server failover cluster installation Launch a wizard to install a single-node SQL Server 2014 failover cluster. Add node to a SQL Server failover cluster Launch a wizard to and a node to an existing SQL Server 2014 failover cluster. Add node to a SQL Server 2005, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2012 Launch a wizard to upgrade SQL Server 2005, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2018 Launch a wizard to upgrade SQL Server 2005, SQL Server 2008, SQL Server 2008 R2 or SQL Server 2012 to SQL Server 2014.



1	SQL Server 2014 Setup	x
Product Key Specify the edition of SQL Serv Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install	SQL Server 2014 Setup ver 2014 to install. Validate this instance of SQL Server 2014 by entering the 25-character key from the Microsoft certificate of authenticity or product packaging. You can also specify a free edition of SQL Server, such as Evaluation or Express. Evaluation has the largest set of SQL Server features, as documented in SQL Server Books Online, and is activated with a 180-day expiration. To upgrade from one edition to another, run the Edition Upgrade Wizard. Specify a free edition: Evaluation • Enter the product key:	×
Installation Progress Complete	< Back Next > Cance	

1	SQL Server 2014 Setup
License Terms To install SQL Server 2014, y Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files	ou must accept the Microsoft Software License Terms. MICROSOFT SOFTWARE LICENSE TERMS MICROSOFT SQL SERVER 2014 ENTERPRISE SERVER/CAL EDITION These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft
Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress	 updates, supplements, Supplements, Copy Print I accept the license terms.
Complete	Guality, reliability and performance of Microsoft SQL Server 2014. See the Microsoft SQL Server 2014 Privacy Statement for more information. Microsoft SQL Server 2014 also includes a Visual Studio component that will have CEIP settings turned off by default. If Visual Studio is installed, this component will use the CEIP settings for Visual Studio.
	< <u>B</u> ack <u>N</u> ext > Cancel



1	SQL Server 2014 Setup
Microsoft Update Use Microsoft Update to check Use Microsoft Update to check Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Eesture Configuration Rules	SQL Server 2014 Setup ck for important updates Microsoft Update offers security and other important updates for Windows and other Microsoft software, including SQL Server 2014. Updates are delivered using Automatic Updates, or you can visit the Microsoft Update website. Use Microsoft Update to check for updates (recommended) Microsoft Update FAQ Microsoft Update Privacy Statement
Feature Configuration Rules Ready to Install Installation Progress Complete	< Back Next > Cancel

1	SQL Server 2014 Setup	_ _ X
Install Rules Setup rules identify potential p can continue.	roblems that might occur while running Setup. Failures must be correct	ed before Setup
Product Key License Terms Global Rules Microsoft Update Product Updates	Operation completed. Passed: 6. Failed 0. Warning 1. Skipped 0. Hide details << <u>View detailed report</u>	Re-run
Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress Complete	Rule Image: Second Se	Status Passed Passed Passed Passed Warning Passed Passed Passed
	< Back Next >	Cancel Help



Visoko učilište Algebra - visoka škola za primijenjeno računarstvo | Ilica 242 | 10000 Zagreb | Hrvatska Upisano kod trgovačkog suda u Zagrebu pod MBS: 080664742 Poslovna banka: Zagrebačka banka d.d. Trg bana Josipa Jelačića 10, 10000 Zagreb, Hrvatska OIB: 14575159920 | matični broj: 2412926 | IBAN: HR7523600001102036972 tel. +385 (0)1 2222 182 | fax. +385 (0)1 2305 004 | info@racunarstvo.hr | www.racunarstvo.hr

2	SQL Server 2014 Setup
Setup Role Click the SQL Server Featur feature role to install a spec Product Key	e Installation option to individually select which feature components to install, or click a ific configuration.
License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Feature Configuration Rules Ready to Install Installation Progress Complete	 Install SQL Server Database Engine Services, Analysis Services, Reporting Services, Integration Services, and other features. SQL Server PowerPivot for SharePoint Install PowerPivot for SharePoint on a new or existing SharePoint server to support PowerPivot data access in the farm. Optionally, add the SQL Server relational database engine to use as the new farm's database server. Add SQL Server Database Relational Engine Services to this installation. All Features With Defaults Install all features using default values for the service accounts.

8	SQL Serve	er 2014 Setup	- - ×
Feature Selection Select the Enterprise features t	o install.		
Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Features:	n ic Extractions for Sea	Feature description: The configuration and operation of each instance feature of a SQL Server instances. SQL Server instances. SQL Server instances can operate side-by-side on the same computer. Prerequisites for selected features: Already installed: Windows PowerShell 2.0 Microsoft .NET Framework 3.5 Microsoft .NET Framework 4.0 To be installed from media: < III Disk Space Requirements Drive C: 2232 MB required, 119544 MB available
	Instance root directory: Shared feature directory: Shared feature directory (x86):	C:\Program Files\Mid C:\Program Files\Mid C:\Program Files (x8	crosoft SQL Server\ crosoft SQL Server\ @\Microsoft SQL Server\
		< Back	Next > Cancel Help



Visoko učilište Algebra - visoka škola za primijenjeno računarstvo | Ilica 242 | 10000 Zagreb | Hrvatska Upisano kod trgovačkog suda u Zagrebu pod MBS: 080664742 Poslovna banka: Zagrebačka banka d.d. Trg bana Josipa Jelačića 10, 10000 Zagreb, Hrvatska OIB: 14575159920 | matični broj: 2412926 | IBAN: HR7523600001102036972 tel. +385 (0)1 2222 182 | fax. +385 (0)1 2305 004 | info@racunarstvo.hr | www.racunarstvo.hr

Instance Configuration	n				
Specify the name and instanc	e ID for the instance of S	QL Server. Instance	ID becomes part of	the installation path.	
Product Key License Terms Global Rules	 Default instance Named instance: 	MSSQLSERVER			
Microsoft Update Product Updates Install Setup Files	Instance ID:	MSSQLSERVER			
Install Rules Setup Role Feature Selection	SQL Server directory: Installed instances:	C:\Program Files\	Microsoft SQL Serve	r\MSSQL12.MSSQLSER	VER
Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Instance Name	Instance ID	Features	Edition	Version

1	SQL Server 2	2014 Setup		_ C	x
Server Configuration Specify the service accounts and	collation configuration.				
Product Key License Terms Global Rules	Service Accounts Collation Microsoft recommends that you	use a separate account for each	SQL Server servi	ice.	
Microsoft Update	Service	Account Name	Password	Startup Type	
Product Updates	SQL Server Agent	NT Service\SQLSERVERA		Manual	~
Install Setup Files	SQL Server Database Engine	NT Service\MSSQLSERVER		Automatic	~
Install Rules	SQL Server Browser	NT AUTHORITY\LOCAL		Disabled	<u> </u>
Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete					
		< Back Next	> Can	cel He	lp



1	SQL Server 2014 Setup	-		x	
Database Engine Config Specify Database Engine authent	juration ication security mode, administrators and data directories.				
Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Directories FILESTREAM Specify the authentication mode and administrators for the Database Engine. Authentication Mode • • Windows authentication mode • • Mixed Mode (SQL Server authentication and Windows authentication) Specify the password for the SQL Server system administrator (sa) account. Enter password: Confirm password: Specify SQL Server administrators ADATUMVAdministrator (Administrator) SQL Server have unrest to the Data Add Current User Add	admini: ricted a passe En	strator cccess gine.	5	
	< Back Next > Cancel		Help		

1	SQL Server 2014 Setup
Ready to Install Verify the SQL Server 2014 fea	tures to be installed.
Product Key License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Ready to install SQL Server 2014: Summary Edition: Enterprise Action: Install (Product Update) Prerequisites Already installed: Windows PowerShell 2.0 Microsoft .NET Framework 3.5 Microsoft Visual Studio 2010 Redistributables Microsoft Visual Studio 2010 Redistributables Microsoft Visual Studio 2010 Redistributables Microsoft Visual Studio 2010 Shell General Configuration Features Database Engine Services Management Tools - Basic Management Tools - Complete Instance configuration Instance configuration Instance Name: MSSOL SERVER Configuration file path: C:\Program Files\Microsoft SQL Server\120\Setup Bootstrap\Log\20150428_082207\ConfigurationFile.ini
	< Back Install Cancel Help

Kada instalacija završi, zatvorite prozor i početni instalacijski prozor te identičnu instalaciju napravite i na SVR2 i SVR3 virtualnoj mašini.



Konfiguracija Microsoft SQL 2014 Log Shippinga

Slijedi konfiguracija SQL-a za korištenje log shippinga. Na SVR1 podignite SQL Management Studio, ulogirajte se kao domenski admin i napravite novu bazu, npr. bazu imena LogShipping:

1 2	Mi	crosoft SQL Se	rver Mana	gement Stud	io (Administra	ator)			ĸ
File Edit View Debug	Tools Window Help								
🛅 = 🛅 = 💕 📕 🥔 🛔	3		New	Database		_ 0	x 🖄 🗒		
Object Explorer	Select a page	C Seriet -	Halo						
Connect 🕶 🛃 📑 🍸	General	The second secon	Trieb						
😑 🐻 LON-SVR1 (SQL Serv	Filegroups	Database name		LogShippin	a				
🖃 🚞 Databases		Dwiner:		<pre>cdefault></pre>	2				
🛞 🖃 🥥 System Datab	1	ovvioi.		(dordan)					
E Decurity		Use full-text i	indexing						
표 🚞 Server Objects		Database files:							
🕀 🧰 Replication		Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize			
H i Aiwaysun High A Read Aiwaysun High A		LogShipping	ROWS	PRIMARY	4	By 1 MB, Unlimited			
🖃 🧫 Integration Service		LogShipping	LOG	Not Applicable	1	By 10 percent, Unlimited			
📸 SQL Server Agent									
	Connection								
	Server: LON-SVR1								
	Connection: ADATUM\Administrator								
	View connection properties								
	Progress								
	Ready	<	111				<u>></u>		
	TAD.				Add	Remove			
						OK Canc	el		
< 111	>								
Ready									
								▲ EN	NG

Nakon kreiranja baze, desnim klikom miša na bazu LogShipping otvorite konfiguracijski meni Tasks, unutar kojeg treba odabrati opciju "Ship Transaction Logs":

9	Microsoft SQL Server Management Studio (Administrator)	_ 0 ×
File Edit View Debug Tools Window Help		
🗄 🔚 🕶 🖅 🚅 🗐 🍠 🔔 New Query 📑 📸 😁		- 🛛 🖄 🗒
File Edit View Debug Tools Window Help Image: State of the state of	 Detach Take Offline Bring Online Shrink Back Up Restore Mirror Launch Database Mirroring Monitor Ship Transaction Logs Generate Scripts Extract Data-tier Application Deploy Database to Windows Azure SQL Database Deploy Database to A Windows Azure VM Export Data-tier Application Deploy Database to A Windows Azure VM Export Data-tier Application Deploy Database to Application Deploy Data-tier Application Deploy Database to Application 	
< III >	Copy Database	
Ready	Manage Database Encryption	
😑 📥 🙋 🚞 🕵		▲ ENG



nakon čega krećemo u konfiguraciju Log Shippinga. Potrebno je odabrati opciju "Enable this as a primary database in a log shipping configuration, kliknuti na "Backup Settings" i odabrati lokaciju gdje ćemo postaviti transaction log backupe:

1	Mi	rosoft SQL Server Managemen	t Studio (Administrator)		_ 0 ×
File Edit View Debug 1	Fools Window Help				as ¹¹
: 🗇 • 📾 • 🗖 🖉 🛛 🖉 :	Ū	Database Properties - I	LogShipping		≌ ≑
Object Explorer Connect * 킢 링 = 꺅	Select a page Page General	🔄 Script 👻 🎼 Help			
ION-SVR1 (SQL Serv Databases	Files Filegroups	Enable this as a primary database	in a log shipping configuration		
😠 🧰 System Datab 😠 🧰 Database Sna	Change Tracking	Transaction log backups			
🕀 间 LogShipping	Extended Properties		Backup schedule:		
	Transaction Log Shipping	Backup Settings	Occurs every day every 15 minu 12:00:00 AM and 11:59:00 PM.	ite(s) between Schedule will	
⊞		Last backup created:			
		Secondary databases			
		Secondary correct instances and dat	-		
📸 SQL Server Agent		Server Instances	Database		
	Connection				
	Server				
	LON-SVR1		Add	Remove	
	Connection: ADATUM\Administrator	Monitor server instance			
	View connection properties	Use a monitor server instance			
	Prograss	Monitor server instance		Settings	
	Beadu	This action will script the entire log shir	ning configuration		
	() hour		Script Co	nfiguration 💌	
			OK	Uancel	
<	>				
Ready					

	Transa	ctio <mark>n</mark> Le	og Bac <mark>k</mark> up Setti	ings		x
Transaction log backups are	performed by a SQL Server	Agent job	o running on the prima	ary server instance.		
Network path to backup fold	er (example: \\fileserver\ba	ckup):				
\\lon-svr1\logshipping						
If the backup folder is located	d on the primary server, type	a local p	ath to the folder (exar	nple: c:\backup);		
c:\logshipping			(
Note: you must grant read an also grant read permission to instance).	d write permission on this fo the proxy account for the cr	lder to the opy job (u:	SQL Server service sually the SQL Server	account of this primary se Agent service account fo	rver instance. You mus or the secondary server	st
<u>D</u> elete files older than:		72	+ Hour(s)	¥		
Ale <u>r</u> t if no backup occurs with	nin:	1	+ Hour(s)	¥		
Backup job						
Job name:	LSBackup_LogShipping)			Sch <u>e</u> dule	
<u>S</u> chedule:	Occurs every day every Schedule will be used s	15 minute tarting on	e(s) between 12:00:0 4/21/2017.	0 AM and 11:59:00 PM.	Dis <u>a</u> ble this job	
Compression	L					
Set backup <u>c</u> ompression:		Use th	ne default server setti	ng v		
Note: If you backup the trans restore the backups on the s	saction logs of this database econdary server instances.	with any	other job or maintena	nce plan, Management S	tudio will not be able to	
<u>H</u> elp				OK	Cancel	



Slijedeći korak je odabir secondary baza. U prethodnom prozoru, u dijelu "Secondary databases", treba kliknuti na gumb "Add..." i dodati LON-SVR2 (koristeći gumb "Connect"):

	Secondary Database Settings	x
Secondary server instance:	LON-SVR2	Connect
Secondary database:	LogShipping 🗸	·
	Select an existing database or enter the name to create a new database.	
Initialize Secondary Database	Copy Files Restore Transaction Log	
You must restore a full backu	p of the primary database into secondary database before it can be a log shipping de	stination.
Do you want the Managemer	nt Studio to restore a backup into the secondary database?	
Yes, generate a full backut the secondary database if	up of the primary database and restore it into the secondary database (and create it doesn't exist)	Restore Options
Yes, restore an existing by doesn't exist) Specify a network path to Backup file: O No, the secondary databa	ackup of the primary database into the secondary database (and create the secondar the backup file that is accessible by the secondary server instance.	y database if it Restore Options
Help	OK	Cancel

	Secondary Database Settings
<u>S</u> econdary server instar	nce: LON-SVR2 Connect
Secondary <u>d</u> atabase:	LogShipping V
	Select an existing database or enter the name to create a new database.
Initialize Secondary Da	atabase Copy Files Restore Transaction Log
Files are copied from	n the backup folder to a destination folder by a SQL Server Agent job running on the secondary server instance.
Destination <u>f</u> older fo	r copied files: (This folder is usually located on the secondary server.)
f:\LogShippingDB	
Note: you must gran	t read and write permission on this folder to the proxy account for the copy job (usually the SQL Server Agent service and are server instance)
Delete copied files a	after 72 A Have(a)
Сору јов	
Job name: LSCo	ppy_LON-SVR1_LogShipping Schedule
Sched <u>u</u> le: Occu	ars every day every 15 minute(s) between 12:00:00 AM and 11:59:00 PM. Schedule will be used 🗌 Disable this job
<u>H</u> elp	OK Cancel

Prije nego što ovdje kliknete na "OK", potrebno je napraviti još malo konfiguracije. Konkretno, na LON-SVR1 je na F disku potrebno napraviti direktorij LogShipping i od tog direktorija



napraviti share (za potrebe ove vježbe, stavite Full Control za Everyone i na razini sharea i na razini NTFS dozvola). Nakon toga, potrebno je na SVR2 napraviti direktorij LogShipping na F disku. Tek nakon toga možemo kliknuti na "OK".

ng Configuration	
4 Total 4 Success	0 Error 0 Warning
Status	Message
Success	_
Success	
Success	
Success	
Close	Report 🔻
	A Total 4 Total 4 Success Success Success Success Success Close

Ulogirajte se na SVR2 i podignite SQL Management Studio. Situacija bi trebala izgledati ovako slijedećih 15ak minuta:





Konfiguracija Microsoft SQL 2014 Mirroring clustera

Slijedeći korak nam je konfiguracija database mirroring opcije SQL clusteringa. Na SVR1 napravite novu bazu imena Mirroring:

1 20	Mic	rosoft SQL Ser	ver Mana	gement Stud	io (Administr	ator)			X
File Edit View Debug	Tools Window Help								
🛅 • 🖮 • 💕 📕 🥥 💈	8	· · ·	Newl	Database			x	🖄 🗒	
Object Explorer Connect ▼ 型 型 = ▼ ■ 6 LON-SVR1 (SQL Serv ■ □ Databases ■ □ System Datab ₩ □ Database Sna ₩ 0 LogShipping	Select a page General Options Filegroups	🔄 Script 🔻 🚺	Help						
		Database name:		Mirroring	Mirroring				
		Uwner: (derauk)							
🕀 🧰 Security		Database files:							
E Server Objects		Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize			
I AlwaysOn High A		Mirroring	ROWS	PRIMARY	4	By 1 MB, Unlimited			
🗄 🛄 Management		Mirroring_log	LOG	Not Applicable	1	By 10 percent, Unlimited			
⊪ Integration Servic	Connection Server: LON-SVR11 Connection: ADATUM\Administrator Image: View connection properties Progress								
	Ready	<					<u>></u>		
	The start of the s				Add	Remove			
						OK Can	cel		
Ready									
								4	ENG

Nakon toga, potrebno je napraviti backup Mirroring baze (desni klik na bazu – Tasks – Back Up). Svakako prije klikanja na "OK" zapamtite lokaciju gdje će backup datoteka biti napravljena (C:\Program Files\Microsoft SQL

Server\MSSQL12.MSSQLSERVER\MSSQL\Backup\Mirroring.bak). Preselite doticnu datoteku na SVR2 i napravite restore baze iz dotične datoteke. Kada radite restore, u "Options" podmeniju odaberite Recovery state "RESTORE WITH NORECOVERY".

Prije nego što krenete na idući korak, na SVR2 mora biti restore baze Mirroring. Ako to niste uspješno napravili, mirroring neće raditi.

Slijedi konfiguracija mirroringa. U Tasks meniju potražite konfiguracijsku opciju "Mirror":

Algebra visoka škola za

primijenjeno računarstvo

Visoko učilište Algebra - visoka škola za primijenjeno računarstvo | Ilica 242 | 10000 Zagreb | Hrvatska Upisano kod trgovačkog suda u Zagrebu pod MBS: 080664742 Poslovna banka: Zagrebačka banka d.d. Trg bana Josipa Jelačića 10, 10000 Zagreb, Hrvatska OIB: 14575159920 | matični broj: 2412926 | IBAN: HR7523600001102036972 tel. +385 (0)1 2222 182 | fax. +385 (0)1 2305 004 | info@racunarstvo.hr | www.racunarstvo.hr

Microsoft SQL Server Management Studio (Administrator) 🛛 📃 🗖 💌					
File Edit View Debu	g Tools Window Help				
i 🛅 • 🔤 • 💕 📕 🥥	🛛 🔔 New Query 🛛 🔓 📸	🔁 🔀 🕹 🖻		- 🛛 🖉	
Object Explorer	→ ₽ ×				
Connect 🕶 🛃 🛃 🔳	7 🙋 🍒				
😑 🐻 LON-SVR1 (SQL S	Server 12.0.5000.0 - AD.				
🖃 🚞 Databases					
🛞 📄 System Da	atabases				
🛞 🧰 Database i	Snapshots				
🗉 🚺 Logsnippi	ing				
🐨 📑 Security	New Database		Detach		
🕀 🧰 Server O	New Query		Take Offline		
😠 🧰 Replicati	Script Database as	•	Bring Online		
🕀 🗀 AlwaysO	Tasks	•	Shrink		
🕀 🧫 Integrati	Policies	•	Back Up		
📸 SQL Serv	Facets		Restore		
	Start PowerShell		Mirror		
	Panasta		Launch Database Mirroring Monitor		
		,	Ship Transaction Logs		
	Rename		Generate Scripts		
	Delete				
	Refresh		Extract Data-tier Application		
	Properties		Deploy Database to Windows Azure SQL Database		
			Deploy Database to a Windows Azure VM		
			Export Data-tier Application		
			Register as Data-tier Application		
			Upgrade Data-tier Application		
			Delete Data-tier Application		
			Import Data		
			Export Data		
< 111	>		Copy Database		
Ready			Manage Database Encryption		
				▲ ENG	

Microsoft SQL Server Management Studio (Administrator)							
File Edit View Debug	Tools Window Help				6 ^{**}		
Object Explorer		Datab	ase Properties - Mirroring		÷		
Connect - 22 22 = 7 Connect - 22 22 = 7 Databases Databases Databases Sna Database Sna Databas	Select a page	🔄 Script 🔻 🕼 Help					
		Ensure that se database. Server network ad	Configure Security				
		Principal:		Start Mirroring			
		Mirror: Witness:		Pause			
				Remove Mirroring			
		Note: Use fully TCP://svr5.co	-qualified TCP addresses. For example: rp.abc.com:5022	Failover			
🗉 🚞 Integration Servic		Operating mode					
📸 SQL Server Agent		 High performance (asynchronous) Commit changes at the principal and then transfer them to the mirror. 					
		High safety without automatic failover (synchronous) Always commit changes at both the principal and mirror.					
	Connection	 High safety 	with automatic failover (synchronous) Requi	res a witness server instance.			
	Server: LON-SVR1	Commit changes at both the principal and mirror if both are available. The witness controls automatic failover to the mirror if the principal becomes unavailable.					
	Connection: ADATUM\Administrator <u>View connection properties</u>	Status: TI m	This database has not been configured for	Defect			
			mirroring				
	Progress						
	Ready						
				OK Cancel			
<	>						
Ready							
					▲ ENG		



Prvi korak nam je konfiguracija security opcija za mirroring. Konkretno, odabrati ćemo SVR3 kao witness server. Pokrenite wizard "Configure security", kada vas pita "Include Witness Server" odaberite opciju "Yes" pa Next, u idućem prozoru obavezno checkbox-irajte opciju "Witness server instance" (ako nije označena). U konfiguracijskom prozoru "Principal Server Instance" samo kliknite Next. U konfiguracijskom prozoru "Mirror Server Instance", odaberite iz konfiguracijskog menija "LON-SVR2" i kliknite "Connect" i još jednom "Connect" u podprozoru za autentifikaciju, te opet "Next". U konfiguracijskom prozoru "Witness Server Instance", odaberite iz pull-down menija opciju "Browse", pa onda "LON-SVR3" i "Connect", pa "Finish" i opet još jednom "Finish".

Nakon toga, nudi nam se opcija "Start Mirroring" ili "Do Not Start Mirroring". Za početak, odaberimo "Do Not Start Mirroring" i pogledamo dostupne opcije (High Performance asynchronoous, High safety without automatic failover). Odaberimo prvu opciju, pa Start Mirroring.