

Notification of total failures

Total outages of internet connections can be figured by methods that were already described in other articles on this web :

For longer outages use <u>Monitoring of computer availability with activation of internet line monitoring</u> [1]

To make direct PING tests to public IP addresses, follow the instructions at <u>Availability tests</u> (<u>Watches</u>) [2]

Notification of lower internet connection quality

In the solution CM, quality of internet connection is monitored by tests (Watches conditions) of Ping packet loss and Ping Round Trip Time (also called response time, hereinafter RTT) executed from the C-Monitor client. There are two basic methods to execute these tests, and it's up to you which one do you prefer / need :

1. C.Monitor client is on a computer from the monitored line (inside the network) and the tests are running to an external IP address, which has very reliable connection (no packet loss and very short RTT)

2. C-Monitor client is on a server with very good connection and the tests are performed to IP address of the monitored line.

Note: as these are two directions of the tests, you also get different results, for which you need to take into account the capacities of upload / download.

A reliable internet line should have zero packet loss even for higher loads, and response RTT vary according to type of the line. You should have **the following typical RTT values for your measurements:**

DSL ...cca 15-70ms UPC (coaxial) ...cca 10-30ms Optic ...cca 3-10ms FWA 10.5GHz, 26GHz - cca 10ms mobile ...HSDPA cca 70-100ms, GPRS over 150ms Wimax - over 50ms Wifi 5.4GHz links ...cca 4-10ms

Recommendation: If you haven't worked with Watches yet, then read the <u>Introduction to setup of</u> <u>Watches, conditions, actions</u> [3] first

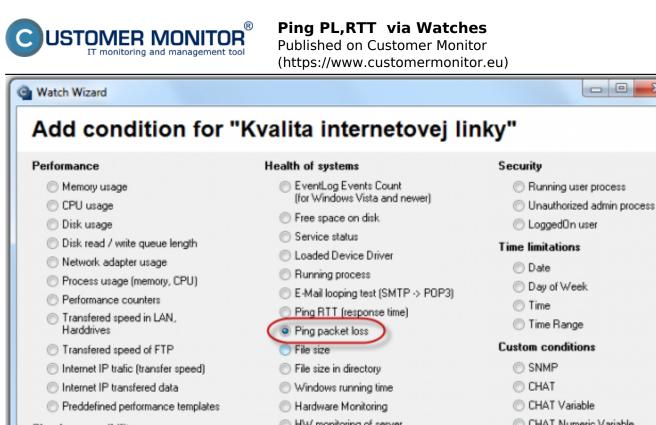
Skip to Setup of quality monitoring via CM Portal (for all OS)

Setup of monitoring of internet line quality via C-Monitor Console on Windows

Setup of packet loss monitoring

The very setup is done through C-Monitor Console, launch Watch Wizard, name the new watch e.g. "Internet line quality", we recommend to choose the name as short as possible also with some specific name, as this name of the Watch will be used in notification emais, SMS messages and it's appropriate that it doesn't take too much space, and at the same time, you can easily tell what does the message belong to. Then press Next.

Select watch Ping packet loss.



Check accessibility	 HW monitoring of server (HP, DELL, FUJITSU) 	CHAT Numeric Variable CHAT Vector Variable
 Ping SMTP POP3 HTTP, HTTPS Exists file Exists directory Accessible directory Current IP Network presented (active any network adapter) 	 LINUX monitoring Environment Monitoring (snmp) Environment Monitoring (http) Preddefined health templates 	Use state of another Watch
< Back Next >		Cano

Image: Zvolenie Ping Packet Loss

In the next window, enter address which is going to be pinged. You may write name of the location, or directly the IP address. Choose compairing operator, percentage value (10% for an average line) and testing period (recommended 1min). Other values in square brackets are optional and will be filled by default values (specified in pop-up bubbles, which appear after hovering over these fields), if you don't need to make custom changes. The most relevant of these parameters is the length of history, which is defaultly 12 (meaning that Packet Loss is calculated from the last 12 tests, i.e. last 12 minutes for the recommended settings). You may then have pings written into a log file, in case that connection with CM Server was lost, so you won't lose detailed results of these tests.

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Ping PL,RTT via Watches

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Condition Definition

Available Functions	Ping Packet Loss						
Disk Queue Length Network Adapter Usage	IP (Host) [description] (e.g. 192.168.1.1 local router) 195.146.132.58						
Internet IP Traffic Internet IP Transferred Data Free Space On Disk Exists File	[Repeats] [Timeout in sec] [Bytes] [TTL] [History Size] [LogFile]						
File Size	C:\temp\LOG.txt						
Files Size in Directory	Operator Packet Loss % Test Period Unit <						
Directory Accessible LoggedOn User Windows Running Time Operating System started Date Day of Week Time TimeRange Current IP	Value from this condition send to CM server If value changes more than Always Never Assess the state of watch						
Performance Counter Hardware Monitoring Ping Ping RoundTripTime Ping Packet Loss							
	OK Cancel						

Image: Nastavenie parametrov pre PPL

When all parameters are configured, press OK Add check of Ping RTT (Round Trip Time - i.e. response time) to this watch by Add condition

Setup of ping response time

In Watch wizard select Ping RTT (response time) and press Next.



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							-

Add next condition for "Kvalita internetovej linky"

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enomiance	Health of systems	Security
 Performance Memory usage CPU usage Disk usage Disk read / write queue length Network adapter usage Process usage (memory, CPU) Performance counters Transfered speed in LAN, Harddrives Transfered speed of FTP Internet IP trafic (transfer speed) Internet IP trafic (transfer speed) Internet IP transfered data Preddefined performance templates Check accessibility Ping SMTP POP3 HTTP, HTTPS Exists file Exists directory Accessible directory Current IP 	Health of systems EventLog Events Count (for Windows Vista and newer) Free space on disk Service status Loaded Device Driver Running process E-Mail looping test (SMTP -> POP3) Ping RTT (response time) Ping packet loss File size File size Hardware Monitoring Hw monitoring of server (HP, DELL, FUJITSU) LINUX monitoring Environment Monitoring (smp) Preddefined health templates	Security Running user process Unauthorized admin process LoggedOn user Time limitations Date Day of Week Time Time Range Custom conditions SNMP CHAT CHAT Variable CHAT Numeric Variable CHAT Vector Variable CHAT Vector Variable Watch state

Image: Vybratie Ping RTT

In the next window, you'll choose the address, which is going to be pinged, either the location's name, or directly its IP address. Select what value of response time is going be monitored in the field Value - either minimal time, maximal, or average value. Then select operator, value in ms and testing period (typical response values for different line types are in the introduction to this article). Other values in square brackets are optional and will be filled by default values (specified in pop-up bubbles, which appear after hovering over these fields), if you don't need to change them.

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Condition Definition

Available Functions	Ping RoundTripTime
Disk Usage Disk Queue Length Network Adapter Usage Internet IP Traffic Internet IP Transferred Data Free Space On Disk Exists File File Size Files Size in Directory Exists Directory Directory Accessible LoggedOn User Windows Running Time Operating System started Date Day of Week Time TimeRange Current IP Performance Counter Hardware Monitoring Ping Ping RoundTripTime	IP (Host) [description] (e.g. 192.168.1.1 local router) 195.146.132.58 [Retries] [Timeout in sec] [Bytes] [TTL] [LogFile] C:\temp\LOG1.txt Value Operator Test Period Unit 1 min Value from this condition send to CM server If value changes more than 10 Always Never Assess the state of watch
	OK Cancel

Image: Nastavenie parametrov pre RTT

After setting the required parameters, and clicking on Next, you'll get to common Watch settings. For monitoring of internet lines quality, it's suitable to set delay of notifications (Delay for fail), especially where the connection quality is low, so that you won't receive notifications over every little hesitation of the line, as very short and occasional failures of the line don't really affect function of the systems working on internet connection

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Ping PL,RTT via Watches

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lodify Watch							
Conditions							
Name (Description)	Short Name						
valita Internetovej linky							
✓ Enabled ◆ 操 × ∞ ☆ ひ ✓							
Conditions							
1 Ping Packet Loss 195.146.132.58 < 10%, 6x, timeout 5s, bytes 56, TTL 64, packet loss (hist. 30), che	ck every 1 min, logfile "C:\terr						
2 Ping Average RTT 195.146.132.58 < 400 ms, 4x, timeout 5s, bytes 56, TTL 64, check every 1min, log	file "C:\temp\LOG1.txt"; Val						
OK if all conditions are true FAIL - if at least one condition is false If state of the watch changes to FAIL, do Start Actions (Add New Start Actio							
While state of the watch is FAIL, do Repeat Actions (Add New Repeat Action							
If state of the watch changes to OK, do End Actions (Add New End Action)							
If state of the watch is UNKNOWN, notify this by options in actions							
🕼 Delay for FAIL state. Conditions for FAIL state must be met at least 🛛 5 📑 Min 💌							
Evaluate watch state with longer period than 30s (specified by C-Monitor license)							
Note: Watches are active from 5 min after the operating system start							
Edit with Wizard	OK Cancel						

Image: Spoločné nastavenia watchov

For setup of actions, follow the instructions at <u>Setup of Watch actions</u> [3].

Setup of line quality monitoring via CM Portal (for all OS)

Creation of watch can be configured even without direct access to the PC, by addition through CM Portal. After login to CM portal, open *Admin zone* and in the left menu *Watches - Settings*. Enter parameters of the required computer into the upper filter. When the PC/server is filtered out, it'll be displayed with its already existing watches, if there are any. By clicking on *Display watches*, you'll get to the option to add a new one.



Ping PL, RTT via Watches

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	10	Admin zó		Prehliadanie a Vyhodnotenie	Customer	Desk					Operate	r. Pavol	C
balit vlatko – Rozbalit vlatko	0	Wat	ches - nas	stavenia									
Hlavné menu Zákaznici		ločnosť v Watchu		Počítač & Umiestner		Poulivater	Openitor	Hadat	 Jednoduché Rozšírené 				Ennis
Počítače				Con capitorie ine		are possible			- Hilling		Alderty	hes via SWL Ne	on selected
Audit SW a evidencia HW	×	CM-ID	Neso v sieti	Umiestnenie	Poullivater	Spoločnosť		Watches		Aktuálne	Naposi.	Post. online	
Použivatelia Itiči profil	L.	CM-ID	NEED V SIED	unesakine	POLIVER	sporocerose		watches		na PC	odoslané watches z PC do CM	spojenie s CM	
Zákaznicke kontá Používateľská história	8	SC494002	14953309	prenoany BA	Pavd	SEAL IT Services, s.r.o				Ana	10. Apr 2012 10:00:04	10. Apr 2012 10.27:18	Display watches
Admin. nástroje	<	1/1 💌	> 20	💌 Zobrazujem polo	žky 1 - 1 z celkové	ha počtu 1 polažiek							
Inŝtalâcie a skripty C-Image nastavenie Udržavanie PC													
C-Monitor klient													
Nastavenia C-Monitora na PC Rozvity a stav úleh		- 2											
Watches - nastavenia Aktualizácia C-Monitor klienta													
Verzie													
Licende													
Statnuté súbory z počítačov													

Image: Zobrazenie watchov cez CM portál

Spoločnosť Názov Watchu	seal	Počitač & Umiestnenie		Použivatef online počitače	Operator	Hfadat	Jednodur Rozšíren		Prev Watc
Zoznam	watches od	osielaných z počítači	SEANBO	2/HP6930P/Pavol/pr	enosny BA			pridanie	watchu Add watch
	Watch name	State			Conditions		Min. change value	Delay for FAILED state	Start / Repeat / End actions

Image: Pridanie Watchu

In the popped window, name the watch e.g. "Inet line quality" we recommend to choose the name as short as possible also with some specific name, as this name of the Watch will be used in notification emais, SMS messages and it's appropriate that it doesn't take too much space, and at the same time, you can easily tell what does the message belong to. Then it's suitable to tick Delay for False, especially where the connection quality is low, so that you won't receive notifications over every little hesitation of the line, as very short and occasional failures of the line don't really affect function of the systems working on internet connection. Then press Continue



Ping PL, RTT via Watches

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O New watch	_ 🗆 😣
Name (Description)	Kvalita Inet linky
Short Name	W2
Enabled	
Watch state	OK if all conditions are true FAIL if at least one condition is false
Notify Unknown State from C-Monitor by Watch actions	
Notify Unknown State from CM server	Notification can be enabled after updating watch on the computer
Delay for FAIL state	Conditions must be met at least 5 min 💌
Evaluation and notification of errors on CM server:	For this watch: ALLOWED on CM server Notification is enabled
	For computer: ALLOWED (Change in computer settings)
	For customer: ALLOWED (Change in customer settings)
	ions during editing of the watch are saved to the database. Watch configuration is updated infiguration to the C-Monitor client.
	3 Continue 8 Close

Image: Vytvorenie a pomenovanie watchu

In the next window, press Add condition. In the left menu, select condition Ping Packet Loss. Enter address which is going to be pinged into the field IP (host). You can also write DNS name of the location. Choose compairing operator, percentage value (10% for an average line) and testing period (recommended 1min). Other values in square brackets are optional and will be filled by default values, if you don't need to change them. Then press Apply

Spoločnosť Názov Watchu		Imiestnenie 6930 Použ ppnuté Watches 🗌 Len online po			Operátor		Hadat	Jednoduché Rozšírené
🕴 Kvalita Ir	net linky (SEANB02)	Nová podmienka pre watch	1					- 0
General	Conditions & Actions	Filter.		ng Packet	Loss			
List of conditi	ions	Network Presented		(Host) [] d	escription) (e.g. 192.1	68 1 1 Llocal rou	iter)	
Description		Operating System started POP3		95.146.132.5		oo.n.npiocarrot	wer)	
Add condition	1	Performance Counter Ping Ping Packet Loss Ping RoundTripTime		(epeats)	[Timeout in sec]	[Bytes]	[TTL]	[History Size]
List of Action	5	Process Usage Running Process			PacketLoss %	Test Desired	Unit	
Type	Description	Running User Process		perator	1 40	Test Period	min 💌	1
dd action		SNMP Z Service Status		Value from	this condition send	to CM server-		
] Podmienka	a alebo akcia bola upravova	Time TimeRange Transfer Speed Transfer speed of FTP Unauthorized Admin Process Watch State	11	 If value Always Never 	changes more than	1		
	NOTE: No modifications (is updated only by sending	Windows Running Time	*			4-		V



Image: Vytvorenie podmienky pre PPL

By clicking on Add condition, you'll similarly add another condition to check Ping Response time. Select Ping Round Trip Time in the left menu.Enter the address, which is going to be pinged, into field IP (host). You can also write location's DNS name. Select what value of response time is going be monitored in the field Value - either minimal time, maximal, or average value. Then select operator, value in ms and testing period (<u>typical response values for different line types</u> are in the introduction to this article). Other values in square brackets are optional and will be filled by default values, if you don't need to change them. Then press Apply

🕅 Watches - nastavenia		
	niestnenie 6930 Použivate nutė Watches 🖾 Len online počita	Hadat
Kvalita Inet linky (SEANB02)	G Nová podmienka pre watch	_ 🗆 🛛
General Conditions & Actions	Filter:	Ping RoundTripTime
List of conditions Description Ping Packet Lose 195.140.132.58 < 10%, 6x, timeout 5 Add condition	LoggedUn User Memory Usage Network Adapter Usage Network Presented Operating System started POP3 Performance Counter Ping Packet Loss	IP (Host) [description] (e.g. 192.168.1.1 local router) 195.146.132.58 3 [Retries] [Timeout in sec] [Bytes] [TTL] [LogFile] 0#
List of Actions	Ping RoundTripTime Process Usage	Value Operator Time in ms
Type Description	Running Process Running User Process	Average RTT Contemporation (400 Test Period Unit
Add action	SMTP 2	1 min 💌
Podmienka alebo akcia bola upravovana	Service Status Time II TimeRange Transfer Speed Transfer speed of FTP Unauthorized Admin Process	Value from this condition send to CM server
IMPORTANT NOTE: No modifications du configuration is updated only by sending to		4 Apikovar 🙆 Zavrier

Image: Vytvorenie podmienky pre PPL

Here you can see the list of already created conditions. Click on Update to submit the created watch to the PC. Two warning windows will appear afterwards.

	Admin zóna Prehliadanie a Customer Desk Vyhodnotenie	Operátor: Pavol P	Padkent C
Zoast deno – Rosbat r deno	😰 Watches - nastavenia		
Havné menu Zákazníci	Spotočnosť sed Počítač 5. Umiestannie 930 Použivateľ Operátor Utraduť Sukodudné Názov Watche Lan zapruté Watches Lan online počítače Rodálrené		Previous Watches
Počítače Audit SW a evidencia HW	Kvalita Inet linky (SEANB02) Genetal Conditions & Actions	× Delote	S Update Beck
Poulivatelia	List of conditions		
Měj profil Zákaznícka kontá Používateľská história	Description * Prog Parket Loss 188 148 132 81 < 10%, Br. treased Br. Bytes Bl. TTL BH, paster Loss (Not. 30), offent every Trein, Value to CM: rein, shange 1 * Prog Average RTT r05 445 132 81 < 400 mil. 4x, treased Sn. bytes 55. TTL 64, otack every Trein, Value to CM: rein, shange 10 Add exection		Dates Dates
Admin. nàstroje			
inŝtaliácie a skripty C-Image nastavenie	List of Actions Type Description Events	Doley	
Uddiavanie PC	Add action		
 C-Monitor kleant Nastavenia C-Monitora na PC Roorty a stav úloh 	Podmienka alebo akcia bola upravovaná pečas editácie tohte watchu.		
Walchen - mastavenia	IMPORTANT NOTE: No modifications during editing of the watch are saved to the database. Watch configuration is updated only by sending the modified configuration to the C-Monitor client.		

Image: Zoznam podmienok watchu

In the first one, confirm submission of the watch to the PC/server



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Kvalita Inet linky (\$EANB02)		X Delete 😂 Upd	ste
General Conditions & Actions			
List of conditions	Are you sure to update changes on C-Monitor?		
Description			
Ping Packet Loss 195.145.132.58 < 10%, 8x, timeout 5s, bytes 55, TTL 64, packet	OK Zrušiť	Edit Delete	
Ping Average RTT 195.145.132.55 < 400 ms, 4x, timeout 5s, bytes 55, TTL 64, ch		Edit Delete	
Add condition			

Image: Potvrdenie zapísania zmien

The second window contains a warning, that you shouldn't edit the watch until it's received on the PC/server

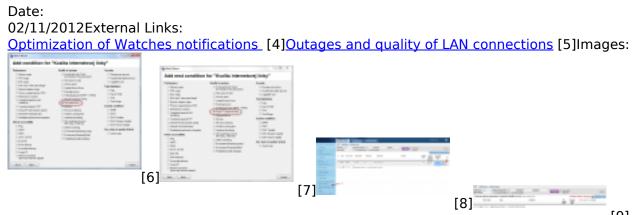
 Kvalita Inet linky (SE 	INR021	X Detete	
General Conditions & A	Request to update watch has been sent to C-Monitor. Watch will be updated in few minutes, please do NOT edit watch until your changes will be applied on the computer.		
List of conditions	mach will be updated in tew minutes, please do non edit watch driel your changes will be applied on the computer.		
Description	Continue with redirecting to the list of watches.		
Ping Packet Loss 195.145.132.58 < 1		Edt.	Delete
Ping Average RTT 195.145.132.58 <	ок	Edit	Delete
Add condition	UK		

Image: Upozornenie aby ste needitovali watch počas prenosu na PC

When the watch is successfully received on the PC, you'll see a list of watches for the PC and their status

		š Umiestne zapnutė W	nie 6930 Používateľ Operátor Atohes 🗌 Len online počítače	Hladat	 Jednodu Rozšíren 			Previou: Watches
• 2	čoznam watches odosielaný Watch name	ch z počí State	tača SEANBO2 / HP6930P / Pavol Paškevič / prenosny BA Conditions		Min. change value	Delay for FAILED state	Add w Start / Repeat / End actions	itch Bec
	Grafita Inet linky (edited watch)	•	OK - because all conditions are true TRUE - Ping Packet Loss '195.148.132.58' (0%) < 10% (30.4.2012 10.54.53) TRUE - Ping '195.148.132.58' Average RTT (14 ms) < 400 ms (30.4.2012 10.54.58)		21 410 ma	Sm Os	START - REPEAT - END: -	Edit Delete
	fretadenia servera	٠	OK - because all conditions are true TRUE - Memory Usage "Used Total M.S." (45 %) < 55 %		12 15 16	10m Da	START - REPEAT - END: -	Edit Delete

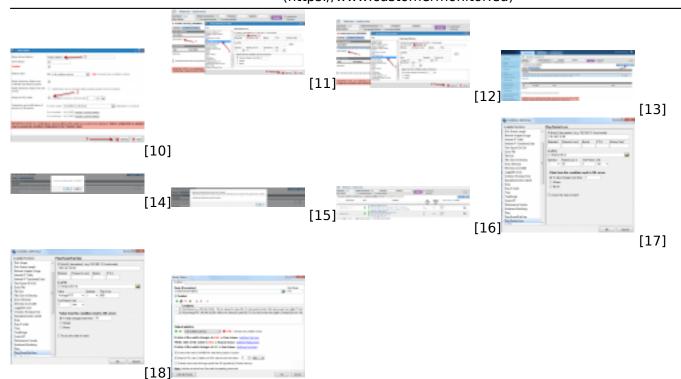
Image: Zoznam watchov a ich stav



[9]



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Links

[1] https://www.customermonitor.eu/how-cm-works-0/monitoring-and-diagnostics/monitoring-server-availablility/signalization-connection

[2] https://www.customermonitor.eu/how-cm-works-0/monitoring-and-diagnostics/monitoring-server-availablility/monitoring-watches

[3] https://www.customermonitor.eu/how-cm-works-0/monitoring-and-diagnostics/introduction-setuponline-monitoring-watches

[4] https://www.customermonitor.eu/how-cm-works-0/monitoring-and-diagnostics/introduction-setting-online-monitoring-watches-0

[5] https://www.customermonitor.eu/how-cm-works-0/monitoring-and-diagnostics/outages-and-quality-lan-connections

[6] https://www.customermonitor.eu/sites/default/files/1_1.png

[7] https://www.customermonitor.eu/sites/default/files/3_0.png

[8] https://www.customermonitor.eu/sites/default/files/8_3.png

[9] https://www.customermonitor.eu/sites/default/files/9_3.png

[10] https://www.customermonitor.eu/sites/default/files/7_3.png

[11] https://www.customermonitor.eu/sites/default/files/10_3.png

[12] https://www.customermonitor.eu/sites/default/files/15_0.png

[13] https://www.customermonitor.eu/sites/default/files/11_2.png

[14] https://www.customermonitor.eu/sites/default/files/12_2.png

[15] https://www.customermonitor.eu/sites/default/files/13_2.png[16] https://www.customermonitor.eu/sites/default/files/14_2.png

[17] https://www.customermonitor.eu/sites/default/files/2_1.png

[18] https://www.customermonitor.eu/sites/default/files/4_3.png

[19] https://www.customermonitor.eu/sites/default/files/5_4.png