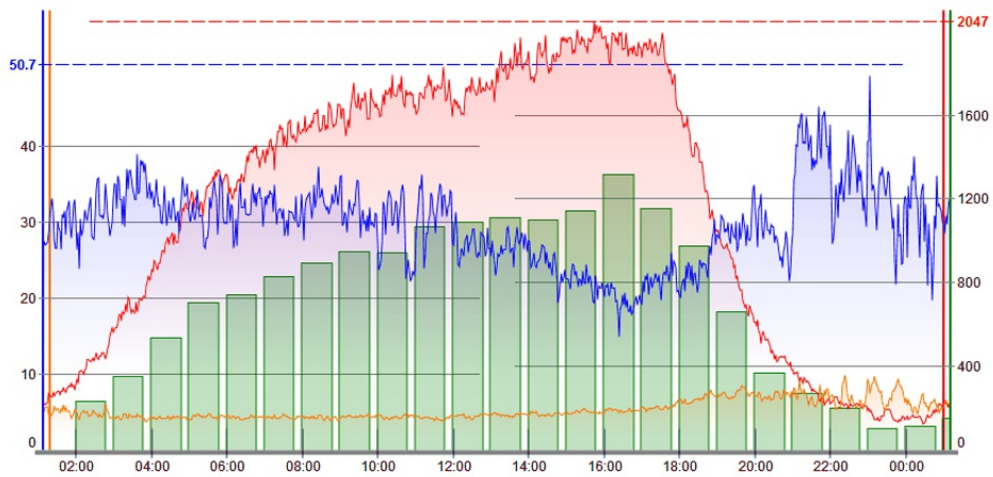




CDR comparison



User manual

Product version: 2.3

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CDR comparison

5gVision CDR comparison is part of the 5gVision suite of products for monitoring, alerting, packet sniffing, rate management, routing, and billing that share a common web interface: quick, intuitive, and flexible.

Overview

The **CDR comparison** module allows you to compare your CDRs with your partners' in case of disputes and get a report on types of mismatches together with CDR samples both in the web table, and in downloadable files.

The final result of a comparison is a report with all CDRs allocated to one of the following categories:

- Matched
- Mismatch: cost only
- Mismatch: duration, non-hung calls
- Mismatch: duration, hung calls
- Mismatch: time, minor
- Mismatch: time, major
- Connected only in File 1
- Connected only in File 2
- Earlier than mutual CDR interval
- Later than mutual CDR interval
- Duplicate calls in File 1
- Duplicate calls in File 2
- Matched only by SRC/DST numbers
- No match by any field
- Error

Please see the demo report on this screen:

The screenshot displays the 'CDR comparison' web interface. At the top, there are navigation tabs: 'Requests', 'CDR files', 'CDR fields', 'Tolerances', 'Comparison report', 'CDR samples', 'Error log', and 'More...'. Below this, there are controls for 'Rows: 3' and 'Fetch: 10 100 600 1k 3k 10k'. A 'Start new comparison' button and a 'View Comparison report' button are visible. The main area shows a 'Comparison report' window with a table of mismatched records. A context menu is open over row 39, showing options: 'View CDR samples', 'Add to filter', 'Clear filter', 'Export to Excel', 'Select cell contents', 'Select col contents', and 'Remove all highlights'. The table columns include: Mismatch row ID, Request ID, Record mismatch type, File 1+2 calls, File 1+2 calls, %, File 1 calls, File 2 calls, Delta calls, File 1 minutes, File 2 minutes, Delta minutes, File 1 cost, File 2 cost, and Delta cost.

Mismatch row ID	Request ID	Record mismatch type	File 1+2 calls	File 1+2 calls, %	File 1 calls	File 2 calls	Delta calls	File 1 minutes	File 2 minutes	Delta minutes	File 1 cost	File 2 cost	Delta cost
35	3	01-All connected calls in both files	19980	100.00	10027	9953	74	19691.33	19549.88	141.45	519.03	506.37	12.67
36	3	05-Matched	15468	77.42	7734	7734	0	15108.02	15108.05	-0.03	392.38	392.44	-0.06
37	3	10-Mismatch: cost only	40	0.20	20	20	0	41.65	41.90	-0.25	0.46	0.92	-0.46
38	3	20-Mismatch: duration, 1 second											
39	3	22-Mismatch: duration, non-hung	172	0.86	86	86	0	175.02	182.10	-7.08	3.36	4.03	-0.67
40	3	24-Mismatch: duration, hung calls	2	0.01	1	1	0	4.75	104.75	-100.00	0.14	3.04	-2.90
41	3	30-Mismatch: time, minor	2552	12.77	1276	1276	0	2532.58	2532.70	-0.12	66.86	66.87	-0.01
42	3	32-Mismatch: time, major											
45	3	40-Connected only in File 1											
46	3	42-Connected only in File 2											
47	3	50-Earlier than mutual CDR interval	805	4.03	0	805	-805	0.00	1522.33	-1522.33	0.00	36.92	-36.92
48	3	52-Later than mutual CDR interval	836	4.18	836	0	836	1670.47	0.00	1670.47	51.64	0.00	51.64
43	3	70-Duplicate calls in File 1	8	0.04	8	0	8	25.33	0.00	25.33	0.43	0.00	0.43
44	3	72-Duplicate calls in File 2	3	0.02	0	3	-3	0.00	7.58	-7.58	0.00	0.03	-0.03
49	3	80-Matched only by SRC/DST numbers	50	0.25	25	25	0	51.40	47.07	4.33	1.92	2.06	-0.14
50	3	90-No match by any field	26	0.13	25	1	24	50.18	1.85	48.33	0.81	0.00	0.80
51	3	99-Errors											

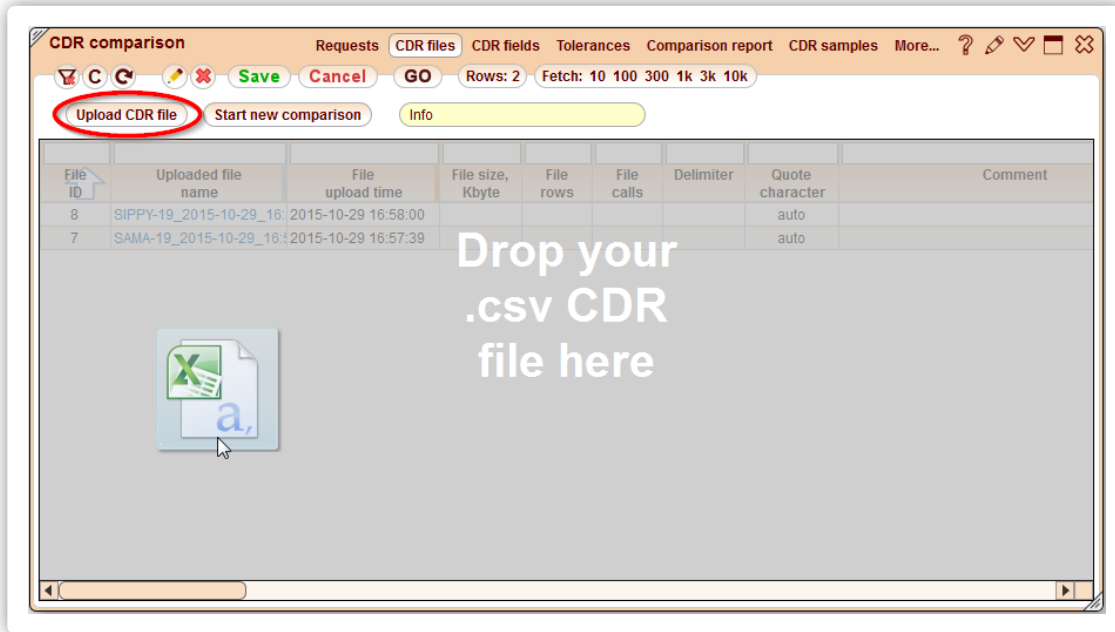
You may investigate CDR samples per each match/mismatch type right in the web interface, or download one or several files with full CDRs falling into the selected mismatch categories.

Preparation steps

To access the CDR comparison module, please create a **CDR comparison** screen (see [Menu tree](#) for information on how to add it).

The first step in a comparison procedure is to load .csv CDRs files to the server. You may load and compare as many files as you need on each side. Say, you may compare 10 individual files of your own CDRs with one .zip file containing 5 CDR files of your partner. Files will be merged on each side before comparison.

File upload is performed in the **CDR files** tab of the **CDR comparison** screen using the **Upload CDR file** button or by just dragging and dropping a file to the **CDR files** table.

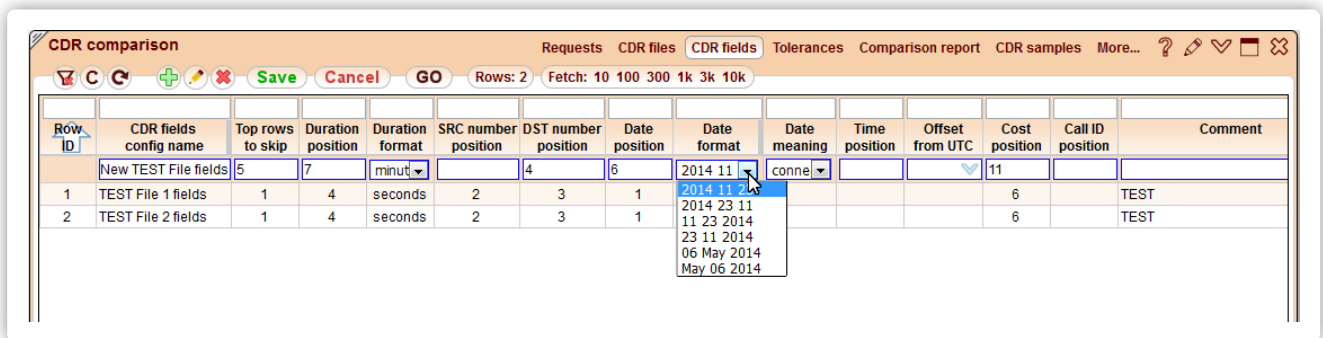


Once loaded, files stay in this table and can be used multiple times for different comparisons.

There are 2 demo files pre-loaded to the system that you may use for testing.

The next step is to configure **CDR fields** so that the system knows what are the positions of the columns we need for comparison in the files (in the very least we need: duration, DST number, CDR date, but the more positions for the columns we have, the more precise the comparison would be).

An exception to this would be SRC numbers, if they are not reliable (for instance, you send just one SRC number for all calls to your vendors) - it is better not to fill their position so that they are not compared. Or you may fill the position anyway, but dont fill the **Compare digits, SCR number** field in **Tolerances** table.



Most of the time, your and your partner' files will have different sets of columns, so you will need to setup 2 separate **CDR field** configs. Once you have a config for your partner, you may reuse it next time, as it is likely, that every time your partner sends CDRs to you - they will be in exactly the same format.

The **Tolerances** config allows you to tell the system which differences in CDR fields should still be considered a match. For instance, call start times may differ by several seconds, or sometimes even minutes, but if the duration and DST numbers are same - the 2 CDRs most probably belong to the same call.

Row ID	Tolerance config name	Tolerance duration	Compare digits SRC number	Compare digits DST number	Tolerance time	Tolerance cost	Hung call duration threshold, minutes	Comment
	New TEST tolerance	1		11	60	0.00001	15	
1	TEST tolerance			10	0	0.001	10	TEST

The fields configs for demo CDR files and the TEST tolerance config are preloaded as an example.

The system automatically calculates the shift in CDR times (due to time zones or time discrepancies of your and your partner's switches), so there is no need to tell the system which time zone the files are in.

Comparison request

Finally you can go to **Requests** tab and start a new comparison. A new window will open with the following parameters:

- **Compared files, 1st set** - select the first loaded file(s) from the drop-down menu.
- **CDR fields config, 1st** - select config for the first compared file.
- **Compared files, 2nd set** - select the second loaded file(s).
- **CDR fields config, 2nd** - select config for the second compared file.
- **Tolerance config** - select a tolerance config to be used in this comparison.
- **CDR sample size in DB** - this value indicates how many sample CDRs will be stored in the system DB for every mismatch type.
- **Create CDR files by mismatch type** - after the request is complete, you may download files generated for the **Unmatched CDRs only** types, or all types, including the matched CDRs (usually most CDRs will match, so choosing the **All CDRs** option might take longer for bigger files to generate).
- **Maximum rows in each CDR file** - limit a number of rows in each CDR file to avoid creation of huge files. Most probably, you won't need 10 million CDRs for investigation.
- **Comment** - just a comment so that it is easier to remember for you which comparison request it was.

When you click **OK**, a new request will be run, and a new row appears in the request list:

Request ID	User	Request Date	Comment	Done, %	Errors	Compared File 1	Compared File 2	File 1 calls	File 2 calls	Delta calls	File 1 minutes	File 2 minutes	Delta minutes	File 1 cost	File 2 cost	Delta cost	Average time shift	Average shift variation
1	3	2015-10-28 21:24:27		100		TEST_File_1_2015-10-06	TEST_File_2_2015-10-06	10027	9953	74	19691.33	19549.88	141.45	519.03	506.37	12.67	-7210	162

The status of the request is displayed in the **Done, %** field. Please click refresh to update it. The progress percentage is only a rough estimate. When it is 100% done, you will be able to view the comparison report using the corresponding button:

Mismatch row ID	Request ID	Record mismatch type	File 1+2 calls	File 1+2 calls, %	File 1 calls	File 2 calls	Delta calls	File 1 minutes	File 2 minutes	Delta minutes	File 1 cost	File 2 cost	Delta cost
1	1	01-All connected calls in both files	19980	100.00	10027	9953	74	19691.33	19549.88	141.45	519.03	506.37	12.67
2	1	05-Matched	182	0.91	91	91	0	176.37	176.42	-0.05	3.69	3.69	0.00
3	1	10-Mismatch: cost only											
4	1	20-Mismatch: duration, 1 second											
5	1	22-Mismatch: duration, non-hung calls											
6	1	24-Mismatch: duration, hung calls											
7	1	30-Mismatch: time, minor	17800	89.09	8900	8900	0	17441.93	17441.97	-0.03	454.37	454.37	-0.00
8	1	32-Mismatch: time, major											
11	1	40-Connected only in File 1	2	0.01	1	1	0	1.53	0.00	1.53	0.35	0.00	0.35
12	1	42-Connected only in File 2											
13	1	50-Earlier than mutual CDR interval	805	4.03	0	805	-805	0.00	1522.33	-1522.33	0.00	36.92	-36.92
14	1	52-Later than mutual CDR interval	836	4.18	836	0	836	1670.47	0.00	1670.47	51.64	0.00	51.64
9	1	70-Duplicate calls in File 1	1	0.01	1	0	1	2.20	0.00	2.20	0.03	0.00	0.03
10	1	72-Duplicate calls in File 2											
15	1	80-Matched only by SRC/DST numbers	302	1.51	151	151	0	295.12	398.18	-103.07	7.06	11.31	-4.25
16	1	90-No match by any field	53	0.27	47	6	41	103.72	10.98	92.73	1.89	0.08	1.81
17	1	99-Errors											

For each mismatch type **CDR samples** are available and can be viewed using the **View CDR samples** button or the context menu item. Matched CDRs will have the same **Pair ID** which will allow you to easily see the 2 CDRs that were matched (or partially matched).

CDR comparison Requests CDR files CDR fields Tolerances Comparison report CDR samples More... ?

CDR samples ?

Start new c... Rows: 20 / 20 1-20 Fetch: 10 100 600 1k 3k 10k File

Request ID	Request ID	Mismatch row ID	Record mismatch type	CDR file	Pair ID	Duplicate ID	Duration, sec	SRC number	DST number	Date normalized	Rate	Cost	Call ID	File index	Row ID	Error
1	21	1	7	30-Mismatch: time, minor	1	13	101	78318882380	18700527565	2015-08-23 00:00:04	0.0102			1.1	2	
	22	1	7	30-Mismatch: time, minor	2	13	101	78318882380	18700527565	2015-08-23 23:59:34	0.0102			2.1	810	
	23	1	7	30-Mismatch: time, minor	1	14	109	783122237301	78319782609	2015-08-23 00:00:08	0.001			1.1	4	
	24	1	7	30-Mismatch: time, minor	2	14	109	783122237301	78319782609	2015-08-23 00:00:22	0.001			2.1	813	
	25	1	7	30-Mismatch: time, minor	1	15	174	78317370928	78318656924	2015-08-23 00:00:31	0.0015			1.1	5	
	26	1	7	30-Mismatch: time, minor	2	15	174	78317370928	78318656924	2015-08-23 00:01:12	0.0015			2.1	818	
	27	1	7	30-Mismatch: time, minor	1	16	307	78314294384	90745926359	2015-08-23 00:00:40	0.1488			1.1	6	
	28	1	7	30-Mismatch: time, minor	2	16	307	78314294384	90745926359	2015-08-23 00:00:22	0.1488			2.1	814	
	29	1	7	30-Mismatch: time, minor	1	17	165	78316914934	73673123848	2015-08-23 00:00:43	0.0315			1.1	7	
	30	1	7	30-Mismatch: time, minor	2	17	165	78316914934	73673123848	2015-08-23 00:00:03	0.0315			2.1	811	
	31	1	7	30-Mismatch: time, minor	1	18	170	78315758175	68965225632	2015-08-23 00:00:59	0.321			1.1	8	
	32	1	7	30-Mismatch: time, minor	2	18	170	78315758175	68965225632	2015-08-23 00:01:16	0.321			2.1	821	
	33	1	7	30-Mismatch: time, minor	1	19	234	78319926200	78313455013	2015-08-23 00:01:15	0.002			1.1	9	
	34	1	7	30-Mismatch: time, minor	2	19	234	78319926200	78313455013	2015-08-23 00:01:13	0.002			2.1	819	
	35	1	7	30-Mismatch: time, minor	1	20	132	78310896889	78317918755	2015-08-23 00:01:26	0.0015			1.1	10	
	36	1	7	30-Mismatch: time, minor	2	20	132	78310896889	78317918755	2015-08-23 00:00:48	0.0015			2.1	815	
	37	1	7	30-Mismatch: time, minor	1	21	17	78315510090	78734860829	2015-08-23 00:01:28	0.0278			1.1	11	
	38	1	7	30-Mismatch: time, minor	2	21	17	78315510090	78734860829	2015-08-23 00:02:00	0.0278			2.1	824	
	39	1	7	30-Mismatch: time, minor	1	22	220	78318996830	78315081620	2015-08-23 00:02:08	0.002			1.1	12	
	40	1	7	30-Mismatch: time, minor	2	22	220	78318996830	78315081620	2015-08-23 00:02:27	0.002			2.1	827	