

PIRAEUS BANK



# Provision of Statistical Information on the Availability & Performance of rAPIdLink

July 2023 (2023Q2)

To achieve optimum levels of provided service quality, the following KPIs are being calculated and monitored on a daily basis, regarding the availability and performance of the dedicated API interface and the online channel (winbank) used as benchmark:

1. Average daily uptime of all interfaces
2. Average daily downtime of all interfaces (both planned and unplanned)
3. Daily average response time per PIS request
4. Daily average response time per AIS request
5. Daily average response time per CoF request (to PIIS API)
6. Daily average error rate for ASPSP errors

Table 1 below summarizes the results of above.

	<b>Dedicated Interface</b>	<b>Online Interface (winbank)</b>
<b>Average daily downtime of all interface (see Table 2)s:</b> * <b>Planned, due to End-of-Day and Beginning-of-Day tasks</b> * <b>Unplanned</b>	* < 1 min * < 1 min	* < 1 min * < 1 min
<b>Average daily uptime of all interfaces (24h – average daily downtime)</b>	23h:59min	23h:59min
<b>Daily average error rate for ASPSP errors (see Table 3)</b>	0.05143%	-
<b>Daily average response time per PIS request (see Table 4)</b>	755 milliseconds (includes latency due to technical calls)	408 milliseconds
<b>Daily average response time per AIS request (see Table 5)</b>	1984 milliseconds (includes latency due to technical calls)	1521 milliseconds
<b>Daily average response time per CoF request (see Table 6)</b>	0 milliseconds	-

*Table 1: Availability & Performance KPIs*

During the second quarter, there were no requests performed from registered TPPs to our PSD2 PIIS APIs, for confirmation of funds. On the contrary, there were numerous calls to our PSD2 AIS APIs, for account information retrieval, and to our PSD2 PIS APIs for payment initiation.

Based on the definition of “downtime” as the amount of time during which the interface was unavailable (i.e. there were at least five consecutive AIS, PIS or CoF requests receiving errors with code “500” or “503” within a timeframe of 30 seconds), there were certain cases of unplanned downtime. These cases were mostly linked to unplanned downtime in the backend systems, which are common for both the dedicated (rapidlink) and web interface (winbank), although there were also a few cases where a massive request load from a couple of TPPs caused a momentary unavailability. Proper actions were taken to address the issue, by both contacting the TPPs and improving our APIs to sustain such traffic.

On the other hand, during the execution of planned maintenance and end-of-day (EOD) and beginning-of-day (BOD) tasks, there was little evidence of “downtime” on the dedicated interface within the particular period, due to the way the dedicated interface, the online channel and the backend services are implemented. More specifically, even if certain subsystems are “down”, rendering certain endpoints, like cards, unavailable, all other related resources are constantly available.

Table 2 below summarizes the downtime incidents within the particular period, while explaining their origin.

From	To	Duration (Milliseconds)	Duration (Minutes)	Comments
2023-04-04 23:51:52.9330000	2023-04-04 23:51:54.3550000	1422	0.395	rapidlink downtime
2023-04-20 20:38:03.1090000	2023-04-20 20:38:14.6900000	11581	3.217	rapidlink downtime
2023-04-26 12:42:34.4360000	2023-04-26 12:42:36.1410000	1705	0.474	rapidlink downtime
2023-04-26 12:45:30.8800000	2023-04-26 12:45:35.5550000	4675	1.299	rapidlink downtime
2023-04-26 12:45:42.9840000	2023-04-26 12:46:01.0360000	18052	5.014	rapidlink downtime
2023-04-26 12:46:21.2360000	2023-04-26 12:46:32.6040000	11368	3.158	rapidlink downtime
2023-04-26 12:46:32.9150000	2023-04-26 12:46:38.0290000	5114	1.421	rapidlink downtime
2023-04-26 12:46:59.6250000	2023-04-26 12:47:04.3480000	4723	1.312	rapidlink downtime
2023-04-26 12:47:06.7690000	2023-04-26 12:47:21.9180000	15149	4.208	rapidlink downtime
2023-04-26 12:48:02.2340000	2023-04-26 12:48:03.1180000	884	0.246	rapidlink downtime
2023-04-26 12:48:07.8840000	2023-04-26 12:48:32.9070000	25023	6.951	rapidlink downtime
2023-04-26 12:48:37.6220000	2023-04-26 12:48:43.1510000	5529	1.536	rapidlink downtime
2023-05-02 20:37:51.3480000	2023-05-02 20:37:54.0090000	2661	0.739	rapidlink downtime
2023-05-03 17:18:18.3090000	2023-05-03 17:18:38.2860000	19977	5.549	rapidlink downtime
2023-05-12 19:03:48.7160000	2023-05-12 19:04:10.1770000	21461	5.961	rapidlink downtime
2023-05-29 05:35:38.2690000	2023-05-29 05:36:00.0720000	21803	6.056	rapidlink downtime
2023-06-16 08:36:23.6830000	2023-06-16 08:36:25.7090000	2026	0.563	rapidlink downtime
2023-06-19 15:23:57.4660000	2023-06-19 15:24:13.0460000	15580	4.328	rapidlink downtime
2023-06-19 15:24:17.3640000	2023-06-19 15:24:22.4300000	5066	1.407	rapidlink downtime
2023-06-19 15:24:30.2700000	2023-06-19 15:24:42.7750000	12505	3.474	rapidlink downtime
2023-06-19 23:36:26.9070000	2023-06-19 23:36:28.0320000	1125	0.313	rapidlink downtime
2023-06-30 08:48:13.5520000	2023-06-30 08:48:19.3800000	5828	1.619	winbank downtime (unscheduled)
2023-06-30 08:48:29.1070000	2023-06-30 08:48:36.7630000	7656	2.127	winbank downtime (unscheduled)

2023-06-30 08:50:48.5590000	2023-06-30 08:50:55.7000000	7141	1.984	winbank downtime (unscheduled)
2023-06-30 08:51:24.4340000	2023-06-30 08:51:28.5460000	4112	1.142	winbank downtime (unscheduled)
2023-06-30 08:51:46.9400000	2023-06-30 08:51:51.2160000	4276	1.188	winbank downtime (unscheduled)
2023-06-30 08:52:16.3920000	2023-06-30 08:52:21.1310000	4739	1.316	winbank downtime (unscheduled)
2023-06-30 08:52:29.4970000	2023-06-30 08:52:37.4890000	7992	2.220	winbank downtime (unscheduled)
2023-06-30 08:52:44.6770000	2023-06-30 08:52:49.3420000	4665	1.296	winbank downtime (unscheduled)
2023-06-30 08:53:18.5060000	2023-06-30 08:53:27.4010000	8895	2.471	winbank downtime (unscheduled)
2023-06-30 08:53:34.1040000	2023-06-30 08:53:37.7040000	3600	1.000	winbank downtime (unscheduled)
2023-06-30 08:53:37.7960000	2023-06-30 08:53:42.5350000	4739	1.316	winbank downtime (unscheduled)
2023-06-30 08:53:52.8770000	2023-06-30 08:53:54.7930000	1916	0.532	winbank downtime (unscheduled)
2023-06-30 08:53:57.1410000	2023-06-30 08:54:15.5850000	18444	5.123	winbank downtime (unscheduled)
2023-06-30 08:54:18.1110000	2023-06-30 08:54:25.2790000	7168	1.991	winbank downtime (unscheduled)
2023-06-30 08:54:47.5790000	2023-06-30 08:54:49.9010000	2322	0.645	winbank downtime (unscheduled)
2023-06-30 08:55:03.8580000	2023-06-30 08:55:20.5450000	16687	4.635	winbank downtime (unscheduled)
2023-06-30 08:55:21.5000000	2023-06-30 08:55:24.0520000	2552	0.709	winbank downtime (unscheduled)

*Table 2: Downtime incidents*

Moving on to the next KPI, the dedicated interface’s daily average error rate is calculated as the ratio of total daily number of requests returning an http error status code “500” (Internal Server Error) or “503” (Service Unavailable) to the total daily number of successful requests.

The following table summarizes the daily results for the particular period:

date	# unsuccessful_requests	# successful_requests	error_rate
1/4/2023	12	57476	0.02088%
2/4/2023	15	54974	0.02729%
3/4/2023	21	78712	0.02668%
4/4/2023	33	71667	0.04605%
5/4/2023	17	72194	0.02355%
6/4/2023	17	69770	0.02437%
7/4/2023	26	69494	0.03741%
8/4/2023	17	55264	0.03076%
9/4/2023	23	48179	0.04774%
10/4/2023	24	75342	0.03185%
11/4/2023	27	72599	0.03719%
12/4/2023	37	73850	0.05010%
13/4/2023	20	69912	0.02861%
14/4/2023	22	58825	0.03740%
15/4/2023	17	55520	0.03062%
16/4/2023	24	54994	0.04364%
17/4/2023	28	54726	0.05116%
18/4/2023	39	70746	0.05513%
19/4/2023	24	66450	0.03612%
20/4/2023	34	66858	0.05085%
21/4/2023	18	67269	0.02676%
22/4/2023	15	57012	0.02631%
23/4/2023	23	50717	0.04535%
24/4/2023	29	72897	0.03978%
25/4/2023	19	66365	0.02863%
26/4/2023	226	67935	0.33267%
27/4/2023	18	73218	0.02458%
28/4/2023	31	99785	0.03107%
29/4/2023	23	57085	0.04029%
30/4/2023	38	56056	0.06779%
1/5/2023	26	60010	0.04333%
2/5/2023	40	85777	0.04663%
3/5/2023	49	77400	0.06331%
4/5/2023	28	75786	0.03695%
5/5/2023	25	101313	0.02468%
6/5/2023	25	55375	0.04515%

7/5/2023	24	57114	0.04202%
8/5/2023	30	70964	0.04227%
9/5/2023	24	85128	0.02819%
10/5/2023	24	79536	0.03018%
11/5/2023	17	68439	0.02484%
12/5/2023	38	71886	0.05286%
13/5/2023	26	57712	0.04505%
14/5/2023	21	56251	0.03733%
15/5/2023	21	71761	0.02926%
16/5/2023	30	69931	0.04290%
17/5/2023	23	76806	0.02995%
18/5/2023	30	69327	0.04327%
19/5/2023	26	67184	0.03870%
20/5/2023	23	50038	0.04597%
21/5/2023	20	53465	0.03741%
22/5/2023	24	67644	0.03548%
23/5/2023	34	68365	0.04973%
24/5/2023	24	70207	0.03418%
25/5/2023	19	68915	0.02757%
26/5/2023	28	69663	0.04019%
27/5/2023	23	52011	0.04422%
28/5/2023	21	51553	0.04073%
29/5/2023	134	72809	0.18404%
30/5/2023	28	71656	0.03908%
31/5/2023	30	74097	0.04049%
1/6/2023	18	71239	0.02527%
2/6/2023	26	66918	0.03885%
3/6/2023	22	51438	0.04277%
4/6/2023	26	50482	0.05150%
5/6/2023	21	57656	0.03642%
6/6/2023	19	71863	0.02644%
7/6/2023	19	66827	0.02843%
8/6/2023	24	63590	0.03774%
9/6/2023	27	64334	0.04197%
10/6/2023	31	52069	0.05954%
11/6/2023	24	45998	0.05218%
12/6/2023	41	70565	0.05810%
13/6/2023	22	66177	0.03324%
14/6/2023	28	67898	0.04124%
15/6/2023	30	69098	0.04342%
16/6/2023	31	67926	0.04564%
17/6/2023	28	54307	0.05156%
18/6/2023	29	51063	0.05679%

19/6/2023	101	69913	0.14447%
20/6/2023	30	67896	0.04419%
21/6/2023	24	68020	0.03528%
22/6/2023	24	64016	0.03749%
23/6/2023	15	56013	0.02678%
24/6/2023	14	39530	0.03542%
25/6/2023	16	35465	0.04511%
26/6/2023	12	58891	0.02038%
27/6/2023	16	63554	0.02518%
28/6/2023	18	57070	0.03154%
29/6/2023	17	58937	0.02884%
30/6/2023	430	64389	0.66782%
<b>Average Daily Error Rate</b>			<b>0.051434%</b>

*Table 3: Daily Error Rates of PSD2 APIs*

Finally, regarding the average daily response times per service (AIS, PIS, CoF), as mentioned previously, traffic data showed that only AIS and PIS endpoints were called during the selected period. Therefore, Table 6 is empty, while Tables 4 and 5 summarize the results for PSD2 PIS and AIS APIs respectively. It must be stressed that average response times from the dedicated interface also include latency caused by technical calls.

<b>Date</b>	<b>Number of requests</b>	<b>Average response time for PSD2_PIS APIs (milliseconds)</b>
1/4/2023	27	1629
2/4/2023	34	1807
3/4/2023	253	1205
4/4/2023	240	927
5/4/2023	379	571
6/4/2023	439	459
7/4/2023	515	486
8/4/2023	793	359
9/4/2023	1155	326
10/4/2023	1340	339
11/4/2023	1847	382
12/4/2023	2076	372
13/4/2023	1679	334
14/4/2023	1019	358
15/4/2023	870	319



16/4/2023	599	285
17/4/2023	467	361
18/4/2023	699	595
19/4/2023	589	510
20/4/2023	731	597
21/4/2023	676	529
22/4/2023	690	287
23/4/2023	685	375
24/4/2023	662	435
25/4/2023	1062	539
26/4/2023	893	485
27/4/2023	743	736
28/4/2023	622	890
29/4/2023	590	420
30/4/2023	528	485
1/5/2023	408	399
2/5/2023	638	796
3/5/2023	852	772
4/5/2023	1147	562
5/5/2023	1090	520
6/5/2023	1031	331
7/5/2023	1101	307
8/5/2023	1214	563
9/5/2023	778	639
10/5/2023	741	758
11/5/2023	790	667
12/5/2023	882	796
13/5/2023	953	278
14/5/2023	944	319
15/5/2023	1045	462
16/5/2023	1144	486
17/5/2023	845	486
18/5/2023	576	487
19/5/2023	636	553
20/5/2023	756	350
21/5/2023	611	306
22/5/2023	550	815
23/5/2023	953	581
24/5/2023	1054	427
25/5/2023	1139	421
26/5/2023	994	442
27/5/2023	828	366
28/5/2023	656	387

29/5/2023	709	778
30/5/2023	1053	603
31/5/2023	1250	495
1/6/2023	1121	533
2/6/2023	702	616
3/6/2023	545	340
4/6/2023	309	505
5/6/2023	84	1474
6/6/2023	131	772
7/6/2023	56	1614
8/6/2023	48	1626
9/6/2023	103	1510
10/6/2023	79	1217
11/6/2023	104	1385
12/6/2023	298	2104
13/6/2023	159	1315
14/6/2023	126	1522
15/6/2023	165	1464
16/6/2023	151	1527
17/6/2023	99	1329
18/6/2023	54	1274
19/6/2023	131	1835
20/6/2023	309	1133
21/6/2023	303	1101
22/6/2023	257	1015
23/6/2023	249	1131
24/6/2023	114	877
25/6/2023	39	1376
26/6/2023	225	2024
27/6/2023	8835	344
28/6/2023	1580	535
29/6/2023	1390	523
30/6/2023	628	1131
<b>Average</b>		<b>755.01 milliseconds</b>

*Table 4: Daily average response times per PIS request*

<b>Date</b>	<b>Number of requests</b>	<b>Average response time for PSD2_AIS APIs (milliseconds)</b>
1/4/2023	57461	1889

2/4/2023	54955	1795
3/4/2023	78480	2148
4/4/2023	71460	2196
5/4/2023	71832	2192
6/4/2023	69348	2095
7/4/2023	69005	2003
8/4/2023	54488	1628
9/4/2023	47047	1677
10/4/2023	74026	1928
11/4/2023	70779	2034
12/4/2023	71811	2126
13/4/2023	68253	1921
14/4/2023	57828	1699
15/4/2023	54667	1635
16/4/2023	54419	1590
17/4/2023	54287	1611
18/4/2023	70086	2005
19/4/2023	65885	2025
20/4/2023	66161	2098
21/4/2023	66611	1994
22/4/2023	56337	1692
23/4/2023	50055	1652
24/4/2023	72264	1886
25/4/2023	65322	2063
26/4/2023	67268	2198
27/4/2023	72493	2183
28/4/2023	99194	2185
29/4/2023	56518	1838
30/4/2023	55566	1761
1/5/2023	59628	1732
2/5/2023	85179	2104
3/5/2023	76597	2157
4/5/2023	74667	2088
5/5/2023	100248	2080
6/5/2023	54369	1857
7/5/2023	56037	1890
8/5/2023	69780	2044
9/5/2023	84374	1939
10/5/2023	78819	2075
11/5/2023	67666	2114
12/5/2023	71042	2013
13/5/2023	56785	1841
14/5/2023	55328	1726

15/5/2023	70737	2013
16/5/2023	68817	2020
17/5/2023	75984	1925
18/5/2023	68781	2050
19/5/2023	66574	2045
20/5/2023	49305	1851
21/5/2023	52874	1732
22/5/2023	67118	1999
23/5/2023	67446	2107
24/5/2023	69177	1970
25/5/2023	67795	2042
26/5/2023	68697	2045
27/5/2023	51206	1800
28/5/2023	50918	1813
29/5/2023	72234	2373
30/5/2023	70631	2247
31/5/2023	72877	2220
1/6/2023	70136	2133
2/6/2023	66242	2255
3/6/2023	50915	1896
4/6/2023	50199	1818
5/6/2023	57593	1877
6/6/2023	71751	2059
7/6/2023	66790	2080
8/6/2023	63566	2205
9/6/2023	64258	2154
10/6/2023	52021	1831
11/6/2023	45918	1866
12/6/2023	70308	2088
13/6/2023	66040	1984
14/6/2023	67800	1938
15/6/2023	68963	1963
16/6/2023	67806	1958
17/6/2023	54236	1748
18/6/2023	51038	1653
19/6/2023	69883	1982
20/6/2023	67617	1911
21/6/2023	67741	1930
22/6/2023	63783	1961
23/6/2023	55779	2002
24/6/2023	39430	1765
25/6/2023	35442	1717
26/6/2023	58678	2052

27/6/2023	54735	2122
28/6/2023	55508	2290
29/6/2023	57564	2307
30/6/2023	64191	3298
<b>Average</b>		<b>1983.54 milliseconds</b>

*Table 5: Daily average response times per AIS request*

<b>Date</b>	<b>Number of requests</b>	<b>Average response time for PSD2_PPIS APIs (milliseconds)</b>
-	-	-
<b>Average</b>		<b>0 milliseconds</b>

*Table 6: Daily average response times per CoF request*