

Aircraft Landing Problem, R-LNS Based method, two runways.

Airland1.txt two runways

airland1.txt Run Ways 2 LNS search method RLNS Stop Execution Find Best Solution

Airplanes Information

Column ...	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Appeara...	54	120	14	21	35	45	49	51	60	85
Ei	129	195	89	96	110	120	124	126	135	160
Ti	155	258	98	106	123	135	138	140	150	180
Li	559	744	510	521	555	576	577	573	591	657
Penalty ...	10	10	30	30	30	30	30	30	30	30
Penalty ...	10	10	30	30	30	30	30	30	30	30

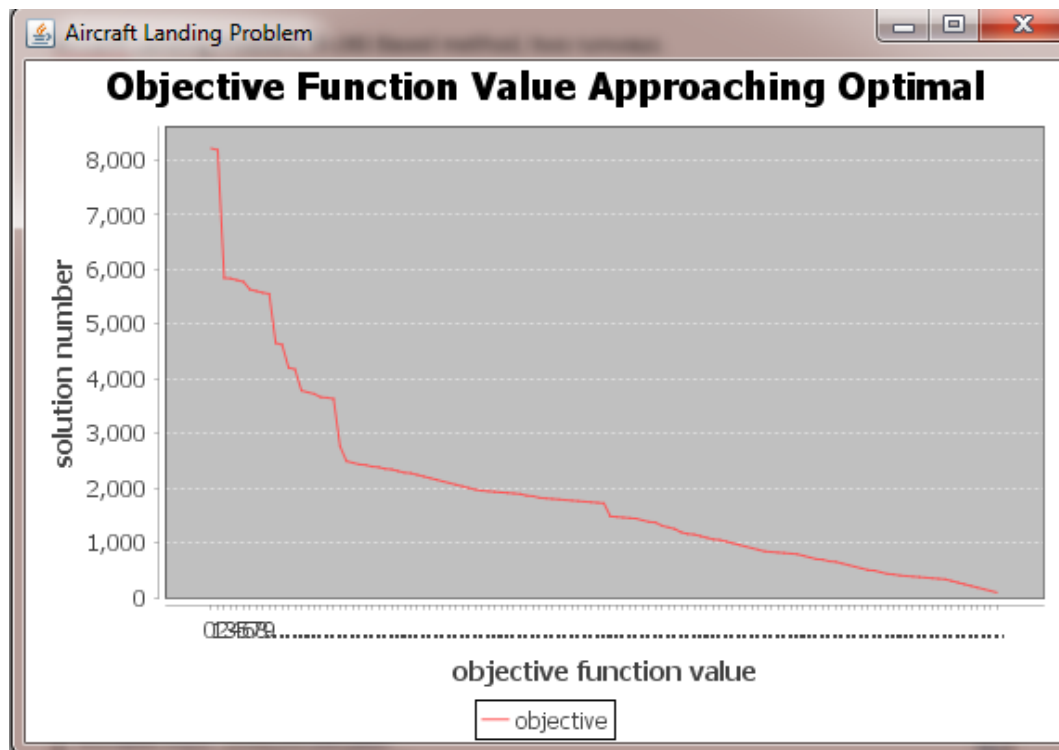
Separation Data

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
plane0	99999	3	15	15	15	15	15	15	15	15
plane1	3	99999	15	15	15	15	15	15	15	15
plane2	15	15	99999	8	8	8	8	8	8	8
plane3	15	15	8	99999	8	8	8	8	8	8
plane4	15	15	8	8	99999	8	8	8	8	8

Best Solution Found :90

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Landing...	155	258	98	106	123	132	138	140	150	180
Runway	1	1	1	2	1	1	2	1	2	2

- Incomplete search - Unexpected interruption.
 Solver[Aircraft Landing Problem]
 Solutions: 123
 Minimize objective = 90,
 Building time : 0.186s
 Resolution time : 16.309s
 Nodes: 27,259 (1,671.4 n/s)
 Backtracks: 52,976
 Fails: 26,598



Airland2.txt two runways.

airland2.bt

Run Ways 2

LNS search method RLNS

Stop Execution

Find Best Solution

Airplanes Information

Colum...	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9	Plane10	Plane11	Plane12	Plane13	Plane14
Appear...	54	115	9	14	25	32	34	34	40	59	191	176	85	77	201
Ei	129	190	84	89	100	107	109	109	115	134	266	251	160	152	276
Ti	155	250	93	98	111	120	121	120	128	151	341	313	181	171	342
Li	559	732	501	509	536	552	550	544	557	610	837	778	674	637	815
Penalty...	10	10	30	30	30	30	30	30	30	30	10	10	30	30	10
Penalty...	10	10	30	30	30	30	30	30	30	30	10	10	30	30	10

Separation Data

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9	Plane10	Plane11	Plane12	Plane13	Plane14
plane0	99999	3	15	15	15	15	15	15	15	15	3	3	15	15	3
plane1	3	99999	15	15	15	15	15	15	15	15	3	3	15	15	3
plane2	15	15	99999	8	8	8	8	8	8	8	15	15	8	8	15
plane3	15	15	8	99999	8	8	8	8	8	8	15	15	8	8	15
plane4	15	15	8	8	99999	8	8	8	8	8	15	15	8	8	15

Best Solution Found :210

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9	Plane10	Plane11	Plane12	Plane13	Plane14
Landin...	155	250	341	313	342	93	98	111	120	127	119	128	151	181	171
Runway	2	1	1	2	1	2	1	1	2	1	2	2	2	1	1

- Incomplete search - Unexpected interruption.

Solver[Aircraft Landing Problem]

Solutions: 374

Minimize objective = 210,

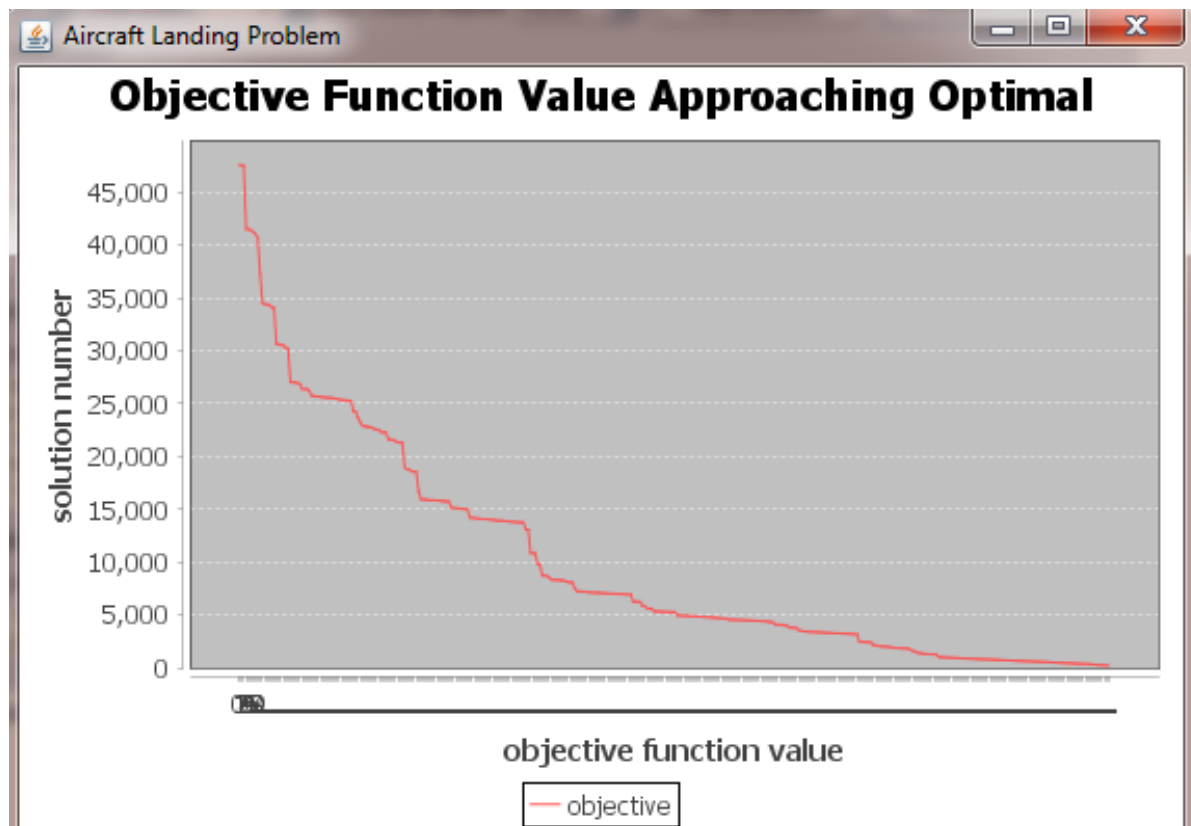
Building time : 0.245s

Resolution time : 572.240s

Nodes: 7,097,665 (12,403.3 n/s)

Backtracks: 14,041,297

Fails: 6,958,844



Airland3.txt two runways.

airland3.txt
Run Ways
2
LNS search method
RLNS
Stop Execution
Find Best Solution

Airplanes Information

Co...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
Ap...	0	82	59	28	126	20	110	23	42	42	57	39	186	175	139	235	194	162	69	76
Ei	75	157	134	103	201	95	185	98	117	117	132	114	261	250	214	310	269	237	144	151
Ti	82	197	160	117	261	106	229	108	132	130	149	126	336	316	258	409	338	287	160	169
Li	486	628	561	565	735	524	664	523	578	569	615	551	834	790	688	967	818	726	607	624
Pe...	30	10	10	30	10	30	10	30	30	30	30	30	10	10	10	10	10	10	30	30
Pe...	30	10	10	30	10	30	10	30	30	30	30	30	10	10	10	10	10	10	30	30

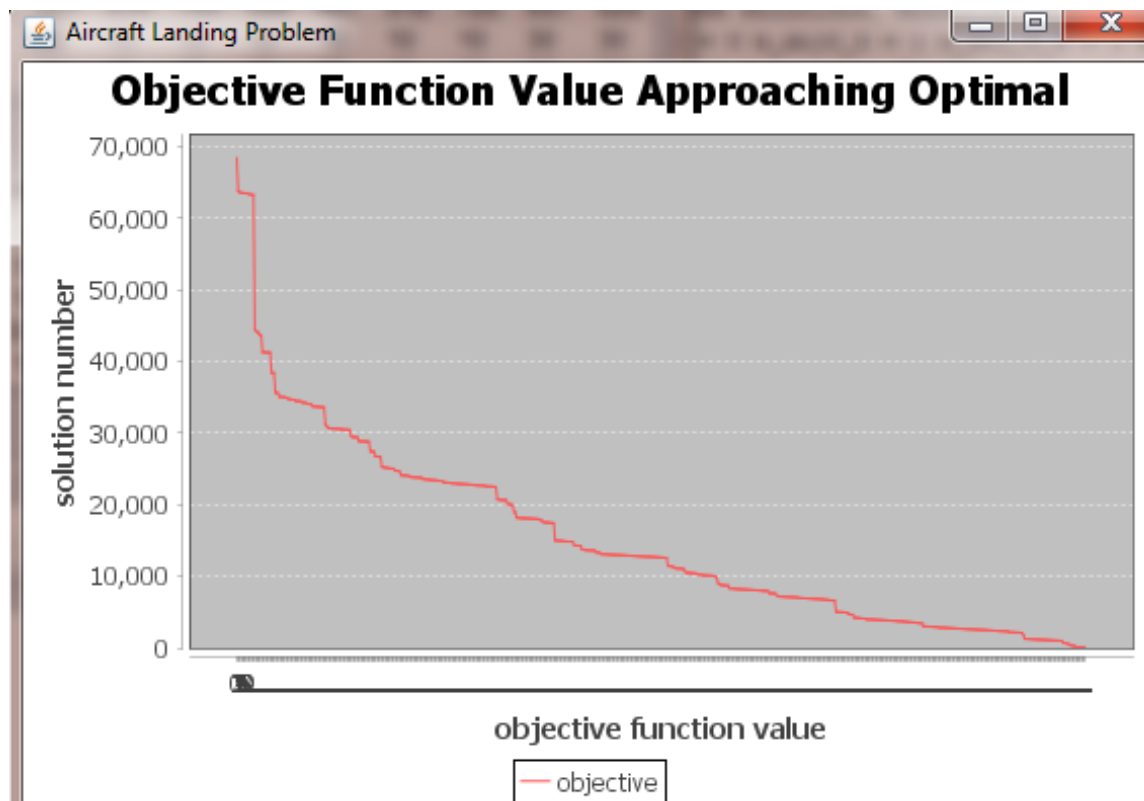
Separation Data

PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
pl...	99...	15	15	8	15	8	15	8	8	8	8	8	15	15	15	15	15	15	8	8
pl...	15	99...	3	15	3	15	3	15	15	15	15	15	3	3	3	3	3	3	15	15
pl...	15	3	99...	15	3	15	3	15	15	15	15	15	3	3	3	3	3	3	15	15
pl...	8	15	15	99...	15	8	15	8	8	8	8	8	15	15	15	15	15	15	8	8
pl...	15	3	3	15	99...	15	3	15	15	15	15	15	3	3	3	3	3	3	15	15

Best Solution Found :70

PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
La...	197	161	261	229	336	316	258	409	338	287	82	117	106	108	132	130	149	124	160	169
Ru...	2	1	1	2	2	2	1	1	1	2	2	1	2	2	1	1	1	1	2	2

- Incomplete search - Unexpected interruption.
Solver[Aircraft Landing Problem]
Solutions: 662
Minimize objective = 70,
Building time : 0.312s
Resolution time : 1,370.426s
Nodes: 9,922,320 (7,240.3 n/s)
Backtracks: 19,710,551
Fails: 9,819,932



Airland4.txt using PLNS method, two runways.

airland4.txt

Run Ways

2

LNS search method

PLNS

Stop Execution

Find Best Solution

Airplanes Information

Co...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
Ap...	7	9	75	129	14	29	30	30	26	146	157	63	48	160	78	65	76	76	75	211
Ei	82	84	150	204	89	104	105	105	101	221	232	138	123	235	153	140	151	151	150	286
Ti	92	93	183	270	98	117	118	116	112	280	295	156	137	291	174	156	170	169	168	357
Li	510	509	599	760	510	552	550	542	528	742	766	630	573	746	663	609	642	634	627	840
Pe...	30	30	10	10	30	30	30	30	30	10	10	30	30	10	30	30	30	30	30	10
Pe...	30	30	10	10	30	30	30	30	30	10	10	30	30	10	30	30	30	30	30	10

Separation Data

	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
pl...	99...	8	15	15	8	8	8	8	8	15	15	8	8	15	8	8	8	8	8	15
pl...	8	99...	15	15	8	8	8	8	8	15	15	8	8	15	8	8	8	8	8	15
pl...	15	15	99...	3	15	15	15	15	15	3	3	15	15	3	15	15	15	15	15	3
pl...	15	15	3	99...	15	15	15	15	15	3	3	15	15	3	15	15	15	15	15	3
pl...	8	8	15	15	99...	8	8	8	8	15	15	8	8	15	8	8	8	8	8	15

Best Solution Found

:1440

	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...	PI...
La...	189	270	280	295	291	357	85	93	98	110	118	116	108	145	137	174	153	177	169	161
Ru...	1	1	1	2	2	1	1	2	2	2	2	2	2	1	1	2	2	2	2	2

- Incomplete search - Unexpected interruption.

Solver[Aircraft Landing Problem]

Solutions: 545

Minimize objective = 1440,

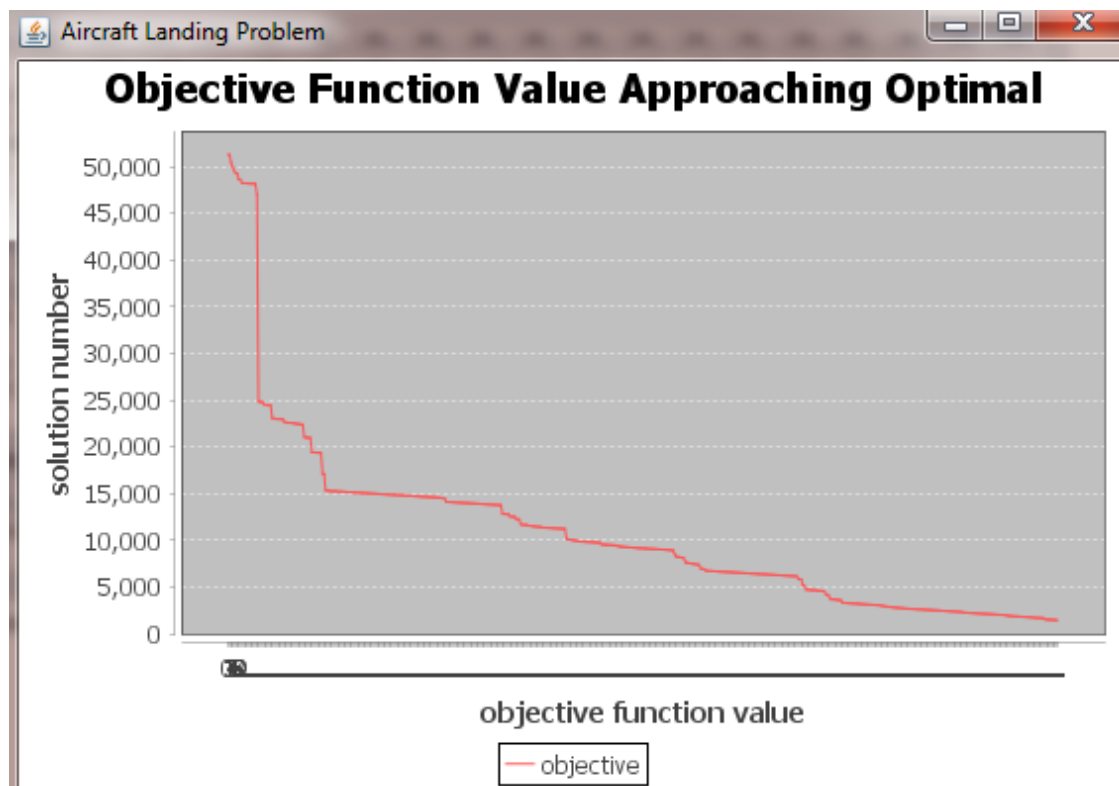
Building time : 0.296s

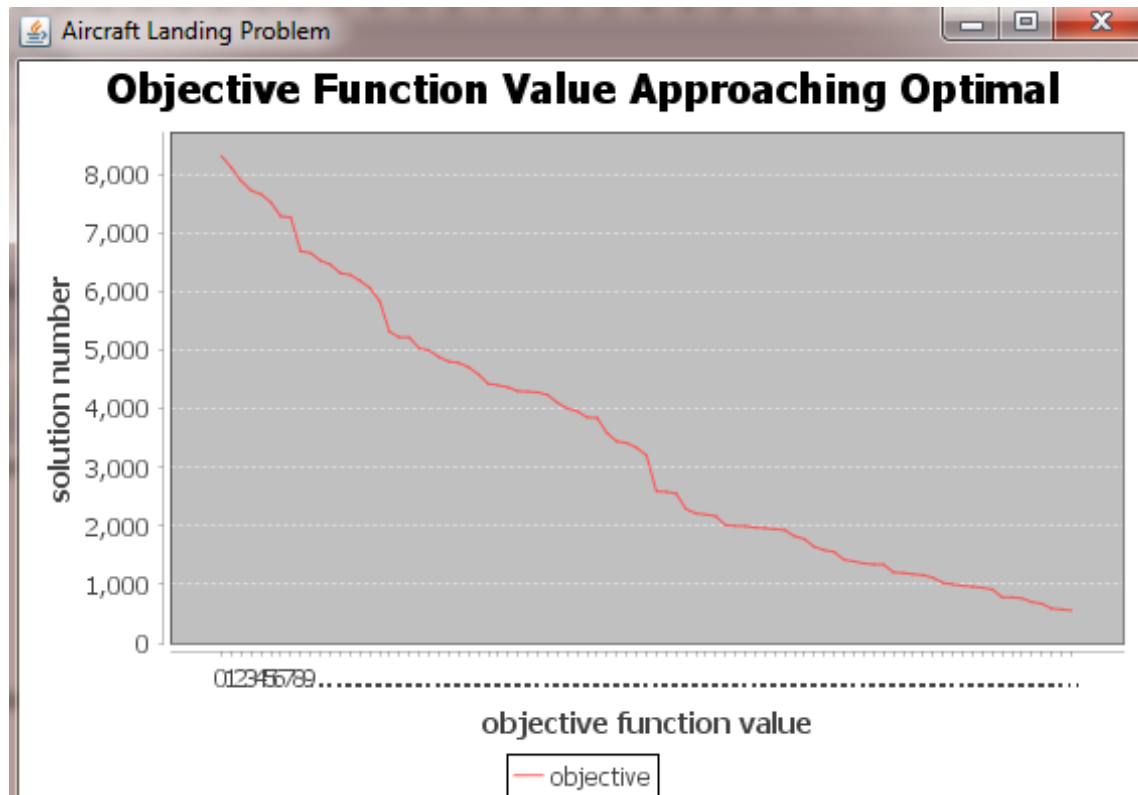
Resolution time : 69.779s

Nodes: 190,043 (2,723.5 n/s)

Backtracks: 299,852

Fails: 146,900



[illegible]

Airland7.txt using PLNS method on two runways.

The screenshot displays the CPLEX Studio 12.6.3.0 interface. At the top, the file 'airland7.txt' is open. The 'Run Ways' field is set to 2, and the 'LNS search method' is set to 'PLNS'. The 'Stop Execution' and 'Find Best Solution' buttons are visible. The 'Airplanes Information' section shows a table with 10 columns and 10 rows of data. The 'Separation Data' section shows a table with 10 columns and 10 rows of data. The 'Best Solution Found' is 0. The status bar at the bottom indicates an 'Incomplete search - Unexpected interruption.' with the following solver statistics: Solutions: 1,378, Minimize objective = 0, Building time: 0.459s, Resolution time: 712.575s, Nodes: 409,568 (574.8 n/s), Backtracks: 652,198, and Fails: 362,857.

Title 1	Title 2	Title 3	Title 4

- Incomplete search - Unexpected interruption.
 Solver[Aircraft Landing Problem]
 Solutions: 1,378
 Minimize objective = 0,
 Building time : 0.459s
 Resolution time : 712.575s
 Nodes: 409,568 (574.8 n/s)
 Backtracks: 652,198
 Fails: 362,857

