

The hardest sudokus (new thread)

POSTREPLY

Search this topic...

Search

1330 posts • Page 26 of 89 • 11 ... 23 24 25 26 27 28 29 ... 89

Re: The hardest sudokus (new thread)

Dty eleven • Wed Sep 28, 2011 9:23 am

champagne wrote:
that's surely another way to find "nice logic".

The challenge is to find a logic 😊

E.g. take the GN grid.

CODE: SELECT ALL

25678	34568	124567	268	2487	4678	1247	3	9	
26789	4689	2467	23689	23467	1	247	2467	5	
2679	1469	3	269	5	4679	8	12467	1247	
235	345	8	135	9	357	123457	1247	6	
3569	7	456	13568	136	2	13459	1489	1348	
1	3569	256	4	367	35678	23579	2789	2378	
367	136	9	1236	8	346	12347	5	12347	
3578	2	157	1359	134	3459	6	14789	13478	
4	13568	156	7	1236	3569	1239	1289	1238	

In this subgrid you can eliminate 3 in r7c9, but how?

CODE: SELECT ALL

25678	1469	3	269	5	4679	8	12467	1247	
235	345	8	135	9	357	123457	-	6	
-	-	-	-	-	-	-	-	-	
367	136	9	1236	8	346	12347	5	12-347	
-	-	-	-	-	6	-	-	-	
-	-	-	-	-	-	-	-	-	

One way is to distinguish the following cases. All lead to a contradiction after short forcing nets, if r7c9=3.
(r7c1=6
(r7c1=7,r7c2=1),
(r7c1=7,r7c2=6,r3c2=1),
(r7c1=7,r7c2=6,r3c2<=1,r7c4=1),
(r7c1=7,r7c2=6,r3c2<=1,r7c4=2,r4c1=2),
(r7c1=7,r7c2=6,r3c2<=1,r7c4=2,r4c7=2)
But I hope there are better ways...

Re: The hardest sudokus (new thread)

Dty colon • Wed Sep 28, 2011 10:39 am

CODE: SELECT ALL

1.....9.5.1...3...8..34...1.5.....9..8..2...6..7.3....4..8..2.....8..7..6.;3411;e1ev;11.1;11.1;10.8;7

This puzzle can be made diagonally symmetric - except the pattern has already been played in the patterns game.

Im just wondering which game it came from and whether it was found in the game.


C

Re: The hardest sudokus (new thread)

Dty ronk • Wed Sep 28, 2011 10:47 am

eleven wrote:
But I hope there are better ways...

For this puzzle, there's this "almost SK-loop", using what champagne likes to call "flying fish", where the influence of r12c7 extends to r4c8 and r7c9.



This image is no longer available.
Visit tinytic.com for more information.

CODE: SELECT ALL

14 Truths = {124783 124784 124787 12N7}
18 Links = {27c1 14c2 12c4 47c6 1247c7 4n8 7n9 1247b3}
1 Elimination -> r7c9<3

[edit: replaced larger solution which had 18 truths]

Last edited by ronk on Wed Sep 28, 2011 6:52 pm, edited 1 time in total.

Re: The hardest sudokus (new thread)

Dty ronk • Wed Sep 28, 2011 11:44 am

colon wrote:
CODE: SELECT ALL
1.....9.5.1...3...8..34...1.5.....9..8..2...6..7.3....4..8..2.....8..7..6.;3411;e1ev;11.1;11.1;10.8;7

This puzzle can be made diagonally symmetric - except the pattern has already been played in the patterns game.

Same canonicalized pattern as game 0122, but ED=10.9/10.9/9.3 was the highest rating.

Re: The hardest sudokus (new thread)

Dty eleven • Wed Sep 28, 2011 3:30 pm

ronk wrote:
For this puzzle, there's this "almost SK-loop", using what champagne likes to call "flying fish", where the influence of r12c7 extends to r4c8 and r7c9.

Nice picture, but can you give (or point me to) an explanation, why one of the 4 digits must be in r7c9 ? I understand, that the truths and links (what means 'N/n' ?) force that, but not how.

Re: The hardest sudokus (new thread)

Dty champagne • Wed Sep 28, 2011 3:53 pm

eleven wrote:
E.g. take the GN grid.
CODE: SELECT ALL

25678	34568	124567	268	2487	4678	1247	3	9	
26789	4689	2467	23689	23467	1	247	2467	5	
2679	1469	3	269	5	4679	8	12467	1247	
235	345	8	135	9	357	123457	1247	6	
3569	7	456	13568	136	2	13459	1489	1348	
1	3569	256	4	367	35678	23579	2789	2378	
367	136	9	1236	8	346	12347	5	12347	
3578	2	157	1359	134	3459	6	14789	13478	
4	13568	156	7	1236	3569	1239	1289	1238	

In this subgrid you can eliminate 3 in r7c9, but how?

for me, the easiest way to clean 3 r7c9 is the EXOCET

the base is the cells r12c7, the target the cells r4c8 and r7c9

he base has the digits 1,2,4,7

take separately each rocky (floor).

If you have 1 in r12c7, you check easily that one of the cell r4c8;r7c9 must be 1

same for digits 2,4,7

As the base will have 2 of the digits 1,2,4,7, the target will have the same digits.

There is no room for the digit 3 in r4c9. This is the EXOCET pattern

You have an equivalent SLG in XSUDO, as always with the EXOCET pattern.

One interesting point is that, as far as I could see, the EXOCET pattern is always in a band/stack, so it's not so difficult to see where it can be;

champagne

Re: The hardest sudokus (new thread)

Dty eleven • Wed Sep 28, 2011 4:52 pm

champagne wrote:
If you have 1 in r12c7, you check easily that one of the cell r4c8;r7c9 must be 1
same for digits 2,4,7

Ah yes, it was easy after finding out the trick. Thanks.

Re: The hardest sudokus (new thread)

Dty champagne • Wed Sep 28, 2011 6:22 pm

eleven wrote:
champagne wrote:
If you have 1 in r12c7, you check easily that one of the cell r4c8;r7c9 must be 1
same for digits 2,4,7

Ah yes, it was easy after finding out the trick. Thanks.

To be honest, the first EXOCET has been first found by Allan Barker in "fata morgana" in a SLG mode. I came to the very simple explanation above rewording Allan's analysis on why the SLG was working.

In such a SLG, it's not at all easy to identify where are the "rank 0" areas.

champagne

Re: The hardest sudokus (new thread)

Dty ronk • Wed Sep 28, 2011 7:04 pm

eleven wrote:
Nice picture, but can you give (or point me to) an explanation, why one of the 4 digits must be in r7c9 ? I understand, that the truths and links (what means 'N/n' ?) force that, but not how.

I see you've figured out the logic. As to your question, 'N' and 'n' refer to cell truths (aka base sets, strong inference sets) and cell links (aka cover sets, weak inference sets), respectively. Therefore, 12N7 means cells r1c7 and r2c7, and 4n8 means r4c8.

BTW I replaced the 18 truth solution with one using 14 truths.

Re: The hardest sudokus (new thread)

Dty m_b_metcalf • Thu Sep 29, 2011 5:48 am

ronk wrote:
colon wrote:
CODE: SELECT ALL
1.....9.5.1...3...8..34...1.5.....9..8..2...6..7.3....4..8..2.....8..7..6.;3411;e1ev;11.1;11.1;10.8;7

This puzzle can be made diagonally symmetric - except the pattern has already been played in the patterns game.

Same canonicalized pattern as game 0122, but ED=10.9/10.9/9.3 was the highest rating.

colon,

Pity we can't submit still to Game 122:

... more ...

CODE: SELECT ALL

100000002038100040005006700810300000020050840000000906000700500400000000500900080ED=10.8/10.8/10.8

Regards,

Mike Metcalf

Re: The hardest sudokus (new thread)

Dty eleven • Thu Sep 29, 2011 10:40 am

Since I don't have more time for it, I have to break my subgrid tests now for a longer while. My personal conclusion so far is, that for all known puzzles there can be found subgrids, from which an experienced solver can deduce the eliminations - normally by means of case distinctions and (relatively short) contradiction nets - needed to solve the puzzle. This way it should be possible to find a (long, but) readable solution for each puzzle.

As an example, look at this step to solve 'champagne dry' with 101 candidates:

CODE: SELECT ALL

9	6	1234		346	-	1234	-	-	
7	7	12345		1234	-	6			
1234	123	6		12348	5	-	123478	-	-
1268	-	129	168	678		278			
-	-	359	9468	2		5			
-	-	-	-	-	47	-	-	-	-
-	8		6	467		9			
2356	-	2359	268	1		378	-	-	-
1458	-	1459	468	6789	3	178			

r9c3=9

E.g. with the 7 cases
r468c3=132,135,152,153,235(r4c7=7/8),253
the elimination can be verified manually with simple contradiction nets

My program tried to find the subgrid with the minimum number of candidates in each step. Of course some of the eliminations might not be needed. And of course much more elegant or simpler solutions might exist.

This is not the only way to get to reproducible solutions with a program, which does not know more techniques than singles. Since each known puzzle can be solved with nested single contradiction chains, you also could list them (in an optimized order). This is similar to what ravel has done (but using more than singles).

Below you can find the 23 subgrids used, until the first number in champagne dry was found. They have a maximum of 101 candidates.

When doing the same for (elev;11.1;11.1;10.8;7), i needed 23 steps with 103-118 candidates.

Hidden Text: Show

Re: The hardest sudokus (new thread)

Dty colon • Thu Sep 29, 2011 2:47 pm

m_b_metcalf wrote:
..... Pity we can't submit still to Game 122:

Hmmm.....that's because this is the pattern for 0122

CODE: SELECT ALL

- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X
- . . . X . . . X

It could well be a pattern from way back....

the D2 version of eleven's 11.1 puzzle (if remarkable) could well be called "legs eleven"

C

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty debbiechev • Mon Oct 24, 2011 7:23 pm

champagne wrote:
I updated the data base of potential hardest.
The link is unchanged

[here](#)

I can't decompress today's version of the zip file. Please check if it is damaged.

Thanks,
MD

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

Re: The hardest sudokus (new thread)

Dty champagne • Sat Oct 15, 2011 12:10 pm

This is my current short list of potential hardest.

The list has not changed that much since the last post despite the fact that the database has now more than 18000 puzzles. The link to my website will be updated soon.

The main changes come from a lower cut off.

The puzzle 5416 formerly in the list has been cleared after a multi fish has been shown.

The items in the list are

puzzle;
seq number in my database
Family code
id code in the family (could be the name)
ER (serate)
EP
ED
code 9 to 1 (see below)
most promissing floor group
index of difficulty (print size) found by my solver

The code 9 to 1 gives an idea of the chances for the puzzle to stay in the list

9 no evidence of a potential in a multi floors "Allan Barker mode" approach
1 good chance to find a multi floor pattern not seen by my solver

In between, I made the choice regarding potential eliminations
Most of the puzzles having a low "code" should be discarded later;

champagne

