Different chains suffer different problems. DeFiSafety wants to ensure that users are aware of what issues these are and how it might affect the risk profile of the chain as a consequence. Indeed, we want to ensure our scores for each chain are as robust as possible so that our users gain the most value from our analyses. In implementing penalties, we do this for our chain scores.

For us, three things stand out as massive issues relating to the technical risk profile of users who might seek to interact on a blockchain. These are ranked in order of severity, and in turn ranked in order of subsequent penalty. As always, we welcome any comments the DeFi community has for us and we want to ensure that these penalties are agreed upon.

These are as follows:

1) Unplanned downtime

A blockchain that goes down is arguably not a blockchain. Regardless of the state of a chain's mainnet (be in beta or alpha), if a chain goes down and assets are locked for any period of time then this presents an incredible risk for users seeking to do literally anything with their funds. When a chain goes down, all assets are lost and this is the case for as long as the chain does not function.

This is the most egregious failure a blockchain can suffer. As such, we will place the most egregious of penalties on it to ensure that the score is reflected accurately by this systemic risk.

This penalty comes in the form of halving the chain's score. This penalty lasts for 6 months. We understand the severity of this penalty, but the importance of this failure cannot be underestimated.

By our standards, any form of unplanned downtime on a chain that lasts for more than 15 minutes is fair game for this penalty. If a chain goes down multiple times in under 6 months, then the penalty will compound in parallel with the number of outages. A chain cannot "go down" more than twice in one day e.g. if a chain stops functioning once, is restored and then goes down again 8 hours later then we will only penalise the chain once. However, if a chain goes down twice over the course of a week, then the chain will be penalised twice.

2) Censored transactions

A blockchain is permissionless by nature. As such, any form of censorship relating to specified activity on a blockchain renders the blockchain a database, because only certain pieces of information can be stored on it. Any potential for censorship on a blockchain is thus something that creates a significant technical risk because assets can be frozen (either explicitly or implicitly). As such, we will implement a penalty.

A permanent penalty of 15% will be imposed on any blockchain that has a documented example of a type of transaction being censored. Given that transaction censorship is baked into a blockchain's functionality, this penalty will only be removed if the censorship capacity is removed.

3) Transactions cannot be verified because all chain-specific block explorers stop functioning

If a chain's operation cannot be independently verified via any block explorer, then this presents a significant problem for users who seek to verify the existence of their funds. In the same way someone cannot safely operate a car without an interface to operate it with, you cannot safely use a blockchain without being able to independently verify the transaction you have just conducted. At that point, once more, this chain turns into a private database which is no longer distributed past those validating. If this happens, you will not be able to identify the status of your assets, thereby subjecting you to significant risk.

Any instance of all block explorers on a chain no longer functioning thus merits a penalty. Given that this is of relatively less importance than the other two points, the penalty shall only be 10%, and once more it shall last for 6 months from the point of documented inaccessibility.

These are the three penalties we have identified at the time of launching DeFiSafety's Chain Scores product. We will refresh these as new information comes to light so that our scores remain accurate and relevant in this ever changing space.

Worked example: Solana

Let us consider the example of Solana.

Solana has undergone 7 separate outages. Of these, two were in recent memory: one in september 2021 and one in late April 2022. Given the 6 month expiry on our penalty system, only one penalty shall be implemented.

While there was some discussion about censoring transactions, this was ultimately not enacted. This means they are not penalised in this regard.

Finally, as documented here, some block explorers on Solana went down. However, since other block explorers (such as Solana beach) still functioned, we will not award a penalty here.

All in all, this puts Solana at 24%. Their pre-penalty score of 48% is cut in half. No other penalty is enacted.

A score cannot be negative.