The Pacio DAICO Polling System

This document provides documentation of the system as built.  
It is for reference use and does not cover market requirements or reasons for features.

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# Introduction

The rational for the DAICO form of an ICO is to give investors a say in the project in which they are investing, and to thereby avoid the abuses or excesses of some ICOs. The Pacio DAICO Polling System gives investors wide, broad, flexible, easy to use, involvement via a polling/voting system which allows investors to change DAICO parameters, to control the release of invested funds to the project, and even to vote for the termination of funding and the return of remaining funds to investors.

While the Pacio Polling System (PPS) is a major part of the Pacio DAICO, it works closely with other Pacio DAICO improvements versus previous DAICOs in four main areas:

The management and security protection of the 8 contracts making up the DAICO, and for critical operations in them via a management contract which implements multisig Managed Operations.

The information stored – much more than for other DAICOs, allowing better feedback with more options

The sale, white listing, and sending funds options, including the ability to send money in advance of the sale opening, whether white listed or not, with appropriate transfers or refunds according to events

The ability to replace (upgrade) any of the 8 contracts in the event of bugs or problems arising. (Ethereum smart contracts cannot be upgraded like software can be.)

This document describes just PPS.

# Ease of Use

A possible objection to the whole idea of investor involvement by voting in Polls is that it could be too much hassle, and that many or most people won’t be bothered, or want to bother.

To address that, PPS makes it easy by:

**Pacio web site:** Allowing all operations to be performed via a Pacio web site. Other systems, e.g. the Abyss one described in [The Abyss DAICO Voting System Explainer](https://medium.com/theabyss/the-abyss-daico-voting-system-explainer-c6ae140bbf4) require Ethereum transactions to be sent from a wallet to vote. That is a hassle and costs the member gas. Note in that document how much is involved to vote yes or no in an Abyss poll.

PPS can be driven similarly as it works via Ethereum Dapps, though with simpler Yes and No voting, but the normal method of use will avoid all of that via the Pacio Poll web site, where a logged in Member will be able to vote or request a poll via normal web operations, at zero gas cost. (Pacio will pay the gas costs.)

**Proxy System:** Allowing a member to appoint a proxy to vote for him/her, so that a member may be involved, but without needing to do anything. A proxy can be appointed, revoked, or changed at any time. (A member is defined as a white listed holder of PIOs.)

A proxy can even be appointed before a member is white listed or has sent any Ether i.e. at the point of first registering. This could be from a list of possible proxies presented on the web site such as Pacio Governance Council members, Pacio Advisors, or other interested/willing people.

PPS takes care of all the many details as proxies are appointed, revoked, or changed, and member votes change as a result of poll option changes, hard cap changes, PIO transfers, and member downgrading. (A white listed member can be downgraded to non-white listed.)

# More Polls and Options

Other DAICO systems, Abyss anyway, have just two polls: one to increase the monthly tap rate (monthly withdrawal from contributed funds), and one to terminate funding and refund the remaining balance to investors.

There is little flexibility, and little choice = little real involvement. There is no “we are not happy with progress” option other than to terminate funding.

PPS provides far more polls, with more flexibility, and the ability to change things, up or down, but with protection against abuse by malignant actors seeking to damage Pacio.

# Operation

Only one poll can be running at a time.

Only members who have not appointed a proxy can vote.

A member can vote only once per poll. Though if a member wishes to change a vote that can be done by revoking a vote and then voting again.

Proxies can appoint a proxy i.e. proxies can be nested to multiple levels.

All polls are run via the one Poll contract, with extensive logging (events) for analysis and recording purposes. (Abyss creates a new contract for each poll. PPS does not.)

Starting Polls

Polls are started by a number of members requesting the same poll, or as a single hit Admin request. The number of members required to request a poll is one of the options that can be changed by a poll. The web site would show that an xx poll to do yyy has been requested by zz members. Others could then request the same pol l if they agreed that it was required.

A request for a poll lapses if not confirmed within x days, which is also an option that can be changed by a poll.

A poll cannot be repeated within a period of x days, which is another poll changeable option.

Change Polls

Polls which change a value allow for values to be changed up or down within sensible ranges.

Period

Polls run for x days, with three different durations, for:

Confirming a poll request

A major decision – terminate or release reserves and restart the DAICO

Other less major polls

All three values can be changed by polls.

Voting System

Yes and no votes are counted in PIOs where the PIOs are the PIOs held by the voting member, subject to a maximum per member of x% of the PIO hard cap, to prevent whales dominating the voting. The % is, of course, able to be changed by a poll. (There is no equivalent maximum for requesting a poll. For that, each member is equal, as a poll starts on the basis of the required number of members requesting it.)

If a member has appointed a proxy, the PIOs to be voted are delegated to the proxy who votes the sum of all votes delegated to him/her.

For a poll to be classed as valid x% of members must vote where x may be changed by a poll. Members who have delegated their vote to a proxy are included in the count when the proxy votes.

For a poll to pass (have a yes result), x% of votes cast much vote yes, where x can be changed by a poll.

Close of Poll

When a poll closes, though its time being up, PPS automatically applies the result if the vote was yes i.e. no manual operations are involved.

Progress

Progress results, and the result of closed polls, all of them, will be shown on the web site.

# The Polls

The possible polls are:

Sale Related

Change the sale USD soft cap

Change the sale PIO soft cap

Change the sale USD hard cap

Change the sale PIO hard cap

Change the sale end time

Close the sale

Funding Related

Change the soft cap reached dispersal % (% of funds raised is to be dispersed to the project when soft cap is reached)

Change the Tap rate in Ether per month. A change to 0 stops withdrawals as a softer halt than a termination poll, since the tap can be adjusted back up again to resume funding.

Major Polls

Release some of the PIOs held in reserve and restart the DAICO

Terminate funding and refund all remaining funds in proportion to PIOs held

Poll Options

Change number of members required to request a poll for it to start automatically, default 3

Change number of days in which a request for a poll must be confirmed by the required number of members for it to start, or else to lapse, default 2

Change number of days for which a poll runs, default 7

Change number of days which must elapse before a particular poll can be repeated, default 30

Change the CentiPercentage (hundredths of a percent e.g. 100 for 1%, 50 for 0.5%) of PIO hard cap as the maximum voting PIOs of any one member, default 50 or 0.5%

Change the percentage of members required to vote for polls other than major ones (Release reserve & restart and Termination) for the poll to be valid, default 25

Change percentage of yes votes to approve polls other than major ones, default 50

Change percentage of members to vote for major polls to be valid, default 33

Change percentage of yes votes to approve major polls, default 75

Some of the available polls apply only to certain stages of the project e.g. before soft cap or after sale close. PPS rejects attempts to initiate inapplicable polls.

# Protection Against Abuse

DAICOs aim to give investors a say, and to thereby avoid some of the abuses that have happened with inadequate or scam ICOs. However, protection is also needed the other way, to guard against trolls, or malignant operators seeking to harm Pacio.

PPS includes protection against abuse in the following ways:

7 of the 8 contracts can be paused (stopped from running) by any of the confirmed signers of managed operations. This does not require multisig signoff so that it can be done quickly in an emergency. (The 8th contract manages the list of participants so does not directly do anything as it supports the other 7 contracts, so doesn’t need a pause option.)

Resuming (restarting) a paused contract is a managed operation which requires multisig signoff.

A person must own PIOs and be white listed to request a poll or to vote, so casual site visitors or contract browsers will not be able to do anything.

No single member can vote more than x% of the PIO hard cap, so buying a lot of PIOs would not enable someone to vote to terminate funding of Pacio

All voting and proxy operations are logged so a full audit trail of activity is available. As only white listed participants can vote or request a poll, the person performing any action will be known.

In extremis a member can be blocked from voting via a managed operation requiring multisig signoff.

* Again, in an extreme situation, as for the infamous 2016 DAO hack, a poll can be terminated by a managed operation requiring multisig signoff, and the compromised or failing contract can then be replaced.

The last two items above, plus the ability quickly pause all public contracts, might be controversial but have been included to cover exceptional circumstance to ensure that there is a way to stop abuse, and to recover from failures. These options, and the control of the use of them will be a lead in to some of the governance issues that the Pacio Governance Council is intended to manage. EOS intended governance to be onchain, yet reality intruded from the start of EOS operation in June 2018. Pacio will use a mixture of on and off chain governance, and so will the DAICO/PPS as above.

# The Code

The code is available at our GitHub site https://github.com/Pacio-io