

JSAL Raven Database Design

The Raven database design will differ from the Sparrow database design (Refer to Sparrow Database Design Document in the final report Appendix section 13.6.) in the following: the amount of candidates, the amount of positions, and an added field in the vote tables.

The Sparrow database design was limited to the state ballot. The state ballot consists of the Governor and Resident Commissioner. Now, for the Raven database design all three ballots must be implemented, which are: state, legislative, and municipal ballots. This will affect the entity *candidate* since the following positions and candidates are to be considered:

Ballot	Position	Quantity / Details
State	Governor	1 Governor for P.R.
	Resident Commissioner	1 Resident Commissioner for P.R.
Legislative	District Representative	1 for each representative district. A total of 40 representative districts.
	District Senators	2 for each senatorial district. A total of 8 senatorial districts.
	Representative-at-Large	11 representatives-at-large for P.R.
	Senator-at-Large	11 senators-at-large for P.R.
Municipal	Mayor	1 for each municipality. A total of 78 municipalities.
	Municipal Legislators	Varies from 5 to 17 municipal legislators for each municipality. A total of 78 municipalities.

Figure 1: List of positions in Puerto Rico's government [1].

The Sparrow database design was limited to one precinct; the Raven database design will evaluate all votes from all precincts. Therefore an additional field in the entity *candidatevotes*, *partyvotes*, and *writein* must be added to identify from which precinct and unit the vote came from. The reason for the latter is because the way the security is implemented. Since there are 104 master keys, one for each precinct, the votes from a precinct will be encrypted using the corresponding master key.

Finally, JSAL recommends the Raven system to be implemented using a distributed database architecture. This is due to the fact, that not each precinct will be utilizing all the information in the database, only what is most needed to that corresponding precinct. Additionally, having multiple copies of the database will permit the elections to continue if a municipality or district is affected by a natural or human-made disaster. A possible option for deployment would be to set up in the various Inscription Committees across the island [2].

References

[1] "Divulgación de Resultados de la Comisión Estatal de Elecciones." Comisión Estatal de Elecciones. 7 Dec. 2008. [Online].Available: <http://cee.ceepur.org/Ayuda.aspx>>

[2] "Directorio de las Juntas de Inscripción Permanentes (JIP)." Comisión Estatal de Elecciones. 7 Dec. 2008. [Online].Available: <http://www.ceepur.org/sobreCee/directorio/index.htm>.