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| # | Obligations in Paper | Obligations in YML file | Obligation Functions Used |
| 1 | Create Proposal  Create\_proposal Obligation    EVENT:  When PI performs CREATE PROPOSAL(assign to) on PDS(OA) (2-9)  RESPONSE:  1) Assign (12) current user to PI(UA) (12-18)  2) Create(19,22) Object node(29) with the name of current user(24-28) and with the assignment to Object Attribute called PI-Info(30-32). | - label: create\_proposal 1  event: 2  subject: 3  anyUser: 4  operations: 5  - assign to 6  target:  policyElements: 7  - name: PDS 8  type: OA 9  response: 10  actions: 11  - assign: 12  what: 13  - function: 14  name: current\_user 15  where: 16  - name: PI 17  type: UA 18  - create: 19  what: 20  - function: 21  name: create\_node 22  args: 23  - function: 24  name: get\_node\_name 25  args: 26  - function: 27  name: current\_user 28  - O 29  where: 30  - name: PI-Info 31  type: OA 32 | 1) current\_user – gets the current user, who performs the operation(passed with java code in ProcessEvent function from Event Processing Point [EPP])  2) create\_node – creates a node using functions. The action “create” can create a node, but does not accept functions as a parameters for name and type, so that is why we need create\_node.  3) get\_node\_name – gets the name of the node passed to this function. |
| 2 | Add Co-PI  Add\_copi obligation  EVENT:  When PI performs ADD CoPI(assign to) on CoPI(UA) (2-10)  RESPONSE:  1) Create(13, 16) an Object node (23) with the name of CoPI(user) (18-22) and with assignment to Object Attribute called CoPI-Info. (24-26)  2) Assign(27) CoPI User(child) (28-30) to CoPI User Attribute(Parent)(31-33) | - label: add\_copi 1  event: 2  subject: 3  anyUser: 4  operations: 5  - assign to 6  target: 7  policyElements: 8  - name: CoPI 9  type: UA 10  response: 11  actions: 12  - create: 13  what: 14  - function: 15  name: create\_node 16  args: 17  - function: 18  name: get\_node\_name 19  args: 20  - function: 21  name: child\_of\_assign 22  - O 23  where: 24  - name: CoPI-Info 25  type: OA 26  - assign: 27  what: 28  - function: 29  name: child\_of\_assign 30  where: 31  - name: CoPI 32  type: UA 33 | 1) get\_node\_name – gets the name of the node passed to this function.  2) child\_of\_assign – gets the node that is a child in the assignment relationship processed in event. |
| 3 | Add SP  Add\_SP obligation  EVENT:  When PI or CoPI performs ADD SP(assign to) on SP(UA)  RESPONSE:  1) Create an Object node with the name of SP user and with assignment to Object Attribute called SP-Info.  2) SP User(child) is assigned to SP User Attribute(Parent) | - label: add\_sp  event:  subject:  anyUser:  operations:  - assign to  target:  policyElements:  - name: SP  type: UA  response:  actions:  - create:  what:  - function:  name: create\_node  args:  - function:  name: get\_node\_name  args:  - function:  name: child\_of\_assign  - O  where:  - name: SP-Info  type: OA  - assign:  what:  - function:  name: child\_of\_assign  where:  - name: SP  type: UA |  |
| 4 | Delete SP  delete\_SP obligation  EVENT:  When PI or CoPI performs DELETE SP(deassign from) on SP(UA)  RESPONSE:  1) Deassign SP User(child) from SP User Attribute(Parent)  2) Delete Object with the Name of SP User(child). | - label: delete\_sp  event:  subject:  anyUser:  operations:  - deassign from  target:  policyElements:  - name: SP  type: UA  response:  actions:  - delete:  create:  what:  - function:  name: delete\_node  args:  - function:  name: get\_node\_name  args:  - function:  name: child\_of\_assign  - O  - delete:  assign:  what:  - function:  name: child\_of\_assign  where:  - name: SP  type: UA |  |
| 5 | Submit Proposal  EVENT:  When PI performs SUBMIT PROPOSAL(assign to) on Submission-Info(OA)  RESPONSE:  1) Create The Following Prohibitions:  Format used:  Subject – Access Right – Object(or OA)  a)Current User(PI, U)-[w]-PI-Editable-Data(OA)  b)Current User(PI, U)-[assign-u-from]-CoPI(UA)  c)(CoPI, UA)-[w]-CoPI-Editable-Data(OA)  d)(CoPI, UA)-[assign-u-to,deassign-u-to]-SP(UA)  e) Current User(PI, U)-[Save,Delete,Submit]-PDSs(OA)  NOT IMPLEMENTED YET  2) Create Associations  a. create association <Chair, {assign-o}, Chairs-Approval>  b. create association <Chair, {read}, Composite-PDS>  3) Create Assignment  a) Assign(Departmental Chair1(U) to Chair(UA))  b) Assign( Business manager to Business manager(UA))  c) Assign( Dean(U) to Dean(UA))  d) Assign(IRB(U) to IRB(UA))  e) Assign(Research-Admin(U) to Research-Admin(UA))  f) Assign(Research-Director(U) to Research-Director(UA)  The number of some of the above entities is according to the departments involved(some of them will be done with a loop that will pass a particular user to the obligation processor) | - label: submit\_proposal  event:  subject:  operations:  - assign to  target:  policyElements:  - name: Submission-Info  type: OA  response:  actions:  - deny:  label: deny1  subject:  function:  name: current\_user\_to\_deny\_subject  operations:  - w  target:  complement: false  containers:  - name: PI-Editable-Data  type: OA  - deny:  label: deny2  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - CoPI  - UA  operations:  - w  target:  complement: false  containers:  - name: CoPI-Editable-Data  type: OA  - deny:  label: deny3  subject:  function:  name: current\_user\_to\_deny\_subject  operations:  - assign-u-from  target:  complement: false  containers:  - name: CoPI  type: UA  - deny:  label: deny4  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - CoPI  - UA  operations:  - assign-u-to  target:  complement: false  containers:  - name: SP  type: UA  - deny:  label: deny5  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - CoPI  - UA  operations:  - deassign-u-to  target:  complement: false  containers:  - name: SP  type: UA  - deny:  label: deny6  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - PI  - UA  operations:  - Save  target:  complement: false  containers:  - name: PDSs  type: OA  - deny:  label: deny7  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - PI  - UA  operations:  - Delete  target:  complement: false  containers:  - name: PDSs  type: OA  - deny:  label: deny8  subject:  function:  name: get\_user\_to\_deny\_subject  args:  - PI  - UA  operations:  - Submit  target:  complement: false  containers:  - name: PDSs  type: OA |  |
| 6 | Delete Co-PI  EVENT:  When PI performs DELETE CoPI(deassign from) on CoPI(UA)  RESPONSE:  1) Deassign CoPI User(child) from CoPI User Attribute(Parent).  2) Delete an Object with the Name of CoPI User(child). | - label: delete\_copi  event:  subject:  anyUser:  operations:  - deassign from  target:  policyElements:  - name: CoPI  type: UA  response:  actions:  - delete:  create:  what:  - function:  name: delete\_node  args:  - function:  name: get\_node\_name  args:  - function:  name: child\_of\_assign  - O  - delete:  assign:  what:  - function:  name: child\_of\_assign  where:  - name: CoPI  type: UA |  |
| 8 | Assign Comment Sign Chair/IRB/RA/RD/RA/RD  NOT IMPLEMENTED YET  EVENT:  Current User with a permission assigns Comment-Sign(O) to Approval Content(OA)  RESPONSE:  IF APPROVED:  1) Assign the assigned object(Comment-Sign(O)) to the Comment-Sign of the chair approval.  2) Delete Association Of Current User(U) – [assign-o] – approval Content(OA)  3) Create association to the next chair.  IF DISAPPROVED:  1) Delete all the association of the subsequent chairs  2) Delete all the prohibitions generated with submit\_proposal obligation and return to the pre-submission stage(No need to add all the assiciations to PI, CoPI, SP since they were not deleted but prohibited instead). | OBLIGATIONS WILL BE MADE, CURRENTLY PROPOSALDATASHEET |  |
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