IQGeo Design Checks

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Describes design checks that have been implemented and active in the Gigapower environment.

Configuration

Gigapower can configure:

- What checks are run by design type
- What checks are considered errors (they must pass) or warnings (they don't have to pass and won't prevent design state transition)
- What design state transitions will run checks

Design Checks

Description of the implemented checks. Errors that are raised to the user are show in bold **(Error: ...)**

Addresses Account For

Ensures that addresses and demands are all accounted for within the design.

- Finds all address locations and demand locations inside the design distribution cluster
- Demand points:
  - Skips demand points that are inside MDU Boundaries
  - Checks that each demand point is related to an FST (i.e. its Structure field is set to the UUB that contains the FST) **(Error: Demand not linked to FST)**
- Addresses:
  - Checks that the address has a valid 2-digit state code set on it **(Error: Address invalid state code)**

Cabinets and Buildings

Validates that there is not more than one cabinet within the design area **(Error: Too Many Cabinets)**

Validates that there is not more than one building within the design area **(Error: Too Many Buildings)**

Cabinet PON

Validates PON set on cabinet matches the cabinet distribution panel LOCs

Finds cabinets within the design area and:

- Checks the cabinet PON field has been set **(Error: Cabinet PON field must be set)**
- Finds the distribution panels inside the cabinet (panels with function = PFP-DISTRIBUTION)
- Gets the LOC name from each cable connected to the out - side of the panels
- Checks there is only one consistent LOC name **(Error: Did not find one PFP Distribution LOC name)**
- Checks that the cabinet PON field value matches the LOC Name, low-high of the cables **(Error: Cabinet PON does not match Dist panels)**

Consistent Address City and Zip

Validates addresses in the design are all for a consistent city and zip. It does not know what the correct values should be, it is just reporting if they are inconsistent.

Finds addresses in the design boundary:

- The initial City and Zip values it uses to compare to all the other addresses are from the first address it finds
- Checks each address a_scity and a_szip5 fields are consistent **(Error: City and Zip values not consistent in design)**

Demand Drop Cluster

Validates that demand points are associated with the drop cluster they are inside.

- Finds the UUB related to the demand point (via the demand point – Structure field)
- Finds the FST(s) inside the UUB
- Gets the drop cluster the FST(s) are related to (via one of the FSTs inside the UUB matching the Drop Cluster – Terminal Name)
- Checks the demand point is geographically inside the same drop cluster that its associated FST is related to **(Error: Demand not in same drop cluster as terminal)**

PSA Design Distribution Cluster

Validates that PSA has a distribution cluster

- Only processes designs of type PSA
- Checks that the design has a distribution cluster (i.e. a distribution cluster was one of the features inserted/modified in that design) **(Error: No Distribution Cluster)**

Distribution Cluster Cabinet

Validates that the cabinet name entered for a distribution cluster has a matching cabinet

- Finds distribution cluster inserted/modified in that design
- Finds cabinets that have a Name that matches the Distribution Cluster – PFP Name
    - If no cabinets found **(Error: No Cabinet)**
    - If more than one cabinet found **(Error: Too many related cabinets)**

Drop Cluster Terminal

Validates that the terminal name entered for a drop cluster has a matching FST

- Finds Drop Clusters for the design
- For each Drop Cluster:
    - Finds related FST(s) (via the Drop Cluster – Terminal Name matching the FST name)
    - Finds all the FSTs in the same UUB(s) as the related FST(s)
    - Checks that at least one FST found **(Error: No terminal (fiber tap))**
    - If there are multiple FSTs, check they are in the same UUB **(Error: Multiple related terminals (fiber tap) across multiple structures)**
    - Checks that the UUB the FST(s) are in has a name that matches the Drop Cluster – Terminal Name **(Error: Drop cluster multiple terminals, structure name doesn't match)**

Duplicate Addresses

Validates that there are no duplicated addresses as these can cause provisioning issues in ServiceNow

The fields that are compared between addresses is configurable by Gigapower and is currently:

a_address, a_scity, a_state2, a_szip, unit

- Finds addresses modified for the design
- For each address:
    - Checks if there are any other addresses that match **(Error: Demand address fields duplicate)**

Duplicate Equipment

Validates that names for some types of equipment have not been duplicated in the design.

The types of equipment to check is configurable by Gigapower as is currently: Shelf

- For each of the equipment types:
  - Finds equipment of that type modified (inserted/updated) in the design
  - Checks if there is any other equipment of that type with the same name **(Error: Duplicate equipment names)**

Terminal Associated to Drop Cluster

Validates FSTs have associated drop cluster

- Finds all FSTs modified (inserted/updated) in the design
- Checks that there is a Demand Cluster associated with the FST (via one of the FSTs in the same UUB having a name matching the Drop Cluster – Terminal name) **(Error: Terminal not associated to drop cluster)**

Terminal Demand

Validates number of drop cables that start/end at an FST doesn't exceed its ports

FST ports are not connected until the customer signs up for service, so just use the existence of drop cables at the tap structure.

For each FST modified (inserted/updated) in the design:

- Finds the UUB the FST is inside and gathers all of the FSTs in that UUB to get a total number of FST ports.
- Finds the drop cables that start/end at the UUB
- Checks if there are more drop cables than total FST ports at the UUB **(Error: Terminal Demand Exceeded)**

Terminal Trace to Panel

Validates that all input ports of FSTs trace back to panel

For each FST modified (inserted/updated) in the design:

- Runs upstream trace on each of the input ports
- Checks that all of the traces reached a panel **(Error: Terminal does not trace to panel)**

Mandatory Fields Set

Validates mandatory fields are set on records modified (inserted/updated) in the design.

- Gets the list of mandatory fields for the record
- Checks each field is set (i.e. it is not a null, or empty whitespace) **(Error: Mandatory fields not set)**
- Special check for the Design record itself, if it's of type PSA then the PSA Code must be populated **(Error: PSA CD must be set for PSA designs)**
- Does not perform any checks on Addresses that have been marked as deleted

Multiple PON Cables

Validates there is only one PON cable in the design based on the LOC names

- Determines PFP-Distribution panels to check. As they may not have been updated directly in the design it checks connections and cable segments to determine the panels to check
- Looks at the connections on each panel and determines the LOC name(s) from cables connected on those ports
- Check if more than one LOC name found on the panels for the same cabinet **(Error: Multiple PON cable names)**

Panel Name

Validates that all panels in the same structure have different names

For panels modified (inserted/updated) in the design:

- Finds the other panels in the same structure
- Check that the names are unique across those panels **(Error: Panel name duplicates)**

Panel Shelf Number

Validates that all panels of the same function in a housing have different shelf numbers

For panels modified (inserted/updated) in the design:

- Finds other panels in the same housing with the same function
- Checks that the shelf numbers are unique across those panels **(Error: Shelf number duplicates)**

PFP-FEEDER Trace Splitter to OSP Panel

Validates that splitter input port traces upstream to OSP panel

For splitters modified (inserted/updated) in the design:

- Runs upstream trace from input port
- Checks if it reaches a panel of function OSP **(Error: Splitter does not trace to OSP panel)**

ServiceNow fields Set

Validates that ServiceNow integration fields are set. Intended as a check run before publishing to ensure PDAAS has made the necessary callbacks to IQGeo.

For all records modified in the design (insert/updated) with a SN Asset ID and/or GLID field:

- Skips addresses marked as deleted or are inside an MDU boundary
- Checks the SN Asset ID and GLID fields set **(Error: ServiceNow integration fields have not been set)**

Specifications Set

Validates specifications set and the fields from the spec match the fields on the record.

Gigapower can configure the feature types that must have a spec set, which is currently: shelf, card, plug, cabinet, fiber_panel, splitter, fiber_cable, fiber_tap, ont

For records modified in the design (insert/updated) with a specification field:

- Check specification is set (if its configured as being mandatory) **(Error: Specification not set)**
- Check the specification value matches an actual spec **(Error: Non-existent spec)**
- Check the values of the spec to the values on the record **(Error: Mismatch spec fields)**