

A YANG Data Model for Reporting Utilization Scores in ISAC

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ISAC YANG Module

- Integrated sensing and communication (ISAC) involves sensing the environment using radio waves and other sensors
- Sensing consumes or constrains radio, compute, memory, storage, and energy resources.
- ISAC utilization needs to be reported to make energy-efficient decisions by the controller
- We represent the ISAC utilization with utilization score (US) related to compute, energy, memory usage

```
module: ietf-isac-utilization
  +--ro isac-utilization
    +--ro overall-utilization-score      score-0-100
    +--ro timestamp?                     date-and-
time                                     milliseconds
    +--ro aggregation-window?            milliseconds
    +--ro component-scores?              if-feature
    | +--ro compute-impact-score?
    | +--ro memory-impact-score?
    | +--ro energy-consumption-impact-score?
    | +--ro storage-impact-score?
    | +--ro latency-impact-score?
    +--ro metadata?
      +--ro score-method?
      +--ro score-provenance?
      +--ro confidence-level?
```

Augmentation of Power and Energy YANG Module

Power and Energy YANG Module

```
+--ro energy-objects
  +--ro energy-entry* [object-id]
    +--ro power
    +--ro energy
    +--ro power-state
+--rw energy-control
```

augment/eo:energy-
objects/eo:energy-
entry

Energy Object with ISAC

```
+--ro energy-entry
  +--ro power
  +--ro energy
  +--ro isac-utilization
    +--ro overall-utilization-  
score
    +--ro component-scores?
    +--ro metadata?
```

Considerations and Discussion

- Is Energy Object augmentation the right near-term integration pattern for ISAC?
- Does this integration approach makes sense and what does the WG think?
- Should future base work expose software/service scopes or references?
- Energy-aware control decisions often require more than knowing the total power or energy consumption of a hardware component.
- A controller may need to understand which services, functions, or workloads are active on the component, and
- How they contribute to resource usage, and what service-level impact may result if the component is reconfigured.



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