

HSML

<https://tools.ietf.org/html/draft-koster-t2trg-hsml-00>

Media Types for Machine Interaction

Why HSML

- Develop the REST and hypermedia design style for machine interaction
- Build on IETF CoRE standards
- Standardized data model and interaction model for interoperability – like HTML
- Introduce new design patterns to extend REST for machine control applications

What is HSML

- Serialization
 - JSON, CBOR
- Data models
 - CoRE Link-Format, SenML => HSML Collections
- Interaction model optimized for machine workflow
 - Machine comprehensible hyperlinks and forms
 - Link embedding and transclusion
 - Separate or combined data and hypertext
- Transfer layer abstraction
 - Generalizes forms and other message based controls
 - Enables REST and Pub/Sub protocol binding

Design Patterns

- Extensions to the REST design style
- Enable machine control and asynchronous interaction using stateless client and REST
 - Hypermedia based discovery
 - RESTful actuation
 - RESTful asynchronous notification
 - Machine proxy, "device shadow" interaction
- Servient Client + Server integration
 - Consume and expose resources at the same time
- Link annotation for application semantics

CoRAL and HSML

Media Types for Machine Interaction

Klaus Hartke and Michael Koster

Comparison

- Similarities
 - Collections of links and items
 - Forms to drive resource state updates
 - Interoperable data models
- Differences
 - CoRAL uses a data model derived from HAL
 - HSML uses CoRE Link-Format and SenML
 - CoRAL uses media types to define application semantic vocabulary and data serialization
 - HSML uses link annotation to embed application semantics

Next Steps

- Create a common use case prototype to evaluate both approaches
 - Cross-domain interoperability
 - How does the difference in semantic annotation impact application design?
 - Discovery, resource construction, application interaction
- Converge to a single representation format and interaction model over time

Project

- Take CoRE Apps lighting example and translate to HSML
- Implement BB in HSML
- Implement RD as an alternate discovery to BB
- Compare HSML and CoRAL
- Compare RD and BB
 - HSML + BB
 - HSML + RD
 - CoRAL + BB