

DTL DSN – Itron Network Platform Specification Guideline for Network as a Service (NaaS) and Software as a Service (SaaS)

A. Introduction

1. The intent of this specification is to provide requirements for Acuity Brands offering of Itron Network Platform's Network as a Service (NaaS) and Software as a Service (SaaS)

B. System Description

1. The Itron Network platform shall consist of three primary components:
 - a. Endpoints – Any device with an Itron (formerly Silver Spring) Network Interface Card (NIC) such as the DTL DSN Itron ready networked photo controller, internal control node for decorative fixtures, advanced metering infrastructure, Internet of Things Edge Router, Smart City Sensors, etc.
 - b. Network as a Service (NaaS) – Network Design, network equipment, network optimization, data backhaul, network monitoring and management software needed to deploy and maintain a Smart City Street Lighting Network.
 - c. Software as a Service (SaaS) – Central Management Software, Streetlight.Vision (SLV) software platform for command and control of streetlights and other smart cities assets.

C. Streetlight Controller Specifications

1. *Please refer to "Div26 DTL DSN" specifications.*

D. Network as a Service (NaaS) Specifications

1. Network as a service should be based on the Itron Network Platform (formerly Silver Spring Networks)
2. Network shall be a 802.15.4g Wi-SUN standards-based mesh network
3. The network shall use IPv6 communication protocol
4. The network shall support communication to the Cloud Management System through the TALQ standard
5. The network shall communicate on the 902-928 MHz ISM band using a frequency hopping spreading technique.
6. The network shall have a data rate of 300kbps
7. The network shall be a self-healing mesh network with at least two routes of access to the CMS for every active endpoint.
8. The network shall support multiple device types
9. The network Access Points shall support a maximum of 5000 endpoints

10. The network access point shall support multiple backhaul options including, cellular and Ethernet
11. The network shall have the following cryptographic suite:
 - a. Elliptic Curve Digital Signature Algorithm (ECDSA) over the NIST P-256 curve
 - b. Advanced Encryption Standard (AES), 256 bits
 - c. Secure Hash Algorithm (SHA) – SHA256 variation
 - d. Diffie-Hellman (DH) Key Agreement and Elliptic Curve Diffie-Hellman (ECDH)
 - e. Rivest-Shamir-Adelman (RSA) Public Key Cryptography Standard (PKCS) #1 – 2048 bit signatures
 - f. True Random Number Generator (RNG) based on a noise or entropy source, can be combined with a Pseudo-Random Number Generator (PRNG) where the RNG seeds the PRNG
12. The system shall conform to Federal Information Processing Standard (FIPS) 186-2 (for digital signatures), FIPS 197 (for encryption), FIPS 140-2 Security Level 2 and 3 (for specific hardware security modules), and FIPS PUB 198 (for cryptographic hash functions).
13. NaaS shall provide a 99% annual uptime Service Level Agreement (SLA) backed by customer credits
14. Network Deployments shall include post-deployment network optimization engineering functions.

E. Software as a Service (SaaS) Specifications

1. Software shall be StreetLight Vision (SLV) Central Management Software (CMS)
2. Software shall provide open APIs to interface with third party systems and hardware.
3. Software shall support multiple device types
4. Software shall be HTML 5 based web application
5. Software shall support automatic synchronous and asynchronous data collection
6. Software shall provide real time control of endpoints and streetlight controllers
7. Software shall support advanced scheduling services, control programs and calendars
8. Software shall support real time alarms for critical issues
9. Software shall support dynamic lighting scenarios
10. Software shall support astronomical clock
11. Software shall support advanced user management and access rights control
12. Software shall support multi-tenant user interface and skinning capabilities
13. Software shall support multiple map providers
14. Software shall support drag and drop asset management
15. Software shall support creation of custom failure reports and data analytics
16. Software back-office shall have standard firewalls and security compartments, and 3-tier architecture with:
 - a. Highly restricted port connectivity (access methods) between tiers
 - b. Encrypted channels between tiers
 - c. Encrypted channel, authentication/authorization for both UI (SSL) and programmatic APIs
 - d. Support for customer password rotation/aging policies
 - e. MD5 hash of passwords at rest in database, data encrypted when archived

17. SaaS shall provide a 99% annual uptime Service Level Agreement (SLA) backed by customer credits

F. Customer Credits

1. The Itron Networks SaaS and NaaS SLAs shall be backed by the following customer credits:
 - a. SLAs will be calculated using the aggregate number of Integrated Devices deployed for a Customer.
 - b. As part of the SLA offering, the Network will connect to 99.0 % of a Customer’s Provisioned and Optimized Integrated Devices at least once per Day.
 - c. For the SLA offering, 1.0% or more of the Provisioned Integrated Devices cannot communicate with the Network at least once during an entire Day
 - d. Network availability SLA:

No. of Days in the applicable calendar month where the Network Availability is not met	Service Level Credit: % of Monthly NaaS Fees
1 – 3	0%
4 – 6	5%
7 – 10	10%
11 – 14	15%
15 or more	20%

- e. Streetlight Vision will be available and accessible by Customer and functioning normally 99.0% of the time via web login. A determination of availability will be based on 24x7 accessibility.
- f. Service Level Credits for Software availability are based on table below:

Monthly Availability Performance	Service Level Credit: % of Monthly SaaS Fees
≥97.5 and <99.0%	3%
≥95% and < 97.5%	10%
<95.0%	20%

- g. Outage alerts: The Network will successfully receive at least 98% of light outage alerts from Integrated Devices in no more than two hours on average, in a calendar month. This SLA will only apply to single outages (e.g., distribution level power failures that impact multiple Integrated Devices shall not apply to this SLA). In addition, this SLA shall only be in force during the period when Integrated Devices are fully powered and operational. Service Level Credits in accordance with table below will apply only if there is a minimum of 100 outage alerts in the applicable month.

Monthly Availability Performance	Service Level Credit: % of Monthly NaaS Fees
≥97.5 and <99.0%	3%
≥95% and < 97.5%	10%
<95.0%	20%

END