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STUDY GROUP 11
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Title: LS on work progress on quantum key distribution network (QKDN) in SG11

LIAISON STATEMENT

For action to: -

For information to: ITU-T Study Group 2, SG13, SG15, SG17, JCA-QKDN, ETSI ISG-QKD, ETSI TC QT, ISO/IEC JTC1/SC27, ISO/IEC JTC3, IRTF QIRG, IETF opsawg

Approval: ITU-T Study Group 11 meeting (Geneva, 11 March 2026)

Deadline: N/A

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Abstract: This liaison statement contains information on the work progress on quantum key distribution network (QKDN) in ITU-T SG11.

ITU-T Study Group 11 is pleased to inform ITU-T Study Group 2, SG13, SG15, SG17, JCA-QKDN, ETSI ISG-QKD, ETSI TC QT, ISO/IEC JTC1/SC27, ISO/IEC JTC3, IRTF QIRG and IETF opsawg on its progress on quantum key distribution network (QKDN) topics.

1. The published Recommendations

ITU-T SG11 has published six Recommendations on QKDN as follows:

1) Recommendation ITU-T Q.4160: Quantum key distribution networks – Protocol framework
2) Recommendation ITU-T Q.4161: Protocols for Ak interfaces for quantum key distribution networks
3) Recommendation ITU-T Q.4162: Protocols for Kq-1 interfaces for quantum key distribution networks
4) Recommendation ITU-T Q.4163: Protocols for Kx interfaces for quantum key distribution networks
5) Recommendation ITU-T Q.4164: Protocols for Ck interfaces for quantum key distribution networks
6) Recommendation ITU-T Q.4165: Quantum key distribution networks interworking - Protocol framework

2. The items consented at ITU-T Study Group 11 meeting (Geneva, 3-11 March 2026)

None.

3. On-going work items progressed at ITU-T Study Group 11 meeting (Geneva, 3-11 March 2026)

ITU-T SG11 made progress on five draft Recommendations on QKDN as follows:

1) Draft Recommendation ITU-T Q.QKDNi_KM “Protocols for interfaces between key managers for quantum key distribution network interworking”

   Summary: Recommendation ITU-T Q.QKDNi_KM specifies protocols for Kxi and Kxi’ interfaces in quantum key distribution network interworking (QKDNi).

2) Draft Recommendation ITU-T Q.QKDN_Mk “ Protocols for interfaces on quantum key distribution network manager for quantum key distribution networks”

   Summary: Recommendation ITU-T Q.QKDN_Mk specifies protocols for interfaces on a quantum key distribution network manager (QKDN manager) in quantum key distribution networks (QKDN). Reference points on a QKDN manager are defined in [ITU-T Y.3802] which are Mq, Mqrp, Mops, Mk, Mc, Mu and Mx. A QKDN manager performs FCAPS functions through these interfaces to QKD modules, KMs, QKDN controllers, QKD links, user network managers and corresponding QKDN managers. Also, Mxi reference point for interworking of QKDN management layers is defined in [Y3810] for sharing QKDN management information between QKDN providers through the QKDN management layer.

3) Draft Recommendation ITU-T Q.QKDN_Cq “Protocols for Cq interfaces for quantum key distribution networks”

   Summary: Recommendation ITU-T Q.QKDN_Cq specifies key generation control protocols for Cq interfaces for quantum key distribution networks.

4) Draft Recommendation ITU-T Q.QKDN_GC “General control protocols for interfaces on quantum key distribution network controller for quantum key distribution networks”

   Summary: Recommendation ITU-T Q.QKDN_GC specifies general control protocols at interfaces on a quantum key distribution network controller (QKDN controller) in quantum key distribution networks (QKDNs). Reference points on a QKDN controller are defined in [ITU-T Y.3802] which are Cq, Cqrp, Cops, Ck and Cx and in [ITU-T Y.3810] which is Cxi. A QKDN controller performs control functions through these interfaces to QKD modules, KMs, QKD links and other QKDN controller.

   Signalling procedures, messages and parameters at Ck interfaces for key relay and Cq interfaces for key generation are specified in [ITU-T Q.4164] and [draft Q.QKDN_Cq]. This draft Recommendation describes protocols for general control functions which can be applied commonly to interfaces on the QKDN controller. These specifications are additional to [ITU-T Q.4164] and [draft Q.QKDN_Cq] and will not override them.

5) Draft Recommendation ITU-T Q.QKDN_Pro-car “Protocols for cryptographic application registration in quantum key distribution networks”

   Summary: Recommendation ITU-T Q.QKDN_Pro-car specifies protocols on relevant interfaces including Ar, Ck, Mc and Mu to support cryptographic application registration procedures.

4. New work items initiated at ITU-T Study Group 11 meeting (Geneva, 3-11 March 2026)

None.

5. Conclusion

ITU-T SG11 looks forward to close cooperation with ITU-T Study Group 2, SG13, SG15, SG17, JCA-QKDN, ETSI ISG-QKD, ETSI TC QT, ISO/IEC JTC1/SC27, ISO/IEC JTC3, IRTF QIRG, IETF opsawg and relevant groups for future standardization on QKDNs.

Attachments: 5

1) SG11-TD996/GEN: Output - draft new Recommendation Q.QKDNi_KM “Protocols for interfaces between key managers for quantum key distribution network interworking” (Geneva, 3-11 March 2026).
2) SG11-TD1000/GEN: Output - draft new Recommendation Q.QKDN_Mk “Protocols for interfaces on quantum key distribution network manager for quantum key distribution networks” (Geneva, 3-11 March 2026).
3) SG11-TD999/GEN: Output - draft new Recommendation Q.QKDN_Cq “Protocols for Cq interfaces for quantum key distribution networks” (Geneva, 3-11 March 2026).
4) SG11-TD998/GEN: Output - draft new Recommendation Q.QKDN_GC “General control protocols for interfaces on quantum key distribution network controller for quantum key distribution networks” (Geneva, 3-11 March 2026).
5) SG11-TD997/GEN: Output - draft new Recommendation Q.QKDN_Pro-car "Protocols for cryptographic application registration in quantum key distribution networks" (Geneva, 3-11 March 2026).

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