Algebra of sections of topological algebras

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Let $(A(x), \tau(x))_{x \in X}$ be a family of topological algebras over $\mathbb{C}$, indexed by the points of a completely regular (*Hausdorff*) space X.

Consider the family of sections

$$\mathcal{F} \subset \left\{ s : X \to \bigcup_{x \in X} A(x);\ s(x) \in A(x),\ \text{for any } x \in X \right\} = \prod_{x \in X} A(x)$$

which fulfils the following conditions:

(F1) $\mathcal{F}$ is an algebra under pointwise defined operations (addition, multiplication and multiplication by scalar),

(F2) for any $x \in X$, $A(x) = \{s(x);\ s \in \mathcal{F}\}$,

(F3) $\mathcal{F}$ is a $\mathcal{C}(X)$-module, with $\mathcal{C}(X)$ the algebra of $\mathbb{C}$-valued continuous functions on X.

We consider the topology on $\mathcal{F}$, induced by the product topology of

$$\prod_{x \in X} A(x).$$

Algebraic and topological properties of algebra $\mathcal{F}$ are introduced.

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