



Compliance Report

Makani Search API v1 → ML Learning AI Agent

Technical Requirements Compliance Document
Smart Indexes Geoanalytics

1. Documentation Availability

Requirement	Status	Notes
Full API documentation (Makani Search API v1)	YES	Public documentation available via: https://smartindexes.com/api/makani-search-api/

2. Geospatial Coverage

Dataset / Spatial Layer	Coverage	Status
Emirates of UAE	7 Emirates	YES
Communities (Dubai / DLD)	Full registry	YES
Master Projects	Full coverage	YES
Project Names	Full coverage	YES
Address Registry	Full address structure	YES

Conclusion: Coverage is sufficient for ML training of a real-estate agent AI.

3. Depth of Property-Level Coverage

Metric	Value	Status
Unique building objects by Makani Number	91 192	YES
Makani-linked property analytics	13 dedicated end-points	YES

Makani-number-based structure ensures precise property identity for model training.



4. Infrastructure Coverage

Category	Status
EV Charging Stations	YES
Airports	YES
Retail - Malls	YES
Roads (routes, statistics, Traffic Accident Rate, Transport Accessibility Score)	YES

5. Address Matching via Makani Number

Component	Status	Notes
13 dedicated endpoints	YES	Search + data retrieval
Full hierarchy	YES	Emirates → Communities → Projects → Parcels → Buildings → Entrances
Compatibility with DLD addressing	YES	All fields aligned to DLD format

6. Logistic Layers & Spatial Operations

Feature	Status
Roads & road network elements	YES
Statistical layers	YES
"Find Nearby" operations (EV, Freezones, etc.)	YES
Reverse geocoding / Point-to-Makani	YES



7. Address Data Structure

All required ML fields are available.

7.1 End-point: Emirates of UAE

Reference: <https://smartindexes.com/api/makani-search-api/#emirates:attributes>

Field	Description
emirate_id	UAE official emirate code (1–7)
emirate_name_en	Emirate name (English)
emirate_name_ar	Emirate name (Arabic, UTF-8)

7.2 End-point: Communities of Dubai

Reference: <https://smartindexes.com/api/makani-search-api/#communities:attributes>

Field	Description
community_number	Official DLD community code
community_name_en	Name in English
community_name_ar	Name in Arabic (UTF-8)

7.3 End-point: Lands & Buildings Ownership

Reference:

<https://smartindexes.com/api/makani-search-api/#lands-ownership-segmentation:attributes>

Field	Description
parcel_id	Dubai Municipality parcel ID
area_name_en	Area name in English
area_name_ar	Area name in Arabic
community	Community name of the location



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address	Fully formatted municipal address (e.g. "27, 12B STREET, AL BARSHA THIRD – 375")
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7.4 End-point: Building Entrances

Reference: <https://smartindexes.com/api/makani-search-api/#building-entrances:example>

Field	Description
area_name_ar	Area name in Arabic
area_name_en	Area name in English
address	Full formatted address
master_project_en	Master project name (EN)
master_project_ar	Master project name (AR)
project_name_ar	Project name (Arabic)
project_name_en	Project name (English)

7.5 End-point: Property Analytics

Reference: <https://smartindexes.com/api/makani-search-api/#project-analytics:example>

Field	Description
project_name_en	Project name (English)
makani_number (array, for villas)	List of Makani numbers linked to the project
parcel_id	Parcel identifier (Plot Number)
property_id	Property identifier (DLD)
project_id	Project identifier (DLD)



Explanations of ML/AI Capabilities

Including Conclusions for Each Category

1. ML Dataset Ingestion

Ability to load, normalize, and structure large-scale datasets for training.

Explanation:

ML dataset ingestion requires a consistent and well-documented data model, standardized field formats, and stable endpoints that can reliably deliver large volumes of structured information. This includes geospatial objects, addresses, projects, parcels, buildings, and analytics fields.

Makani Search API Provides:

- Fully standardized schema.
- DLD-compatible fields.
- Clear address hierarchy.
- Uniform attributes across all endpoints.
- Stable responses for batch extraction.
- Multi-geometry support (points, polygons, multipolygons).

Conclusion:

Makani Search API fully supports efficient ML dataset ingestion with minimal preprocessing requirements.

2. AI Agent Property Recognition

Unique identification of properties, buildings, parcels, and entrances.

Explanation:

An AI property agent must distinguish:

- buildings vs. parcels,
- entrances vs. building polygons,
- master projects and subprojects,
- and map these elements to a consistent identifier (e.g., Makani Number).



Makani Search API Provides:

- 91,192 unique Makani-number-based building objects.
- Detailed structure linking parcels → buildings → entrances.
- Building shapes (polygons) and entrance points.
- DLD identifiers for cross-system matching.

Conclusion:

The API provides all necessary identifiers and structure for reliable property recognition and object linking within an AI agent.

3. DLD-Compatible Address Parsing

Ability to interpret official Dubai address formats and map them to DLD identifiers.

Explanation:

DLD-compatible parsing requires clean, official fields such as parcel numbers, community codes, building IDs, project IDs, and formatted municipal addresses.

Makani Search API Provides:

- Official parcel_id (Dubai Municipality).
- community_number (DLD).
- project_id and property_id (DLD).
- Fully formatted Dubai address strings.
- English and Arabic address components.

Conclusion:

The API offers complete DLD-aligned address components, enabling seamless parsing and matching within AI Agent.

4. Geo-Structured Analytics for Embeddings

Hierarchical spatial data suitable for generating vector embeddings.

Explanation:

Embedding models (spatial embeddings, graph embeddings, semantic embeddings) require structured, hierarchical geodata that preserves context and spatial relations.

Makani Search API Provides:



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- Full spatial hierarchy: Emirate → Community → Master Project → Project → Parcel → Building.
- Polygon and centroid geometry.
- Surrounding infrastructure layers (schools, EV stations, malls, airports, etc.).
- “Find Nearby” and proximity-based endpoints.
- Neighborhood-level analytics.

Conclusion:

The API enables creation of high-quality spatial embeddings that reflect the real structure of Dubai’s urban environment.

5. Contextual Real-Estate Recommendations

Understanding property context for ranking, suggestion, and similarity models.

Explanation:

Real-estate recommendations depend not only on property attributes but also on:

- infrastructure accessibility,
- community characteristics,
- project-level features,
- and neighborhood context.

Makani Search API Provides:

- Full address context.
- Distance and proximity layers (EV, airports, freezones, etc.).
- Project-level analytics dataset.
- Hierarchical and spatial features.
- Clean inputs for similarity scoring and contextual ranking.

Conclusion:

The API supplies all contextual layers required for intelligent, human-like real-estate recommendations.



6. Training Spatial and Semantic Layers

Providing both geometric and linguistic features for multi-layer AI models.

Explanation:

Advanced AI models require dual representations:

- **Spatial layers** — geometry, distance, adjacency, proximity.
- **Semantic layers** — names, categories, hierarchy, address semantics.

Makani Search API Provides:

- Geometrical features (polygons, points, centroids).
- Semantically rich fields (project names, community names, master developments).
- Clean multilingual address components (English + Arabic).
- Consistent hierarchical data for both spatial and semantic understanding.

Conclusion:

The API fully supports training hybrid models that combine spatial reasoning with semantic interpretation.