

Magic: The Gathering Database Documentation

John Kuroda
Akil Marshall
Israel Trusdell

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Contents

| | | |
|----------|--|-----------|
| 1 | Philosophy of Design | 3 |
| 2 | Tables | 3 |
| 2.1 | CARD | 3 |
| 2.2 | SET | 4 |
| 2.3 | FORMAT | 5 |
| 2.4 | IS_ALLOWED | 6 |
| 2.5 | CONTAINS | 6 |
| 2.6 | LIMITATION | 7 |
| 2.7 | COLOR | 7 |
| 2.8 | COLOR.COST | 8 |
| 2.9 | DOUBLE_CARD | 8 |
| 2.10 | SUPERTYPE | 9 |
| 2.11 | TYPE | 9 |
| 2.12 | SUBTYPE | 10 |
| 2.13 | COLOR_IDENTITY | 10 |
| 3 | Domain Descriptions of Certain Attributes | 11 |
| 3.1 | SET.set_type | 11 |
| 3.2 | CONTAINS.rarity | 12 |

1 Philosophy of Design

write something about why we did the things we did.

2 Tables

2.1 CARD

The MTG wiki had the following to say about what a card is.

In Magic: The Gathering, a card is the standard component of the game. The word card usually refers to a Magic card with a Magic card front and a Magic card back, or to double-faced cards.

The CARD table is reflective of the elements you will find on a magic card.

2.1.1 Attributes

- card_name
 - **description:** The name of the card.
 - **data type:** String
 - **domain:** Any valid card name.
- text
 - **description:** Everything in the text area of the card.
 - **data type:** String
 - **domain:** Any valid card text.
- type
 - **description:** The type of the card (creature, artifact, etc).
 - **data type:** String
 - **domain:** Any valid magic card type.
- power
 - **description:** The card's power.
 - **data type:** Integer
 - **domain:** Any non-negative integer.
- toughness
 - **description:** The card's toughness.
 - **data type:** Integer

- **domain:** Any non-negative integer.
- loyalty
 - **description:** The card’s loyalty.
 - **data type:** Integer
 - **domain:** Any non-negative integer.

2.2 SET

The MTG wiki had the following to say about what a set is.

A set in Magic: The Gathering is a pool of cards released together and designed for the same play environment. Cards in a set can be obtained either randomly through booster packs, or in box sets that have a fixed selection of cards. An expansion symbol and, more recently, a three-character abbreviation is printed on each card to identify the set it belongs to.

2.2.1 Attributes

- set_code
 - **description:** The alphanumeric code associated with a set.
 - **data type:** String
 - **domain:** Combinations of letters and digits.
- set_name
 - **description:** The name of the set.
 - **data type:** String
 - **domain:** Any valid set name.
- release_date
 - **description:** The date the set was released.
 - **data type:** String
 - **domain:** Any valid date.
- set_type
 - **description:** The type of set it is (core, expansion, etc).
 - **data type:** String
 - **domain:** Any valid set type.

2.3 FORMAT

The MTG wiki had the following to say about what a format is.

Formats are different modes in which the Magic: The Gathering collectible card game can be played. Each format provides rules for deck construction and gameplay.

2.3.1 Attributes

- `format_name`
 - **description:** The name of the format.
 - **data type:** String
 - **domain:** Any valid format name.
- `min_deck_size`
 - **description:** The minimum number of cards allowed in a deck.
 - **data type:** Integer
 - **domain:** Any non-negative integer.
- `max_deck_size`
 - **description:** The maximum number of cards allowed in a deck.
 - **data type:** Integer.
 - **domain:** Any integer, negative integers are interpreted as infinity.
- `copies_allowed`
 - **description:** The maximum number of copies of a card allowed in a deck.
 - **data type:** Integer
 - **domain:** Any non-negative integer.
- `format_type`
 - **description:** The type of the format (constructed, draft, etc)
 - **data type:** String
 - **domain:** Valid magic format types.
- `multiplayer`
 - **description:** If the format can be played by more than 2 people.
 - **data type:** Boolean
 - **domain:** Any valid boolean.

2.4 IS_ALLOWED

This table is the implementation of the many-to-many relationship between FORMAT and SET. A format may allow many sets and a set may be included in many formats.

2.4.1 Attributes

- set_code
 - **description:** A foreign key from SET.
 - **data type:** String
 - **domain:** Combinations of letters and digits.
- format_name
 - **description:** A foreign key from FORMAT.
 - **data type:** String
 - **domain:** Any valid format name.

2.5 CONTAINS

This table is the implementation of the many-to-many relationship between CARD and SET. A card may be included in many sets and A set may contain many cards.

2.5.1 Attributes

- set_code
 - **description:** A foreign key from SET.
 - **data type:** String
 - **domain:** Combinations of letters and digits.
- card_name
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- rarity
 - **description:** The rarity of the card (common, uncommon, etc).
 - **data type:** String
 - **domain:** Any valid magic card rarity.

2.6 LIMITATION

This table is the implementation of the many-to-many relationship between FORMAT and CARD. A format may limit many cards and a card may be limited by many formats.

2.6.1 Attributes

- `format_name`
 - **description:** A foreign key from FORMAT.
 - **data type:** String
 - **domain:** Any valid format name.
- `card_name`
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- `limitation_type`
 - **description:** The way in which a card is limited (banned, restricted, etc).
 - **data type:** String
 - **domain:** Any valid limitation.

2.7 COLOR

MTG wiki had the following to say about color.

Color is a basic property of cards in Magic: The Gathering, forming the core of the game's mana system and overall strategy.

2.7.1 Attributes

- `card_name`
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- `color`
 - **description:** The color a card is associated with, usually indicated by the physical color of the card.
 - **data type:** String
 - **domain:** Any valid magic card color.

2.8 COLOR_COST

Due to the fact that converted_cost depends on cost_string which is not the primary key. This table solves that problem.

2.8.1 Attributes

- card_name
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- cost_string
 - **description:** An alphanumeric representation of a cards mana cost.
 - **data type:** String
 - **domain:** Strings over the alphabet $\Sigma = \{R, U, G, B, W, X, \phi\}$ where $\phi \in \mathbb{Z}_{>0}$ and each string that contains ϕ begins with ϕ .
- converted_cost
 - **description:** The sum over a cards mana cost. Each occurrence of

Table 1: How to sum a cost_string.

| Σ | value |
|----------|--------|
| R | 1 |
| U | 1 |
| G | 1 |
| B | 1 |
| W | 1 |
| X | 0 |
| ϕ | ϕ |

a character in a cost_string is summed according to the above table.

- **data type:** Integer
- **domain:** Any non-negative integer.

2.9 DOUBLE_CARD

This table allows us to describe double faced cards which are magic cards with two faces.

2.9.1 Attributes

- side_a
 - **description:** A foreign key from CARD, specifically a card_name.
 - **data type:** String
 - **domain:** Any valid card name.
- side_b
 - **description:** A foreign key from CARD, specifically a card_name.
 - **data type:** String
 - **domain:** Any valid card name.
- set_code
 - **description:** A foreign key from SET.
 - **data type:** String
 - **domain:** Combinations of letters and digits.

2.10 SUPERTYPE

Magic cards may have one or more supertypes, this table implements that one-to-many relationship.

2.10.1 Attributes

- card_name
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- supertype
 - **description:** The supertype of the card (legendary, snow, etc).
 - **data type:** String
 - **domain:** Any valid magic card subtype.

2.11 TYPE

Magic cards may have one or more types, this table implements that one-to-many relationship.

2.11.1 Attributes

- **card_name**
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- **type**
 - **description:** The type of the card (creature, artifact, etc).
 - **data type:** String
 - **domain:** Any valid magic card type.

2.12 SUBTYPE

Magic cards may have zero or more subtypes, this table implements that one-to-many relationship.

2.12.1 Attributes

- **card_name**
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.
- **subtype**
 - **description:** The subtype of the card (equipment, curse, etc).
 - **data type:** String
 - **domain:** Any valid magic card subtype.

2.13 COLOR_IDENTITY

Each mana symbol that appears on a card is included within that cards color identity. Each card is associated with one or more colors.

2.13.1 Attributes

- **card_name**
 - **description:** A foreign key from CARD.
 - **data type:** String
 - **domain:** Any valid card name.

- red
 - **description:** A flag to indicate the cards alignment with red.
 - **data type:** Boolean
 - **domain:** Any valid boolean.
- blue
 - **description:** A flag to indicate the cards alignment with blue.
 - **data type:** Boolean
 - **domain:** Any valid boolean.
- green
 - **description:** A flag to indicate the cards alignment with green.
 - **data type:** Boolean
 - **domain:** Any valid boolean.
- white
 - **description:** A flag to indicate the cards alignment with white.
 - **data type:** Boolean
 - **domain:** Any valid boolean.
- black
 - **description:** A flag to indicate the cards alignment with black.
 - **data type:** Boolean
 - **domain:** Any valid boolean.

3 Domain Descriptions of Certain Attributes

In this section we describe in detail and give examples of the attributes domain for those attributes that we can reasonably do so.

3.1 SET.set_type

3.1.1 Domain Values

- | | | |
|-------------|--------------------|---------------|
| • archenemy | • draft_innovation | • funny |
| • box | • duel_deck | • masterpiece |
| • commander | • expansion | • masters |
| • core | • from_the_vault | • memorabilia |

- planechase
- premium_deck
- promo
- spellbook
- starter
- token
- treasure_chest

3.2 CONTAINS.rarity

3.2.1 Domain Values

- common
- uncommon
- rare
- mythic