Starting April 29, 2025, Gemini 1.5 Pro and Gemini 1.5 Flash models are not available in projects that have no prior usage of these models, including new projects. For details, see Model versions and lifecycle (/vertex-ai/generative-ai/docs/learn/model-versions#legacy-stable).

MedLM API

Caution: MedLM is deprecated. Access to MedLM will no longer be available on or after September 29, 2025.

Disclaimer: MedLM on Vertex AI is generally available (GA) (/products#product-launch-stages) in the US, Brazil,

and Singapore to a limited group of customers, and available in Preview (/products#product-launch-stages) to a limited group of customers outside the US. This releases focuses on Medical Q&A and Medical Summarization use. By using the MedLM API, you agree to the Generative Policy (https://policies.google.com/terms/generative-ai/use-policy) and the Google Cloud Platform Service-Specific Terms (/terms/service-terms), and you agree to notify and coordinate with Google in good faith to address any regulatory inquiries regarding your use of MedLM. For this product, you can process personal data as outlined in the Data Processing Security Terms, subject to the restrictions described in the Google Cloud Platform Terms of Service. For more information, see the Launch stage descriptions (/products#product-launch-stages). Provided that you enter into a Business Associate Agreement with Google that covers your use of Google Cloud Platform Services, MedLM API can be used to process Protected Health Information subject to the Health Insurance

Portability and Accountability Act (HIPAA) of 1996 and/or any amendments or regulations under HIPAA.

Caution:

- Before activating Production use for MedLM, customers must reach out to Google Product Team to discuss usage.
- MedLM has not been designed or developed to be used as a medical device. Any output should be verified by a Healthcare Professional (HCP), and no direct diagnosis should be claimed.
- The generated output may not always be completely reliable. Due to the nature of LLMs and Generative AI, outputs may have incorrect or biased (for example, stereotypes or other harmful content) information and should be reviewed. All summaries or answers should be considered draft and not final.

- When used by HCPs for Q&A purposes, MedLM is only intended for use as an educational tool for medical training or to reinforce the HCP's prior training.
- LLM output may not follow the exact format laid out in the prompt. The prompt design to extract information for each field should take into account that the format may deviate from the original (for example, dashes in field names, exact capitalization of letters).

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MedLM is a family of foundation models fine-tuned for the healthcare industry. Med-PaLM 2 (https://sites.research.google/med-palm/) is one of the text-based models developed by Google Research that powers MedLM, and was the first AI system to reach human expert level on answering US Medical Licensing Examination (USMLE)-style questions. The development of these models has been informed by specific customer needs such as answering medical questions and drafting summaries.

MedLM model card

The MedLM model card outlines the model details, such as MedLM's intended use, data overview, and safety information. Click the following link to download a PDF version of the MedLM model card:

<u>Download the MedLM model card</u> (/static/vertex-ai/generative-ai/docs/medlm/MedLM-model-card.pdf)

Use cases

- Question answering: Provide draft answers to medically-related questions, given as text.
- Summarization: Draft a shorter version of a document (such as an After Visit Summary or History and Physical Examination note) that incorporates pertinent information from the original text.

For more information on designing text prompts, see <u>Overview of prompting strategies</u> (/vertex-ai/generative-ai/docs/learn/prompts/prompt-design-strategies).

HTTP request

MedLM-medium (medlm-medium):

POST https://us-central1-aiplatform.googleapis.com/v1/projects/{PROJECT_ID}/locations

MedLM-large (medlm-large):

POST https://us-central1-aiplatform.googleapis.com/v1/projects/{PROJECT_ID}/locations

See the <u>predict</u> (/vertex-ai/docs/reference/rest/v1/projects.locations.publishers.models/predict) method for more information.

Model versions

MedLM provides the following models:

- MedLM-medium (medlm-medium)
- MedLM-large (medlm-large)

The following table contains the available stable model versions:

medlm-medium model	Release date
medlm-medium	December 13, 2023
medlm-large model	Release date
medlm-large	December 13, 2023

MedLM-medium and MedLM-large have separate endpoints and provide customers with additional flexibility for their use cases. MedLM-medium provides customers with better throughputs and includes more recent data. MedLM-large is the same model from the preview phase. Both models will continue to be refreshed over the product lifecycle. In this page, "MedLM" refers to both models.

For more information, see Model versions and lifecycle

(/vertex-ai/generative-ai/docs/learn/model-versioning).

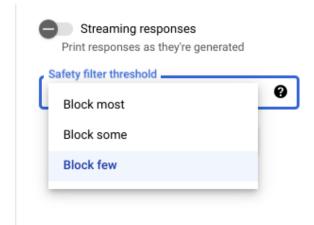
MedLM safety filters and attributes

Content processed through the MedLM API is assessed against a list of safety attributes, including "harmful categories" and topics that may be considered sensitive. If you are seeing a fallback response, like "I'm not able to help with that, as I'm only a language model," it means that either the prompt or the response is triggering a safety filter.

Important: If Vertex AI detects content that violates the Google <u>AI Principles</u> (https://ai.google/responsibility/principles/), a response is not returned.

Safety thresholds

When using Vertex AI Studio, you can use an adjustable safety filter threshold to determine how likely you are to see responses that could be harmful. Model responses are blocked based on the probability that it contains harassment, hate speech, dangerous content, or sexually explicit content. The safety filter setting is located on the right side of the prompt field in Vertex AI Studio. You can choose from three options: block most, block some, and block few.



Testing your confidence and severity thresholds

You can test Google's safety filters and define confidence thresholds that are right for your business. By using these thresholds, you can take comprehensive measures to detect content that violates Google's usage policies or terms of service and take appropriate action.

The confidence scores are predictions only, and you shouldn't depend on the scores for reliability or accuracy. Google is not responsible for interpreting or using these scores for business decisions.

Recommended practices

To utilize this technology safely and responsibly, it's important to consider other risks specific to your use case, users, and business context in addition to built-in technical safeguards.

We recommend taking the following steps:

- 1. Assess your application's security risks.
- 2. Consider adjustments to mitigate safety risks.
- 3. Perform safety testing appropriate to your use case.
- 4. Solicit user feedback and monitor content.

To learn more, see Google's recommendations for <u>Responsible Al</u> (/vertex-ai/generative-ai/docs/learn/responsible-ai).

Request body

```
{
    "instances": [
        {
            "content": string
      }
    ],
    "parameters": {
            "temperature": number,
            "maxOutputTokens": integer,
            "topK": integer,
            "topP": number
    }
}
```

Use the following parameters for the medlm-medium and medlm-large models. For more information, see <u>Design text prompts</u> (/vertex-ai/generative-ai/docs/text/text-prompts).

Parameter	Description	Acceptable values
content	Text input to generate model response. Prompts can include preamble, questions, suggestions, instructions, or examples.	Text
cemperature	The temperature is used for sampling during response generation, which occurs when topP and topK are applied. Temperature controls the degree of randomness in token selection. Lower temperatures are good for prompts that require a less open-ended or creative response, while higher temperatures can lead to more diverse or creative results. A temperature of 0 means that the highest probability tokens are always selected. In this case, responses for a given prompt are mostly deterministic, but a small amount of variation is still possible.	0.0-1.0 Default: 0.2
	If the model returns a response that's too generic, too short, or the model gives a fallback response, try increasing the temperature.	
naxOutputTokens	Maximum number of tokens that can be generated in the response. A token is approximately four characters. 100 tokens correspond to roughly 60-80 words. Specify a lower value for shorter responses and a higher value for potentially longer responses.	
topK	Top-K changes how the model selects tokens for output. A top-K of 1 means the next selected token is the most probable among all tokens in the model's vocabulary (also called greedy decoding), while a top-K of 3 means that the next token is selected from among the three most probable tokens by using temperature. For each token selection step, the top-K tokens with the highest probabilities are sampled. Then tokens are further filtered based on top-P with the final token selected using temperature sampling. Specify a lower value for less random responses and a higher value	Default: 40
	for more random responses.	
topP	Top-P changes how the model selects tokens for output. Tokens are selected from the most (see top-K) to least probable until the sum of their probabilities equals the top-P value. For example, if tokens A, B, and C have a probability of 0.3, 0.2, and 0.1 and the top-P value is 0.5, then the model will select either A or B as the next token by using temperature and excludes C as a candidate.	:
	Specify a lower value for less random responses and a higher value for more random responses.	

Sample request

When using the MedLM API, it's important to incorporate prompt engineering. For example, we strongly recommend providing appropriate, task-specific instructions at the beginning of each prompt. For more information, see <u>Introduction to prompting</u>

(/vertex-ai/generative-ai/docs/learn/introduction-prompt-design).

```
REST
(#rest)
```

Caution: The generated output may not always be completely reliable. Due to the nature of LLMs and Generative AI, outputs may have incorrect or biased information and should be reviewed. All summaries or answers should be considered draft and not final.

Before using any of the request data, make the following replacements:

- PROJECT_ID : Your project ID
 (/resource-manager/docs/creating-managing-projects#identifiers).
- MEDLM_MODEL ♪: The MedLM model, either medlm-medium or medlm-large.

HTTP method and URL:

POST https://us-central1-aiplatform.googleapis.com/v1/projects/PROJECT_ID ✔ /loc

Request JSON body:

```
"instances": [
      {
         "content": "Question: What causes you to get ringworm?"
      }
],
"parameters": {
        "temperature": 0,
        "maxOutputTokens": 256,
        "topK": 40,
        "topP": 0.95
```

```
}
```

To send your request, choose one of these options:

```
curlPowerShell (#powershell)
    (#curl)
```



Note: The following command assumes that you have logged in to the gcloud CLI with your user account by running gcloud init (/sdk/gcloud/reference/init) or gcloud auth login (/sdk/gcloud/reference/auth/login), or by using Cloud Shell (/shell/docs), which automatically logs you into the gcloud CLI. You can check the currently active account by running gcloud auth list (/sdk/gcloud/reference/auth/list).

Save the request body in a file named request. json. Run the following command in the terminal to create or overwrite this file in the current directory:

```
cat > request.json << 'EOF'
  "instances": [
      "content": "Question: What causes you to get ringworm?"
  "parameters": {
    "temperature": 0,
    "maxOutputTokens": 256,
    "topK": 40,
    "topP": 0.95
  }
}
EOF
```

Then execute the following command to send your REST request:

```
curl -X POST \
     -H "Authorization: Bearer $(gcloud auth print-access-token)" \
     -H "Content-Type: application/json; charset=utf-8" \
```

```
-d @request.json \
"https://us-central1-aiplatform.googleapis.com/v1/projects/PROJECT_I
```

Response body

```
"predictions": [
    "content": string,
    "citationMetadata": {
      "citations": [
          "startIndex": integer,
          "endIndex": integer,
          "url": string,
          "title": string,
          "license": string,
          "publicationDate": string
        }
      ]
    },
    "logprobs": {
      "tokenLogProbs": [ float ],
      "tokens": [ string ],
      "topLogProbs": [ { map<string, float> } ]
    },
    "safetyAttributes": {
      "categories": [ string ],
      "blocked": boolean,
      "scores": [ float ],
      "errors": [ int ]
  }
],
"metadata": {
  "tokenMetadata": {
    "input_token_count": {
      "total_tokens": integer,
      "total_billable_characters": integer
    },
```

```
"output_token_count": {
    "total_tokens": integer,
    "total_billable_characters": integer
    }
  }
}
```

Response element	Description
content	The result generated from input text.
categories	The display names of Safety Attribute categories associated with the generated content. Order matches the Scores.
scores	The confidence scores of the each category, higher value means higher confidence.
blocked	A flag indicating if the model's input or output was blocked.
errors	An error code that identifies why the input or output was blocked. For a list of error codes see <u>Safety filters and attributes</u> (/vertex-ai/generative-ai/docs/learn/responsible-ai#safety_filters_and_attributes).
startIndex	Index in the prediction output where the citation starts (inclusive). Must be greater than o equal to 0 and less than end_index.
endIndex	Index in the prediction output where the citation ends (exclusive). Must be greater than start_index and less than len(output).
url	URL associated with this citation. If present, this URL links to the web page of the source of this citation. Possible URLs include news websites, GitHub repos, and so forth.
title	Title associated with this citation. If present, it refers to the title of the source of this citation. Possible titles include news titles, book titles, and so forth.
license	License associated with this recitation. If present, it refers to the license of the source of this citation. Possible licenses include code licenses, such as MIT license.
publicationDate	Publication date associated with this citation. If present, it refers to the date at which the source of this citation was published. Possible formats are YYYY, YYYY-MM, YYYY-MM-DD.
input_token_count	Number of input tokens. This is the total number of tokens across all prompts, prefixes, and suffixes.
output_token_coun	tNumber of output tokens. This is the total number of tokens in content across all predictions.

Response element	Description
tokens	The sampled tokens.
tokenLogProbs	The sampled tokens' log probabilities.
topLogProb	The most likely candidate tokens and their log probabilities at each step.
logprobs	Results of the `logprobs` parameter. 1-1 mapping to `candidates`.

Sample response

```
"predictions": [
    "citationMetadata": {
     "citations": []
    "content": "\n\nAnswer and Explanation:\nRingworm is a fungal infection of the
    "safetyAttributes": {
      "scores": [
        1
      "blocked": false,
      "categories": [
        "Health"
    }
 }
],
"metadata": {
  "tokenMetadata": {
    "outputTokenCount": {
      "totalTokens": 140,
      "totalBillableCharacters": 508
    },
    "inputTokenCount": {
      "totalTokens": 10,
      "totalBillableCharacters": 36
  }
```

}

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