



CVE-2021-37646

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CVE-2021-37646 - advisory for GHSA-h6jh-7gv5-28vg

[Source: Mitre](#)[Source: NIST](#)[CVE.ORG](#)[Print: PDF](#)

CVSS:31/AV:L/AC:L/PR:L/UI:N/S:U/C:N/I:N/A:H



Certain versions of [Tensorflow](#) from [Google](#) contain the following vulnerability:

TensorFlow is an end-to-end open source platform for machine learning. In affected versions the implementation of ``tf.raw_ops.StringNGrams`` is vulnerable to an integer overflow issue caused by converting a signed integer value to an unsigned one and then allocating memory based on this value. The [implementation]

(<https://github.com/tensorflow/tensorflow/blob/8d72537c6abf5a44103b57b9c2e22c14f5f49698/>) calls ``reserve`` on a ``tstring`` with a value that sometimes can be negative if user supplies negative ``ngram_widths``. The ``reserve`` method calls ``TF_TString_Reserve`` which has an ``unsigned long`` argument for the size of the buffer. Hence, the implicit conversion transforms the negative value to a large integer. We have patched the issue in GitHub commit `c283e542a3f422420cfdb332414543b62fc4e4a5`. The fix will be included in TensorFlow 2.6.0. We will also cherry-pick this commit on TensorFlow 2.5.1, TensorFlow 2.4.3, and TensorFlow 2.3.4, as these are also affected and still in supported range.

CVE-2021-37646 has been assigned by security-advisories@github.com to track the vulnerability - currently rated as **MEDIUM** severity.

Affected Vendor/Software: **tensorflow** - **tensorflow** version `>= 2.5.0, < 2.5.1`

Affected Vendor/Software: **tensorflow** - **tensorflow** version `>= 2.4.0, < 2.4.3`

Affected Vendor/Software: **tensorflow** - **tensorflow** version `< 2.3.4`

CVSS3 Score: **5.5 - MEDIUM**

Attack Vector	Attack Complexity	Privileges Required	User Interaction
LOCAL	LOW	LOW	NONE
Scope	Confidentiality Impact	Integrity Impact	Availability Impact
UNCHANGED	NONE	NONE	HIGH

CVSS2 Score: 2.1 - LOW

Access Vector	Access Complexity	Authentication
LOCAL	LOW	NONE
Confidentiality Impact	Integrity Impact	Availability Impact
NONE	NONE	PARTIAL

CVE References

Description	Tags	Link
Disallow negative ngram_widths values in tf.raw_ops.StringNGrams · tensorflow/tensorflow@c283e54 · GitHub	github.com text/html	 MISC github.com/tensorflow/tensorflow/commit/c283e542a3f422420cfdb332414543b62fc4e4a5
Bad alloc in `StringNGrams` caused by integer conversion · Advisory · tensorflow/tensorflow · GitHub	github.com text/html	 CONFIRM github.com/tensorflow/tensorflow/security/advisories/GHSA-h6jh-7gv5-28vg

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Related QID Numbers

981515 Python (pip) Security Update for tensorflow-gpu (GHSA-h6jh-7gv5-28vg)

Known Affected Configurations (CPE V2.3)

Type	Vendor	Product	Version	Update	Edition	Language
Application	Google	Tensorflow	All	All	All	All
Application	Google	Tensorflow	2.5.0	All	All	All
Application	Google	Tensorflow	2.6.0	rc0	All	All
Application	Google	Tensorflow	2.6.0	rc1	All	All
Application	Google	Tensorflow	2.6.0	rc2	All	All

```
cpe:2.3:a:google:tensorflow:*.:*:*:*:*:*:*:
```

```
cpe:2.3:a:google:tensorflow:2.5.0:*:*:*:*:*:
```

```
cpe:2.3:a:google:tensorflow:2.6.0:rc0:.*:.*:.*:.*:.*:.*
```

```
cpe:2.3:a:google:tensorflow:2.6.0:rc1:::*:*.*.*.*.*.*.*.*.*
```

```
cpe:2.3:a:google:tensorflow:2.6.0:rc2:*:*:*:*:*:
```

No vendor comments have been submitted for this CVE

Social Mentions

Source	Title	Posted (UTC)
 @CVEreport	CVE-2021-37646 : TensorFlow is an end-to-end open source platform for machine learning. In affected versions the im... twitter.com/i/web/status/1...	2021-08-12 21:17:50
 @LinInfoSec	Tensorflow - CVE-2021-37646: github.com/tensorflow/ten...	2021-08-12 22:40:41

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