ROBERT KOCH INSTITUT

Coronavirus Disease 2019 (COVID-19) Daily Situation Report of the Robert Koch Institute

10/05/2020 - UPDATED STATUS FOR GERMANY

Confirmed cases	Deaths	Deaths (%)	Recovered
169,218 (+ 667*)	**7,395** (+ 26*)	**4.4%**	**ca. 144,400****

– Changes since the last report are marked blue in the text –

**Change from previous day; **Estimate*

Summary (as of 10/05/2020, 12:00 AM)

- In total, 169,218 COVID-19 cases and 7,395 deaths due to COVID-19 have been electronically reported to the Robert Koch Institute in Germany.
- The cumulative incidence (cases per 100,000) of COVID-19 is currently highest in Bavaria (339), Baden-Wuerttemberg (301), Saarland (269) and Hamburg (259).
- Most cases (69%) are between 15 and 59 years old. Women (52%) and men (48%) are almost equally affected.
- People aged 70 years or older account for 86% of deaths but only 19% of all cases.
- COVID-19 outbreaks in nursing homes and hospitals continue to be reported. In some of these outbreaks, the number of deaths is relatively high.

Epidemiological Situation in Germany

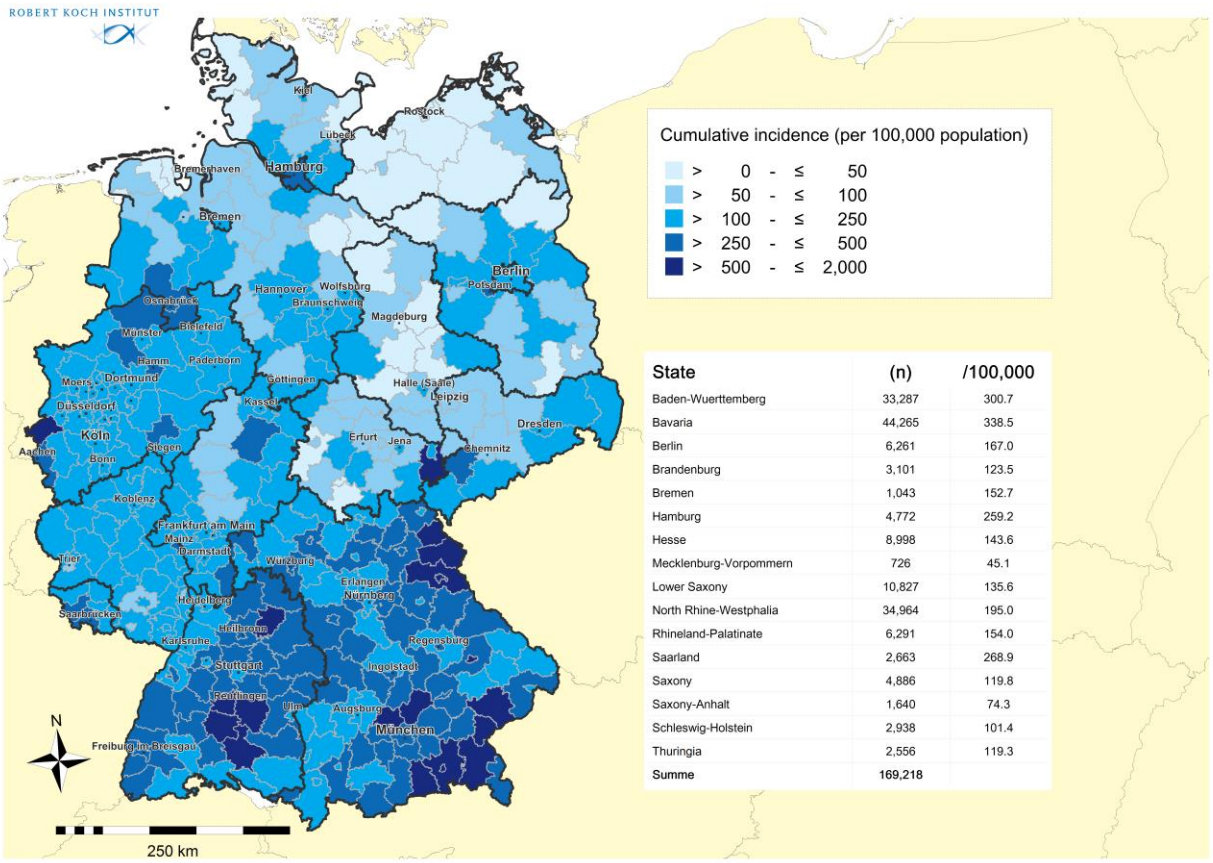
Geographical distribution of cases

Epidemiological analyses are based on validated cases notified electronically to the Robert Koch Institute (RKI) in line with the Protection Against Infection Law (Data closure: 12:00 AM daily). Since January 2020, a total of 169,218 (+667) laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been electronically reported to and validated by the RKI, including 7,395 deaths (see Table 1 and Figure 1). Information on confirmed cases is also available on the RKI website at https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Fallzahlen.html and https://corona.rki.de.

Table 1: Number and cumulative incidence (per 100,000 population) of notified laboratory-confirmed COVID-19 cases and deaths for each federal state, Germany (10/05/2020, 12:00 AM).

Federal State	Total Number of cases	Number of new cases	Cases/100,000 pop.	Number of deaths	Number of deaths/ 100,000 pop.
Baden-Wuerttemberg	33,287	182	301	1.542	13,9
Bavaria	44,265	96	339	2.153	16.5
Berlin	6,261	19	167	165	4.4
Brandenburg	3,101	3	123	134	5.3
Bremen	1,043	19	153	32	4.7
Hamburg	4,772	0	259	204	11.1
Hesse	8,998	82	144	411	6.6
Mecklenburg-Western Pomerania	726	4	45	19	1.2
Lower Saxony	10,827	24	136	498	6.2
North Rhine-Westphalia	34,964	147	195	1,425	7.9
Rhineland-Palatinate	6,291	9	154	195	4.8
Saarland	2,663	3	269	142	14.3
Saxony	4,886	13	120	187	4.6
Saxony-Anhalt	1,640	3	74	48	2.2
Schleswig-Holstein	2,938	40	101	123	4.2
Thuringia	2,556	23	119	117	5.5
Total	**169,218**	**667**	**204**	**7,395**	**8.9**

Note: The report is a snapshot and is continuously updated.



State	(n)	/100,000
Baden-Wuerttemberg	33,287	300.7
Bavaria	44,265	338.5
Berlin	6,261	167.0
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Saxony-Anhalt	1,640	74.3
Schleswig-Holstein	2,938	101.4
Thuringia	2,556	119.3
Summe	**169,218**	

Figure 1: Number and cumulative incidence (per 100,000 population) of the 169,218 electronically reported COVID-19 cases in Germany by county and federal state (10/05/2020, 12:00 AM). Please see the COVID-19 dashboard (https://corona.rki.de/) for information on number of COVID-19 cases by county (local health authority).

Distribution of cases over time

The first COVID-19 cases in Germany were notified in January 2020. The onset of symptoms is unknown in 55,043 cases, and the date of reporting is therefore provided (see Figure 2).

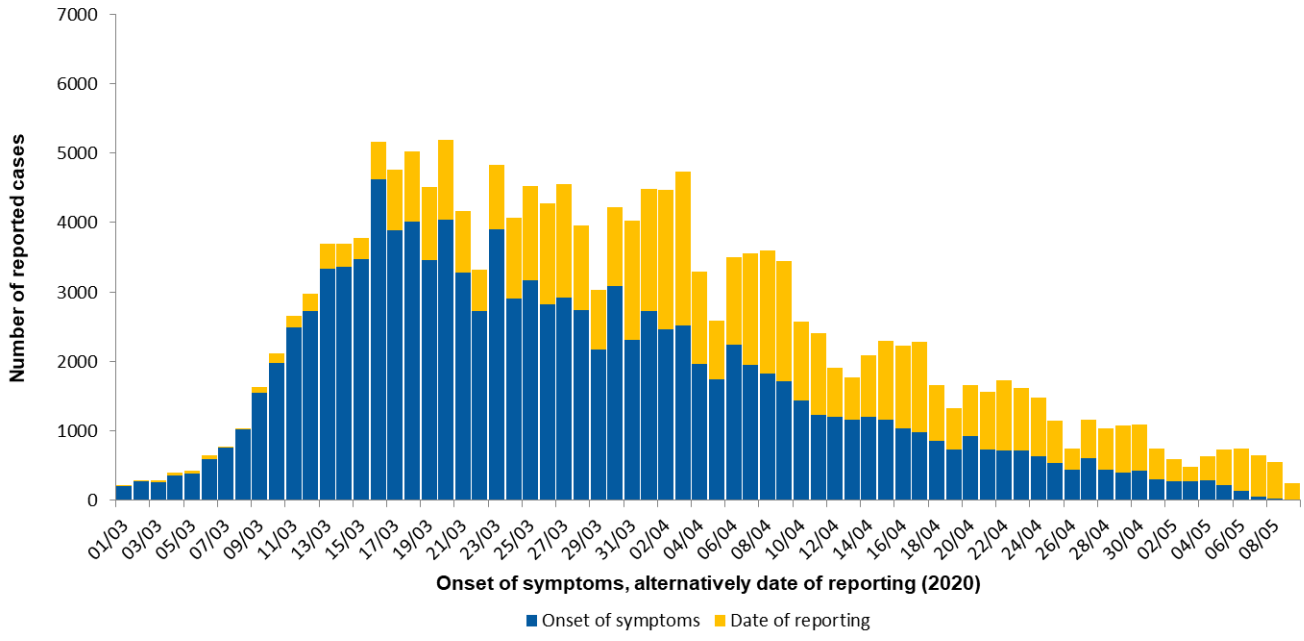

Figure 2: Number of electronically reported COVID-19 cases in Germany by date of symptom onset and by date of reporting from 01/03/2020 (10/05/2020, 12:00 AM).

Note: The report is a snapshot and is continuously updated.

Demographic distribution of cases

Of all reported cases, 52% are female and 48% are male. Among notified cases, 3,091 were children under 10 years of age (1.8%), 7,225 children and teenagers aged 10 to 19 years (4.3%), 72,651 persons aged 20 to 49 years (43%), 53,766 persons aged 50 to 69 years (32%), 27,502 persons aged 70 to 89 years (16%) and 4,839 persons aged 90 years and older (2.9%). The age is unknown in 144 notified cases. The mean and median age of cases are both 50 years. The highest incidences are seen in persons aged 90 years and older (see Figure 3).

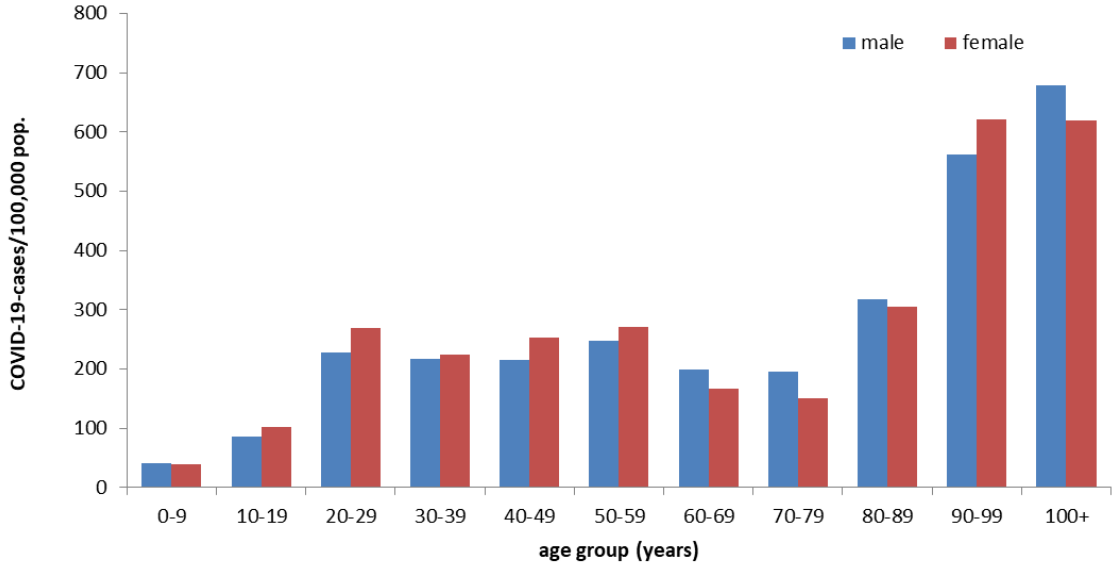

Figure 3: Electronically reported COVID-19 cases/100,000 population in Germany by age group and gender (n=168,697) for cases with information available (10/05/2020, 12:00 AM).

Clinical aspects

Information on symptoms is available for 139,704 (83%) of the notified cases. Common symptoms are cough (49%), fever (41%) and rhinorrhoea (21%). Pneumonia was reported in 3,992 cases (2.9%). Hospitalisation was reported for 24,620 (18%) of 139,495 COVID-19 cases with information on hospitalisation status. Since calendar week 17, cases are reported to the RKI as a distinct COVID-19 surveillance category, similar to other reported infectious diseases. Since then, loss of smell and taste can also be entered as symptoms. At least one of these two symptoms were reported in 959 of 6,454 cases (15%) recorded in the COVID-19 category.

Approximately 144,400 people have recovered from their COVID-19 infection. Since the exact date of recovery is unknown in most cases, an algorithm was developed to estimate the number of recovered cases.

Of the 7,395 COVID-19-related deaths reported in Germany 4,117 (56%) are men and 3,273 (44%) are women (gender was unknown in five cases) (see Table 2). The median age was 82 years. Of all deaths, 6,391 (86%) were in people age 70 years or older, but only 19% of all cases were in this age group. COVID-19 outbreaks continue to be reported in nursing homes and hospitals. In some of these outbreaks, the number of deaths is relatively high.

Table 2: Number of notified COVID-19 deaths by age group and gender (Data available for 7,390 of notified deaths; 10/05/2020, 12:00 AM)

Gender	Age group (in years)										
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+
Male		2	5	12	39	187	498	1,125	1,768	476	5
Female	1		2	6	13	61	176	536	1,577	860	41
Total	**1**	**2**	**7**	**18**	**52**	**249**	**675**	**1,663**	**3,346**	**1,336**	**46**

Occupation, accommodation or care in facilities

In accordance with the Protection Against Infection Law (IfSG), the RKI receives information on occupation, accommodation or care in a facility relevant for infection control for reported COVID-19 cases (see Table 5).

Since information on care/attendance, accommodation and occupation in these facilities is missing in 33% of cases, the proportion of cases cared for, accommodated or working in these facilities shown here should be considered minimums values. Among the COVID-19 cases reported as being cared for/attending, accommodated in or working in all of the above mentioned facilities, the proportion of cases that actually acquired their infection in these settings is unknown.

Table 3: Notified COVID-19-cases according to possible occupation, accommodation or care in facilities relevant for transmission of infectious diseases (168,284 cases, no data available for 55,045 cases; 10/05/2020, 12:00 AM)

Facility according to		Total	Hospitalised	Deaths	Recovered (estimate)
§ 23 IfSG (e.g. hospitals, outpatient clinics and practices, dialysis clinics or outpatient nursing services)	Cared for / accommodated in facility	**2,485**	1,646	454	1,500
	Occupation in facility	**11,067**	490	17	10,100
§ 33 IfSG (e.g. day care facilities, kindergartens, facilities for after school care, schools or other educational facilities, children's homes, holiday camps)	Cared for / accommodated in facility	**1,800***	51	1	1,600
	Occupation in facility	**2,174**	109	7	2,100
§ 36 IfSG (e.g. facilities for the care of older, disabled, or other persons in need of care, homeless shelters, community facilities for asylum-seekers, repatriates and refugees as well as other mass accommodation and prisons)	Cared for / accommodated in facility	**13,705**	3,098	2,728	8,400
	Occupation in facility	**8,006**	329	37	7,100
§ 42 IfSG (e.g. kitchens in the catering trade, in inns, restaurants, canteens, cafés, or other establishments with or for communal catering)	Occupation in facility	**1,725**	114	56	1,100
Neither cared for, accommodated in nor working in a facility		**72,277**	13,059	2,800	65,000

*for care according to § 33 IfSG only cases under 18 years of age are taken into account, as other information may be assumed to be incorrect.
IfSG: Protection Against Infection Law

Until now, 11,067 cases with a SARS-CoV-2 infection have been notified among staff working in medical facilities as defined by Section 23 IfSG. Among the cases reported as working in medical facilities, 73% were female and 27% male. The median age was 41 years, 17 persons died.

The high number of cases among people cared for or working in various care facilities (Section 36 IfSG) is consistent with numerous reported outbreaks, especially in nursing homes. The low number of cases among persons who attend or work in facilities providing child care or education (Section 33 IfSG) reflects the low incidence in children observed thus far.

Outbreak

Due to COVID-19 outbreaks in six retirement homes in the district of Greiz, Thuringia, a 7-day-incidence of 74 cases per 100,000 population was reported. Last weekend 855 residents and employees from 6 retirement homes were tested and 47 tested positive for coronavirus.
Since the end of April, COVID-19 outbreaks were also reported in meat factories in Baden-Wuerttemberg, North Rhine-Westphalia and Schleswig-Holstein, with case numbers ranging from 100 to 350.

Estimation of the reproduction number (R)

The presented case numbers do not fully reflect the temporal progression of incident COVID-19 cases, since the time intervals between actual onset of illness and diagnosis, reporting, as well as transmission to the RKI vary greatly. Therefore, a nowcasting approach is applied to model the true temporal progression of COVID-19 cases according to illness onset. Figure 4 shows the result of this analysis.

The reproduction number, R, is defined as the mean number of people infected by a case. R can only be estimated based on statistical analyses such as nowcasting and not directly extracted from the notification system. The nowcasting analysis and the R-estimate are based on all COVID-19 cases reported to the RKI with an illness onset up to 3 days before data closure. Cases with a more recent illness onset are excluded from this analysis since their as yet low number would lead to unstable estimates.

The number of incident cases estimated using the nowcasting approach is presented as a moving 4-day average to compensate for random effects of individual days (Fig. 5). With this approach, the point estimate of R for a given day is estimated as the quotient of the number of incident cases on this day divided by the number of incident cases four days earlier. The current estimate is R= 1.13 (95% prediction interval: 0.94- 1.35) and is based on electronically notified cases as of 10/05/2020, 12:00 AM.

Since yesterday, the estimate of the reproduction number R is greater than 1. The interpretation of this development must take into account that these estimates are linked to a degree of uncertainty as reflected by the prediction interval published daily together with the reproduction number. Due to statistical fluctuations, which are amplified by the overall lower number of cases, it is therefore still not possible to assess whether the decreasing trend in the number of incident cases observed over the past few weeks will continue or whether case numbers will again increase. The increase in the reproduction number R makes it necessary to observe the development very closely over the coming days.

A detailed description of the methodology is available at
https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2020/17/Art_02.html (Epid. Bull. 17 | 2020 from 23/04/2020)

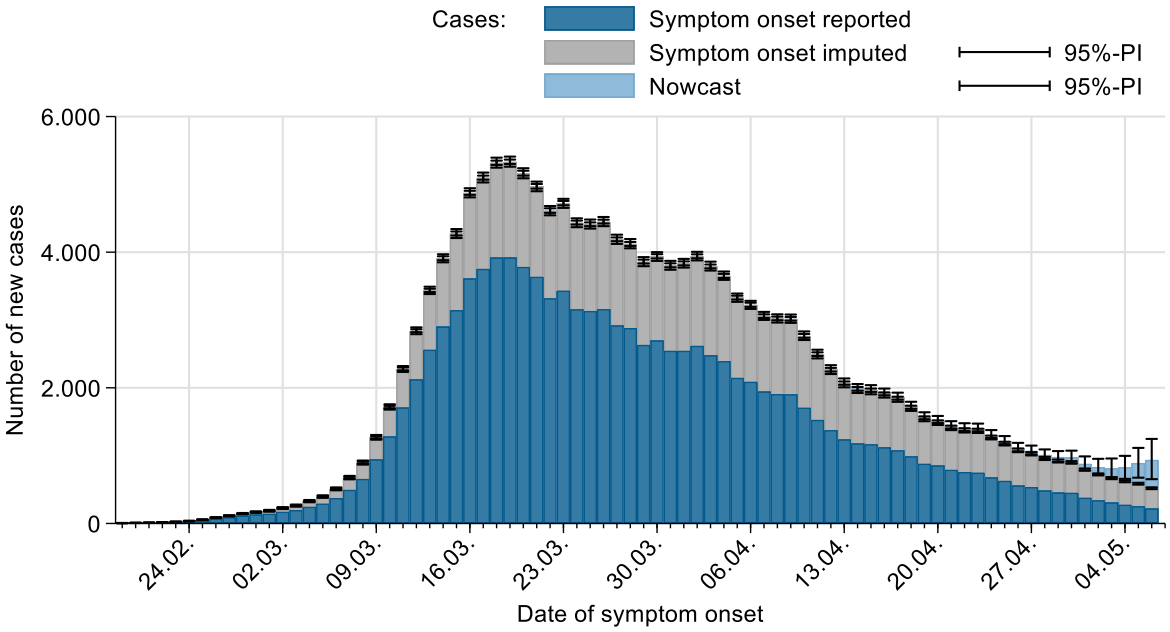

Figure 4: Display of cases with known onset of the disease (dark blue), estimated onset of the disease for cases where the onset of the disease has not beed reported (grey) and estimated course of already symptomatic cases (light blue) (as of 10/05/2020 12 AM, taking into account cases up to 06/05/2020).

DIVI intensive care register

A registry of the German Interdisciplinary Association for Intensive and Emergency Medicine (DIVI), the RKI and the German Hospital Federation (DKG) was established to document intensive care capacity as well as the number of COVID-19 cases treated in participating hospitals (https://www.intensivregister.de/#/intensivregister). The DIVI intensive care register documents the number of available intensive care beds in the reporting hospitals on a daily basis. Since 16/04/2020, all hospitals with intensive care beds are required to report.

As of 10/05/2020, a total of 1,212 hospitals or departments reported to the DIVI registry. Overall, 31,430 intensive care beds were registered, of which 19,165 (61%) are occupied, and 12,265 beds (39%) are currently available. The number of COVID-19 cases treated in participating hospitals is shown in Table 4.

Table 4: COVID-19 patients requiring intensive care (ICU) recorded in the DIVI register (10/05/2020, 9:15 AM).

	Number of patients	Percentage	Change to previous day
Currently in ICU	1,581		-69
- of these: mechanically ventilated	1,073	68%	-48
Discharged from ICU	10,883		-87
- of these: deaths	2,988	27%	-28

Note: The report is a snapshot and is continuously updated.

Assessment by the RKI

At the global and the national level, the situation is very dynamic and must be taken seriously. Severe and fatal courses occur in some cases. The number of newly reported cases, hospitalisations and fatalities in Germany is decreasing. The RKI currently assesses the risk to the health of the German population overall as **high** and as **very high** for risk groups. The probability of serious disease progression increases with increasing age and underlying illnesses. The risk of disease varies from region to region. The burden on the health care system depends on the geographical and age distribution of cases, health care capacity and initiation of containment measures (isolation, quarantine, physical distancing etc.), and may be very high in some geographical regions. This assessment may change on short notice as a result of new findings.

Measures taken by Germany

- (Non-medical) face masks must now be worn on public transport and in shops in all federal states.
- Data on current disease activity can be found in the daily situation reports and on the RKI dashboard https://corona.rki.de/.
- RKI teams are currently supporting outbreak containment measures with a focus on outbreaks in retirement and health care homes as well as hospitals in several federal states.
- In public spaces, a distance of 1.5 metres to other indivduals must maintained https://www.bundesregierung.de/breg-de/themen/coronavirus/besprechung-der-bundeskanzlerin-mit-den-regierungschefinnen-und-regierungschefs-der-laender-1733248 *(in German)*
- A new federal law was implemented on 28/03/2020 for the protection of the public in the event of epidemic situations, granting the federal government additional competencies for the control of epidemics: https://www.bundesgesundheitsministerium.de/presse/pressemitteilungen/2020/1-quartal/corona-gesetzespaket-im-bundesrat.html *(in German)*
- On 15/04/2020, the German government and the federal states agreed to gradually reduce social distancing measures https://www.bundesregierung.de/breg-de/themen/coronavirus/fahrplan-corona-pandemie-1744202 (*in German*)

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